



# 國電科技環保集團股份有限公司

GUODIAN TECHNOLOGY & ENVIRONMENT GROUP CORPORATION LIMITED\*

(於中華人民共和國註冊成立的股份有限公司)  
(a joint stock limited liability company incorporated in the People's Republic of China)

Stock Code 股份代號 : 01296  
www.01296.hk



# 2018

## ANNUAL REPORT

### 年度報告

\* For identification purpose only  
僅供識別

# TOP 10 MILESTONES OF GUODIAN TECH 2018

## 國電科環2018年度十大新聞



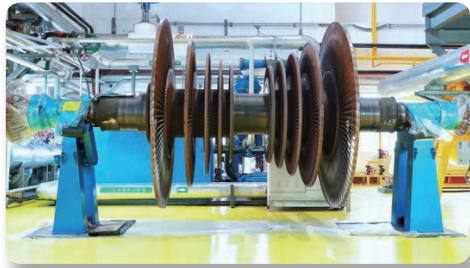
**01** On 9 August 2018, Guodian Zhishen entered into the Haixi Multi-Complementary Integrated Optimization Demonstration Project with Luneng Group Co., Ltd.  
2018年8月9日，國電智深簽訂魯能集團有限公司海西州多能互補集成優化示範工程項目



**02** On 20 October 2018, the Autonomous High-pressure Pitch Servo Drive and Integrated Pitch Programmable Logic Controller of Huadian Tianren were successfully connected to the grid.  
2018年10月20日，華電天仁自主化高壓變換伺服驅動器和一體式變換可編程邏輯控制器成功並網



**03** On 29 October 2018, the first Ultra-high Sulfur Coal Ultra-low Emission Project undertaken by Longyuan Environmental passed trial operation.  
2018年10月29日，龍源環保承建的我國首個超高硫煤超低排放項目通過試運



**04** On 17 November 2018, Energy-saving Company ranked first among top 100 national energy service companies for the year 2018.  
2018年11月17日，節能公司榮登2018年全國節能服務公司百強榜第一名



**05** On 27 November 2018, the heat supply system under Lanzhou Project undertaken by Longyuan Technology was successfully put into operation.  
2018年11月27日，龍源工程承建的蘭州項目供熱系統順利投運



**06** On 10 December 2018, Longyuan Technology obtained the Class A boiler manufacturing license.  
2018年12月10日，龍源技術獲得A級鍋爐製造許可證



**07** On 12 December 2018, United Power won the second prize of 2018 National Science and Technology Progress Award.  
2018年12月12日，聯合動力榮獲2018年國家科技進步二等獎



**08** On 12 December 2018, the Group held the activity day for the Party with the theme of "Great Country Craftsman".  
2018年12月12日，本集團舉辦“大國工匠”主題黨日活動



**09** On 25 December 2018, the independent invention patent of United Power won the 20th China Patent Gold Award.  
2018年12月25日，聯合動力公司自主發明專利榮獲第二十屆中國專利金獎



**10** On 26 December 2018, the First Innovation and Creation Competition of China Energy held by the Group was successfully concluded.  
2018年12月26日，由本集團承辦的國家能源集團首屆創新創意大賽順利閉幕

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# CORPORATE INFORMATION

## 公司資料

### DIRECTORS

#### Executive Directors

Mr. CHEN Dongqing (*Chairman*)  
Mr. ZHANG Jun (*General Manager*)  
Mr. TANG Chaoxiong

#### Non-executive Directors

Mr. WANG Zhongqu  
Mr. ZHANG Wenjian  
Mr. GU Yuchun  
Mr. YAN Andrew Y.

#### Independent Non-executive Directors

Mr. SHEN Xiaoliu  
Mr. QU Jiuhui  
Mr. XIE Qiuye  
Mr. YEUNG Chi Tat

### SUPERVISORS

Mr. LUAN Baoxing (*Chairman*)  
Mr. XU Xingzhou  
Mr. YANG Xiangbin  
Ms. HE Lili  
Mr. LI Wei

### LEGAL ADVISORS

#### International

Herbert Smith Freehills (as to Hong Kong law)  
23/F, Gloucester Tower  
15 Queen's Road Central  
Central, Hong Kong

#### PRC

King & Wood Mallesons (as to PRC law)  
20/F, East Tower, World Financial Center  
1 Dongsanhuan Zhonglu  
Chaoyang District, Beijing, PRC

### AUDITORS

#### International

KPMG  
Certified Public Accountants  
8/F, Prince's Building  
10 Chater Road  
Central Hong Kong

#### PRC

ShineWing Certified Public Accountants  
(Special General Partnership)  
9/F, Block A Fu Hua Mansion  
No.8 Chao Yang Men Bei Da Jie  
Dong Cheng District, Beijing, PRC

### JOINT COMPANY SECRETARIES

Mr. CAI Zhaowen  
Mr. LEE Kwok Fai Kenneth <sup>(1)</sup>

### AUTHORIZED REPRESENTATIVES

Mr. CHEN Dongqing  
Mr. LEE Kwok Fai Kenneth <sup>(1)</sup>

### 董事

#### 執行董事

陳冬青先生(*主席*)  
張軍先生(*總經理*)  
唐超雄先生

#### 非執行董事

王忠渠先生  
張文建先生  
顧玉春先生  
閻焱先生

#### 獨立非執行董事

申曉留先生  
曲久輝先生  
謝秋野先生  
楊志達先生

### 監事

樂寶興先生(*主席*)  
許興洲先生  
楊向斌先生  
何麗麗女士  
李偉先生

### 法律顧問

#### 國際

史密夫斐爾律師事務所(有關香港法律)  
香港中環  
皇后大道中15號  
告羅士打大廈23樓

#### 中國

金杜律師事務所(有關中國法律)  
中國北京市朝陽區東三環中路1號  
環球金融中心辦公樓東樓20層

### 核數師

#### 國際

畢馬威會計師事務所  
執業會計師  
香港中環  
遮打道10號  
太子大廈8樓

#### 中國

信永中和會計師事務所  
(特殊普通合夥)  
中國北京市東城區  
朝陽門北大街8號  
富華大廈A座9層

### 聯席公司秘書

蔡兆文先生  
李國輝先生<sup>(1)</sup>

### 授權代表

陳冬青先生  
李國輝先生<sup>(1)</sup>

## CORPORATE INFORMATION (CONTINUED)

### 公司資料(續)

#### LEGAL ADDRESS

Suite 1101, 11/F, Building 1  
Yard 16, W.4th Ring Middle Road  
Haidian District, Beijing, PRC

#### HEAD OFFICE IN PRC

Building 1  
Yard 16, W.4th Ring Middle Road  
Haidian District, Beijing, PRC

#### PRINCIPAL PLACE OF BUSINESS IN HONG KONG

Flat L, 15/F, Hong Kong Mansion  
1 Yee Wo Street, Causeway Bay  
Hong Kong

#### NOMINATION COMMITTEE

Mr. XIE Qiuye (*Chairman*)  
Mr. QU Jiuhui  
Mr. TANG Chaoxiong

#### AUDIT COMMITTEE

Mr. YEUNG Chi Tat (*Chairman*)  
Mr. SHEN Xiaoliu  
Mr. ZHANG Wenjian

#### REMUNERATION AND APPRAISAL COMMITTEE

Mr. QU Jiuhui (*Chairman*)  
Mr. XIE Qiuye  
Mr. WANG Zhongqu

#### STRATEGIC COMMITTEE

Mr. CHEN Dongqing (*Chairman*)  
Mr. SHEN Xiaoliu  
Mr. GU Yuchun  
Mr. YAN Andrew Y.  
Mr. ZHANG Jun

#### H SHARE REGISTRAR

Computershare Hong Kong Investor Services Limited

#### WEBSITE ADDRESS

www.01296.hk

#### PRINCIPAL BANKS

Industrial and Commercial Bank of China Limited  
(Beijing Cuiwei Road Sub-branch)  
Bank of Communications Corporation Limited (Hong Kong Branch)

Note:

- (1) Mr. LEE Kwok Fai Kenneth was appointed as the Joint Company Secretary, Authorized Representative and agent for services of process in Hong Kong of the Company with effect from 23 August 2018.

#### 法定地址

中國北京市海淀區  
西四環中路16號院  
1號樓11層1101室

#### 中國主要辦事處

中國北京市海淀區  
西四環中路16號院  
1號樓

#### 香港主要營業地點

香港  
銅鑼灣怡和街1號  
香港大廈15樓L室

#### 提名委員會

謝秋野先生 (*主席*)  
曲久輝先生  
唐超雄先生

#### 審計委員會

楊志達先生 (*主席*)  
申曉留先生  
張文建先生

#### 薪酬與考核委員會

曲久輝先生 (*主席*)  
謝秋野先生  
王忠渠先生

#### 戰略委員會

陳冬青先生 (*主席*)  
申曉留先生  
顧玉春先生  
閻焱先生  
張軍先生

#### H股證券登記處

香港中央證券登記有限公司

#### 網址

www.01296.hk

#### 主要往來銀行

中國工商銀行股份有限公司  
(北京翠微路支行)  
交通銀行股份有限公司(香港分行)

附註:

- (1) 李國輝先生獲委任為本公司聯席公司秘書、授權代表及與香港接收法律程序代表，自2018年8月23日生效。



# CORPORATE PROFILE

## 公司介紹

Guodian Tech, formerly Guodian Technology & Environment Group Co., Ltd., was converted into a joint stock limited liability company on 16 May 2011 and listed on the Main Board of The Stock Exchange of Hong Kong Limited (the “**HKEX**”) on 30 December 2011. The principal businesses of the Company, together with its subsidiaries, (the “**Group**”), are carried out under two segments, namely, the business of environmental protection and energy conservation solutions, and the business of renewable energy equipment manufacturing and services. The Group, with its advanced technologies and diversified business models, is a leading market player in the PRC in these industries. In addition, the Group has successively been listed into Global TOP 500 New Energy Enterprises for seven years since 2012.

In its environmental protection and energy conservation solutions business, the Group is the largest supplier of technology and integrated systems solutions to coal-fired power plants in the PRC, providing innovative and advanced technology designed to reduce pollutant emissions and to maximize efficiency of resource utilization, with the overall objective of reducing the environmental impacts of coal-fired electricity generation while maximizing cost-efficiency and profitability for its customers. Leveraging on its comprehensive environmental protection and energy conservation technologies and solutions for all aspects of coal-fired power plants (with the core business as desulfidation, denitration, water treatment, plasma ignition and combustion stabilization, and energy management contracts), the Group is capable of providing one-stop solutions for its customers that are tailored to meet their specific needs. The Group is also one of the leading manufacturers of wind power generation equipment in the PRC in its renewable energy equipment manufacturing and services business, with a well-established brand and is well-known for its product quality and high standards of performance. In line with its strategic focus on providing integrated solutions and services, the Group also provides renewable energy related services such as the maintenance and repair of wind turbine generators.

Focusing on technological innovation and industrial applications, the Group has gained a number of innovative achievements in relation to significant technology and product innovation through original creation, resource integration innovation and technological advancements. Among its leading technologies in the PRC and globally, the Group’s plasma ignition technology is ranked first in the world. In the domestic market, the Group possesses a leading position in many technologies, including wet flue gas desulfurization, seawater desulfurization, boiler low-nitrogen combustion and flue gas denitrification. Beijing Guodian Longyuan Environmental Engineering Co., Ltd. (“**Longyuan Environmental**”), Yantai Longyuan Power Technology Co., Ltd. (“**Longyuan Technology**”) (SZ.300105), Guodian United Power Technology Co., Ltd. (“**United Power**”), Beijing Huadian Tianren Power Controlling Technology Co., Ltd. (“**Huadian Tianren**”) and Beijing Guodian Zhishen Control Technology Co., Ltd. (“**Guodian Zhishen**”) have become well-known brand names in the PRC.

國電科環前身為國電科技環保集團有限公司，於2011年5月16日正式改製成為股份有限公司並於2011年12月30日在香港聯合交易所有限公司(「**聯交所**」)主板上市。本公司及附屬公司(「**本集團**」)之主營業務分為兩部分，即環保節能解決方案業務和可再生能源設備製造及服務業務。本集團憑藉其先進的技術和多元化的業務模式躋身於國內行業領先地位。從2012年至今，本集團連續七年榮獲全球新能源企業500強。

於環保節能解決方案業務方面，本集團為中國最大的燃煤電廠技術及集成系統解決方案供貨商，提供為減少污染物排放及提升資源利用效率而設計的創新和先進的技術，整體目標為減低燃煤發電相關的環境影響，以及提升其客戶的成本效益及盈利能力。憑藉其為燃煤電廠提供的全方面綜合環保節能技術及解決方案(核心業務為脫硫、脫硝、水處理、等離子體點火穩燃及合同能源管理)，本集團能為其客戶提供「一站式」的解決方案，量身訂製滿足其客戶的特定需要。於可再生能源設備製造及服務業務方面，本集團亦為中國領先的風力發電設備製造商之一，已建立穩固的品牌，並以其產品質量及性能著稱。與其提供集成解決方案及服務的戰略重點一致，本集團亦致力於可再生能源相關服務，如風力發電機組保養及維修業務。

本集團專注於科技創新和產業化應用，通過原始創新、資源集成創新與技術引進並再創新，取得了一大批科技創新成果，有多項技術達到國際、國內領先水平，其中本集團的等離子體點火技術水準居世界第一位，本集團的煙氣濕法脫硫、海水脫硫、鍋爐燃燒降氮、煙氣脫硝技術始終保持國內領先地位，北京國電龍源環保工程有限公司(「**龍源環保**」)、煙台龍源電力技術股份有限公司(「**龍源技術**」)(SZ.300105)、國電聯合動力技術有限公司(「**聯合動力**」)、北京華電天仁電力控制技術有限公司(「**華電天仁**」)、北京國電智深控制技術有限公司(「**國電智深**」)已成為享譽中國的知名品牌。

## CORPORATE PROFILE (CONTINUED) 公司介紹(續)

As of 31 December 2018, the Group has had 4 national scientific research platforms including “National Key Laboratory for Wind Power Equipment and System Technology”, 11 province-level scientific research platforms, 1 academician and expert workstation and 2 post-doctoral scientific research workstations. The Group has undertaken 52 sustainable scientific research and development (“R&D”) projects, amongst which 22 are ministerial, provincial and municipal technical projects outside China Energy. During the year, the Group has made remarkable achievements in aspects of new WTG model research, thermal power plant ultra-clean discharge treatment, thermal power plant water saving, zero wastewater discharge, comprehensive energy conservation and technology research and development of thermal power plant, etc.. In 2018, the Group acquired 324 patents, including 50 invention patents, won 1 second prize of National Science and Technology Progress Award (publication completed), 14 provincial and ministerial awards, 1 gold prize of China Patent Award, gaining an absolute advantage in benchmarking its position in the industry.

The Company believes that its strategic focus on investing in and promoting R&D as a core activity to support the development of its various businesses has yielded substantial returns, allowing the Company to maintain its established position at the forefront of technological advancements in the environmental protection, energy conservation and renewable energy industries, and to develop innovative, practical and cost-efficient solutions and technological applications and high-quality products in these industries. The Company also believes that these industries will play a key role in the sustainable growth and development of the energy and power sector in the PRC, which in turn is indispensable to the sustainable growth and development of the economy in the PRC. Going forward, the Company expects to leverage on its operations in the PRC to explore the international market, with the objective of becoming a leading supplier of integrated clean technology solutions and services.

截至2018年12月31日，本集團擁有「風電設備及系統技術國家重點實驗室」等4個國家級科研平台、11個省部級科研平台、1個院士專家工作站及2個博士後科研工作站。本集團承擔持續科研開發（「研發」）項目共計52項，其中國家部委、省市等系統外立項在研科技項目共計22項。本年度在風機新機型研發、火電廠超淨排放治理、火電廠節水及廢水零排放及火電廠綜合節能技術研發等方面取得顯著成果。2018年全年，共計獲得專利授權324項，其中發明專利50項，獲得國家科學技術進步二等獎1項（已完成公示），獲得省部級獎勵14項，榮獲中國專利金獎1項，在行業對標中佔據絕對優勢。

本公司相信，以投資和促進技術研發作為核心活動來支持本公司多元化業務的重點戰略已經得到了重大回報；使其能夠保持在環保、節能和可再生能源行業中技術領先的主導地位；使其研發出在相關行業中具有創新性、實用性、節約成本的解決方案和技術應用以及高質量的產品。本公司也相信，這些行業將對中國能源及電力產業的可持續發展起到關鍵作用，而能源的可持續發展又是中國經濟可持續發展不可或缺的部份。展望未來，本公司將以成為世界領先的綜合清潔能源技術解決方案和服務提供商為目標，力爭充分利用其在中國的業務拓展國際市場。

# FIVE YEARS FINANCIAL SUMMARY

## 五年財務概要

(Expressed in Renminbi)  
(以人民幣列示)

			2014	2015	2016	2017	2018
	Note	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
	附註	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
		(restated)	(restated)	(restated)	(restated)	(restated)	(restated)
		(重述)	(重述)	(重述)	(重述)	(重述)	(重述)
<b>Continuing operations</b>	<b>持續經營業務</b>						
Revenue	收益	1	25,666,551	19,993,540	15,893,049	11,703,002	<b>11,411,780</b>
Profit/(loss) before taxation from continuing operations	來自持續經營業務之稅前利潤/(虧損)	1	82,606	179,669	529,340	627,415	<b>(59,661)</b>
Income tax	所得稅	1,2	(197,844)	(139,549)	(123,500)	(180,936)	<b>16,965</b>
(Loss)/profit for the year from continuing operations	本年來自持續經營業務之(虧損)/利潤		(115,238)	40,120	405,840	446,479	<b>(42,696)</b>
<b>Discontinued operation</b>	<b>已終止經營業務</b>						
(Loss)/profit for the year from a discontinued operation	本年來自已終止經營業務(虧損)/利潤		-	(4,744,011)	(134,089)	(355,709)	<b>155,059</b>
(Loss)/profit for the year	本年(虧損)/收益		(115,238)	(4,703,891)	271,751	90,770	<b>112,363</b>
<b>Attributable to:</b>	<b>歸屬於：</b>						
Equity shareholders of the Company	本公司權益股東		(372,105)	(4,653,788)	320,672	43,703	<b>114,087</b>
Non-controlling interests	非控股權益		256,867	(50,103)	(48,921)	47,067	<b>(1,724)</b>
<b>(Loss)/profit for the year</b>	<b>本年(虧損)/收益</b>		(115,238)	(4,703,891)	271,751	90,770	<b>112,363</b>
<b>Basic and diluted (loss)/earnings per share (RMB cent)</b>	<b>每股基本及攤薄(虧損)/盈利(以人民幣分列示)</b>						
- Continuing and discontinued operations	- 持續經營業務和已終止經營業務		(1.90)	(77.57)	5.29	0.72	<b>1.88</b>
- Continuing operations	- 持續經營業務		(1.90)	(1.67)	7.48	6.55	<b>(0.68)</b>
- Discontinued operation	- 已終止經營業務		-	(75.90)	(2.19)	(5.83)	<b>2.56</b>
Total non-current assets	非流動資產總額	2	20,170,875	17,616,846	11,885,088	10,851,227	<b>11,534,104</b>
Total current assets	流動資產總額	2	36,758,174	25,335,828	28,333,291	24,757,023	<b>22,623,310</b>
Total assets	資產總額		56,929,049	42,952,674	40,218,379	35,608,250	<b>34,157,414</b>
Total current liabilities	流動負債總額		37,841,594	28,686,925	25,489,235	21,964,491	<b>21,156,406</b>
Total non-current liabilities	非流動負債總額		6,347,071	6,362,796	6,660,589	5,710,494	<b>5,257,836</b>
Net assets	資產淨額		12,740,384	7,902,953	8,068,555	7,933,265	<b>7,743,172</b>
Total equity attributable to equity shareholders of the Company	歸屬於本公司權益股東的權益總額	1,2	9,243,905	4,606,464	4,992,176	4,864,544	<b>4,769,484</b>
Non-controlling interests	非控股權益	2	3,496,479	3,296,489	3,076,379	3,068,721	<b>2,973,688</b>
Total equity	權益總額		12,740,384	7,902,953	8,068,555	7,933,265	<b>7,743,172</b>



## FIVE YEARS FINANCIAL SUMMARY (CONTINUED) 五年財務概要(續)

(Expressed in Renminbi)  
(以人民幣列示)

### Notes:

- 1 As a result of the adoption of IFRS 15, Revenue from contracts with customers, with effect from 1 January 2018, the Group has changed its accounting policies in respect of revenue recognition. In accordance with the transitional provisions of the standard, the changes in accounting policies were adopted by way of opening balance adjustments to equity as at 1 January 2018. Figures in years earlier than 2018 are stated in accordance with the policies applicable in those years.
- 2 The Group adopted IFRS 9, Financial instruments from 1 January 2018. As a result, the Group has changed its accounting policies in relation to financial instruments. As allowed by IFRS 9, the Group has not restated information relating to prior years. Differences in the carrying amounts of the financial assets resulting from the adoption of IFRS 9 were recognised in retained earnings and reserves at 1 January 2018. There was no difference in the carrying amounts of the financial liabilities. Prior to 1 January 2018, figures were stated in accordance with the policies applicable in those years.

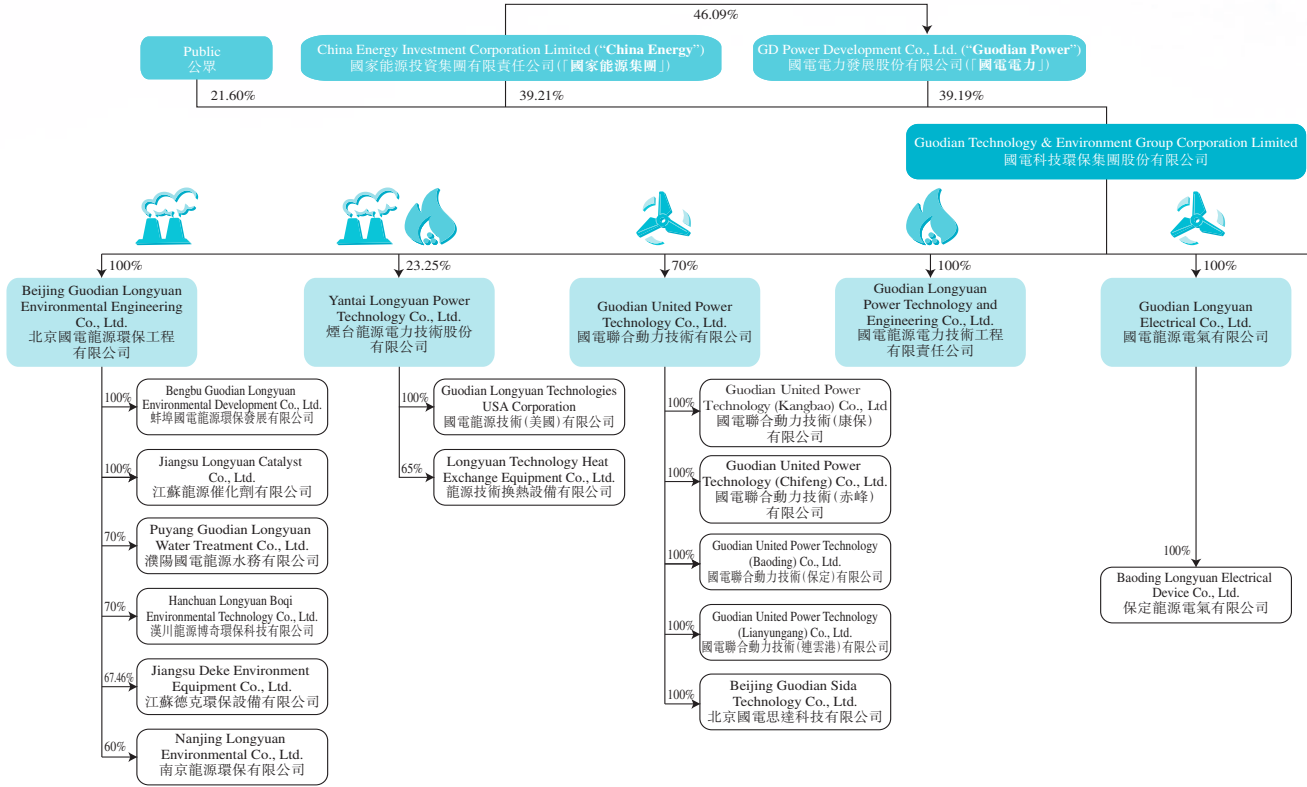
### 附註：

- 1 本集團於2018年1月1日起應用《國際財務報告準則》第15號《客戶合同收入》，改變了收入確認的會計政策。根據過渡要求，已將初始累積影響確認為於2018年1月1日期初權益的調整。2018年之前年度的數字未進行追溯調整。
- 2 本集團於2018年1月1日起應用《國際財務報告準則》第9號《金融工具》，改變了有關金融工具的會計政策。在《國際財務報告準則》第9號允許的情況下，本集團尚未重述往年相關的信息。採用《國際財務報告準則》第9號所產生的金融資產賬面值差異已於2018年1月1日在留存收益及儲備中確認，金融負債賬面值並無差異。2018年之前年度的數字未進行追溯調整。

# CORPORATE STRUCTURE

## 公司架構

\* This chart is updated to 31 December 2018  
 \* 本圖更新至2018年12月31日



Environmental Protection  
環保



Energy Conservation Solutions  
節能解決方案



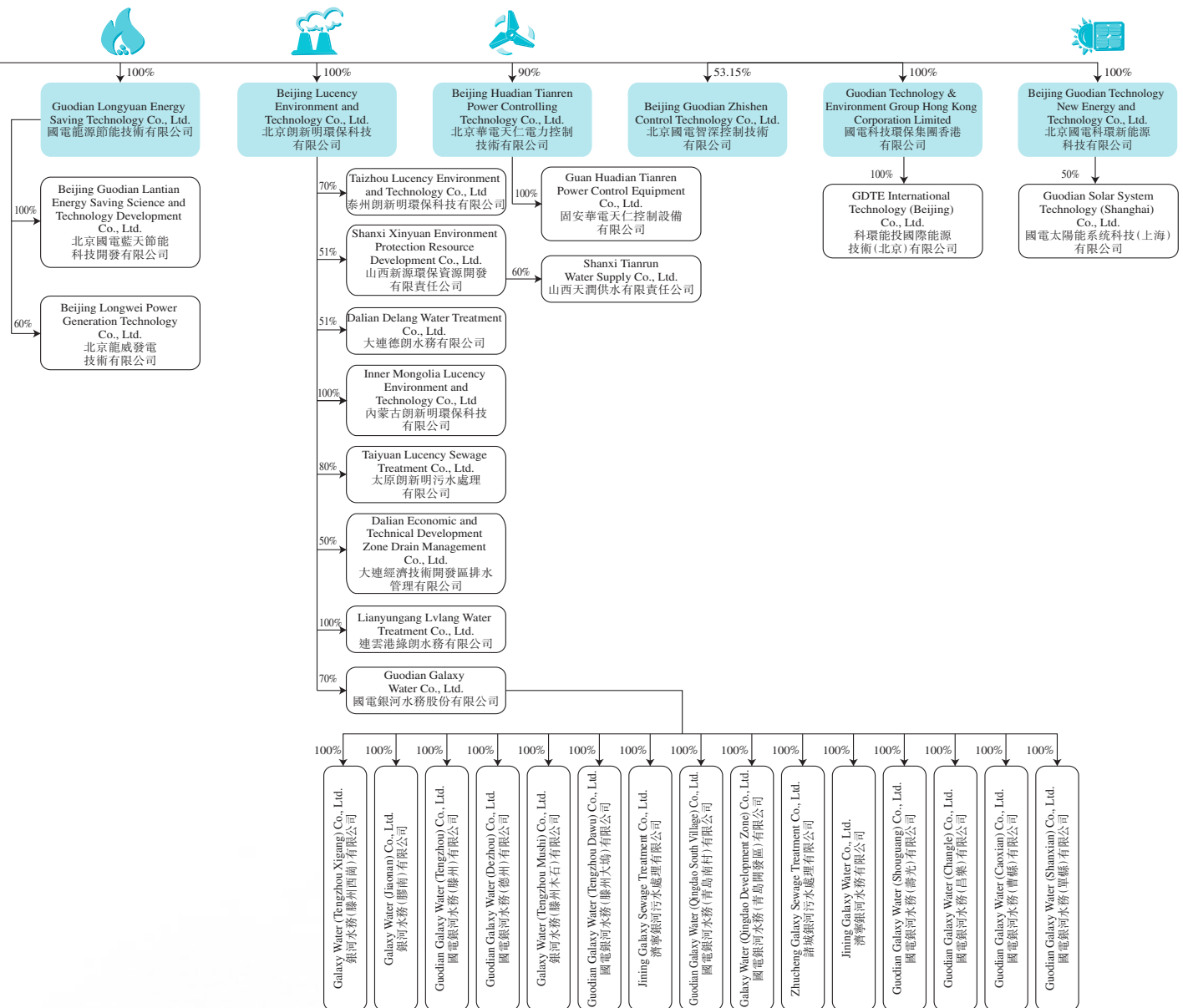
Wind Power Products and Services  
風電產品及服務



Solar Power Products and Services (Discontinued)  
太陽能產品及服務 (已終止經營)

# CORPORATE STRUCTURE (CONTINUED)

## 公司架構(續)



# CHAIRMAN'S STATEMENT

## 董事長致辭



### Dear Shareholders:

On behalf of the board of directors (the "Board") of the Company, I am honored to present to you the 2018 annual report of the Group (the "Annual Report").

In 2018, the global economy continued the recovery momentum of 2017 and maintained steady growth. China's macroeconomic control objective was well accomplished, the "three major battles" had a good start, the supply-side structural reform was advanced deeply, and the reform and opening up were intensified. In 2018, China put forward clear requirements for controlling the total amount of coal consumption, speeding up the development of clean and new energy sources, strengthening the treatment of pollution sources, etc.. The environmental protection standards of energy enterprises were higher, the scope was wider, the supervision was stricter, and the accountability was heavier. The development of enterprises came into the period of pressure, hardship and transition. Guodian Tech will follow the energy structure adjustment and technological enhancement of electric power, according to the target proposed at the 19th CPC National Congress to speed up the reformation of ecological civilization system, build a beautiful China, create a good production and living environment for the people, and contribute to global ecological security. We adhere to the industrial direction of using energy in a cleaner and more efficient manner and win the tough fight against pollution.

Over the years, Guodian Tech has committed to developing and promoting environmental protection and energy conservation solutions and renewable energy technologies while focusing on the breakthrough of a batch of key core technologies, forming a strategic emerging industry cluster with comparative advantages, enhancing its capability to fulfill its corporate social responsibility and promoting clean electricity production. Guodian Tech is now a leading force in China's electric power industry. China Guodian Corporation Ltd. ("Guodian Group") and China Energy, formerly Shenhua Group Corporation Limited) pushed forward the joint reorganization steadily since 2017. After the completing of the joint reorganization, China Energy will become the world's largest coal group, the world's largest thermal power generation group, the world's largest renewable energy generation group and the world's largest coal-oil chemical industry group. The Company will focus on customers and with the aim to create value for customers and achieve win-win development, also we will serve the main industry of China Energy, enhance the role of service and security and support the development of China Energy. For this new journey in the new era, we will strive to achieve the highest peak of energy technology in the world.

### 尊敬的股東：

我很榮幸代表本公司董事會(「董事會」)向各位股東公佈本集團2018年年度報告(「年報」)。

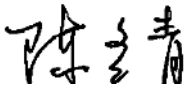
2018年全球經濟延續2017年的復甦勢頭，保持穩定增長，我國經濟宏觀調控目標較好完成，三大攻堅戰開局良好，供給側結構性改革深入推進，改革開放力度加大。2018年國家對控制煤炭消費總量、加快發展清潔能源和新能源、加強污染源治理等提出明確要求，能源企業的環保標準更高，範圍更廣，督查更嚴，問責更重，企業發展進入承壓期、攻堅期和轉型期。國電科環緊緊圍繞能源結構調整和電力技術變革，按照黨的十九大所提出的加快生態文明體制改革，建設美麗中國，為人民創造良好生產生活環境，為全球生態安全作出貢獻為目標。堅持讓能源利用更加清潔高效的產業發展方向，打好污染防治攻堅戰。

多年來，國電科環致力於環保節能與可再生能源技術的開發和推廣，著眼於突破一批關鍵核心技術，形成了具有比較優勢的戰略性新興產業集群，提高了履行企業社會責任的能力和電力行業的清潔生產水平，成為中國電力行業中享有盛譽的先進企業。2017年至今，中國國電集團有限公司(「國電集團」)與國家能源集團(其前身為神華集團有限責任公司)的聯合重組正在穩步推進中。聯合重組完成後，國家能源集團將成為全球第一大的煤炭集團、全球第一大的火力發電集團、全球第一大的可再生能源發電集團以及全球第一大的煤制油化工集團。公司將始終以客戶為中心，把為客戶創造價值、實現共贏發展作為根本，服務國家能源集團主業，提升服務保障作用，支撐國家能源集團發展。在新時代起航的新徵程中有新作為，勇攀全球能源科技最高峰。

## CHAIRMAN'S STATEMENT (CONTINUED) 董事長致辭(續)

Looking into the future, we will continue to use the platform and resources provided by China Energy to further develop and grow, becoming a world-recognized product and service provider in terms of environmental protection and energy conservation solutions, renewable energy equipment and solutions. We will strive to become the world's leading featured high-tech industrial brand, become the global leader in providing comprehensive clean technology solutions, and return to shareholders and the community with outstanding business performance!

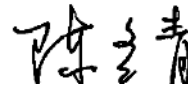
Finally, on behalf of the Board, I would hereby like to extend our sincere gratitude to all the Shareholders, clients and business partners for their trust and support, and to all the management and employees for their efforts and contributions.



**Mr. CHEN Dongqing**  
*Chairman of the Board*

展望未來，本公司將繼續利用國家能源集團所提供的平台和資源，進一步發展壯大，成為全球公認的環保與節能解決方案及可再生能源設備與解決方案領域的產品和服務提供商。本公司將力爭打造成世界領先的特色高科技產業品牌，成為提供綜合清潔技術解決方案的全球領導者，並以優異的經營業績回報股東，回報社會！

最後，我謹代表董事會，在此衷心感謝全體股東、客戶、業務合作夥伴的信任和支持，同時也感謝管理層及員工的努力和貢獻。



**陳冬青先生**  
*董事長*

# PRESIDENT'S STATEMENT

## 總經理致辭



### Dear Shareholders:

In 2018, the Group adhered to the guidance of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era, adhered to the Party's leadership, strengthened the Party's construction, deeply implemented the "1169" core strategy of China Energy, insisted on the transformation development strategy, carefully implemented the work plan of the Board,

devoted all our efforts to fighting hard battles of streamlining organization and enhancing quality and efficiency, actively carried out market-oriented reform, stuck to the drive of scientific and technological innovation, steadily promoted the Company's production and operation, maintained a good situation of overall stable and safe production, continuously improving business development and harmonious and stable staff. The Group realized an operating income of RMB11,411.8 million, and the profit attributable to equity shareholders of the Company is RMB114.1 million for the year.

This year, the Company's security foundation was consolidated; production, operation and project construction were stable and orderly; market development was moving forward under hardship; internal control was continuously improved, quality and efficiency were further promoted; capital operation made a staged breakthrough; scientific and technological innovation made remarkable achievements, and strengthening Party self-discipline comprehensively was furthered. For example, the core technologies of Longyuan Environmental such as system integrated desulphurization, denitrification, dust removal, zero waste water discharge, etc. were successfully applied in Hainan Ledong Power Plant's Ultra-low Emission Transformation Project successfully, with the environmental emission standards up to the level of gas turbine; the 300 kW marine tidal current turbine generator system with the 270 ° electric propeller technology and underwater video technology developed independently by United Power was successfully used in the sea, and was also successfully connected to the grid for power generation; the platform-based open smart DCS system of Guodian Zhishen was put into operation at Dongsheng Thermal Power Plant, Inner Mongolia; and the mine water treatment technology of Beijing Lucency Environment and Technology Co., Ltd. ("**Lucency**") was used in Zaoquan Mine of Shenhua Ningxia Coal Industry Group Co., Ltd.

### 尊敬的股東：

本集團堅持以習近平新時代中國特色社會主義思想為指引，堅持黨的領導、加強黨的建設，深入貫徹落實集團公司「一一六九」核心戰略，堅持轉型發展戰略，認真執行董事會工作部署，全力以赴打好瘦身健體和提質增效攻堅戰，積極開展市場化改革，堅持科技創新驅動，紮實推進公司各項生產經營工作，保持了安全生產總體平穩、經營發展持續向好、職工隊伍和諧穩定的良好態勢。全年實現營業收入人民幣11,411.8百萬元，權益股東應佔利潤人民幣114.1百萬元。

本年度，本公司安全基礎不斷夯實，生產運營和項目建設平穩有序，市場開拓在砥礪中前行，內部管控不斷提升，提質增效深入推進，資本運營取得階段性突破，科技創新成績顯著，全面從嚴治黨不斷深化。例如：龍源環保系統集成脫硫、脫硝、除塵、廢水零排放等核心技術在海南樂東電廠超低排放改造工程成功應用，環保排放標準達到燃機水平；聯合動力自主研發的應用270°電動變槳技術和水下視頻技術的300kW海洋潮流能發電機組成功下海，並順利併網發電運行；國電智深基於平台開放型的智能DCS系統在內蒙古東勝熱電廠投入運行；北京朗新明環保科技有限公司（「**朗新明**」）礦井水處理技術已應用於神華寧夏煤業集團有限責任公司棗泉煤礦。


## PRESIDENT'S STATEMENT (CONTINUED)

### 總經理致辭(續)

In addition, the Company's scientific and technological innovation achievements in this year were fruitful. A Wind Farm Cooperative Control Method and System of United Power won the gold prize of 2018 China Patent Award, the Research and Large-scale Engineering Application of the Key Technology of High Efficiency and Low Wind Speed of United Power won the second prize of 2018 the National Award for Science and Technology Progress of China; the Key Technology and Application of Low-cost Desulfurization, Wastewater Zero Discharge of Large Coal-fired Power Plants and other science and technology results of Longyuan Environmental won more than ten prizes such as the first prize of China Electric Power Award, the first prize of Science and Technology Award of China National Coal Association; the mine underground substation of the coal mine safety monitoring system based on multi-system fusion of Guodian Zhishen passed the explosion-proof detection; the VeStore Real-time Database 3.0 Product of Huadian Tianren passed the performance test by China Software Test Center, a domestic authoritative testing institution.

The Company is the core enterprise of the scientific and environmental protection industry of China Energy, and is in a period of great historical opportunity. The new banner of thought provides us with the fundamental guideline to seize opportunities. The new development position provides us with the deep base to seize opportunities. The new goal provides us with the high vision to seize opportunities.

Looking into the future, we will wholly push forward production safety, quality and efficiency enhancement, technological innovation, risk prevention, market reform, etc., focus on pushing forward quality reform, efficiency reform and impetus reform, promote management quality and reform efficiency, drive innovations, fully serve China Energy, actively carry forward market progress and make effort to make the Group a world-leading featured hi-tech industrial brand.



**Mr. ZHANG Jun**  
General Manager

此外，本年度公司科技創新成果豐碩。聯合動力《一種風電場協同控制方法及系統》榮獲2018年中國專利金獎，《高效低風速風電機組關鍵技術研究及大規模工程應用》榮獲2018年度國家科學技術進步二等獎；龍源環保《大型燃煤電站低成本脫硫廢水零排放關鍵技術與應用》等科技成果獲得獲得中國電力創新獎一等獎、中國煤炭工業協會科學科學技術獎一等獎等十餘項重要獎勵，國電智深多系統融合的煤礦安全監控系統井下智能分站通過防爆檢測；華電天仁「VeStore實時數據庫V3.0產品」通過國內權威檢測機構中國軟件評測中心的性能評測。

本公司是國家能源集團科技環保產業的核心企業，正處於一個大有可為的歷史機遇期。新的思想旗幟，讓我們有了把握機遇的根本指針。新的發展方位，讓我們有了把握機遇的深厚底氣。新的奮鬥目標，讓我們有了把握機遇的高遠視野。

展望未來，本公司將統籌推進公司安全生產、提質增效、科技創新、防範風險和市場化改革等工作，重點在推動質量變革、效率變革和動力變革上下功夫，向管理要質量，向改革要效率，向創新要動力，全力服務國家能源集團，積極推進市場化進程，努力將本集團打造成世界一流的特色高科技產業品牌。



**張軍先生**  
總經理



# MANAGEMENT'S DISCUSSION AND ANALYSIS

## 管理層討論與分析

Certain statistical data and other information relating to the PRC and the industries in which the Group operates contained in, for instance, the section titled “Key Industry Developments” in this Annual Report, have been derived from various publicly available official publications. The Company believes that the sources of these data are appropriate and has taken reasonable care in extracting and reproducing such information. The Company has no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. The information has not been independently verified by the Company or any other relevant party. The Company makes no representation as to the accuracy of the information contained in such sources, which may not be consistent with other data compiled within or outside the PRC. Accordingly, these data may not be accurate and the information should not be unduly relied upon for your investment in the Company.

This Annual Report contains certain forward-looking statements and information relating to the Group or the Company that are based on the belief and assumptions of the management of the Company. The words “anticipate”, “believe”, “expect”, “going forward” and similar expressions, as they relate to the Company, the Group or the Company's management, are intended to identify forward-looking statements. Such statements reflect the current views of the Company's management with respect to future events and are subject to certain risks, uncertainties and assumptions. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, the Group's business, financial condition and operating results may be adversely affected and may vary materially from those described herein as anticipated, believed or expected.

## INDUSTRY AND BUSINESS OVERVIEW IN 2018

### Key Industry Developments

For the purpose of this Annual Report, the “PRC” refers to the People's Republic of China, excluding Taiwan, the Macau Special Administration Region of the PRC and the Hong Kong Special Administration Region of the PRC.

Set forth below are the key regulations and policy initiatives issued by the PRC government and other relevant regulatory authorities in 2018 that are expected to have a material effect on the Group's businesses, operations and financial conditions:

本年報中如「主要行業發展」部分所載有關中國及本集團所經營行業的若干統計數據及其他信息乃摘自不同的官方公開刊物。本公司相信有關數據源為恰當的數據源並已合理謹慎地摘錄及轉載有關資料。本公司並無理由相信有關資料屬虛假或誤導性的資料或遺漏任何事實致使該等資料屬虛假或誤導性的資料。有關資料並未經本公司或相關各方獨立核實。本公司並沒有就該等來源所載資料的準確性發表任何聲明，而該等數據可能與中國境內外編製的其他數據不一致。因此，該等數據未必準確，閣下投資於本公司時不應過度依賴上述資料。

本年報載有基於本公司管理層的信念及假設作出有關本集團或本公司的若干前瞻性陳述及資料。「預計」、「相信」、「預期」、「今後」及類似表述，當用於本公司、本集團或本公司的管理層時，即指前瞻性陳述。此類陳述反映出本公司管理層對未來事件的當前觀點，並受若干風險、不明朗因素及假設的影響。倘一項或多項該等風險或不明朗因素成真，或倘相關假設被證實為不正確，本集團的業務、財務狀況及經營業績或會受不利影響且可能與本公告所述的預計、相信或預期者大不相同。

## 2018年行業和業務回顧

### 主要行業發展

就本年報而言，「中國」是指中華人民共和國，這裏不包括台灣、中國澳門特別行政區及中國香港特別行政區。

以下為2018年，中國政府及其他有關監管機構頒佈的主要法規及政策措施，預期該等法規及政策措施將對本集團的業務、經營和財務狀況產生實質影響：



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

1. On 26 February 2018, the National Energy Administration (“NEA”) issued the 2018 Practice Guide on Energy Work (the “Guidance I”).

According to Guidance I, the total national energy consumption in 2018 is to be controlled at about 4.55 billion tons of standard coal. The share of non-fossil energy consumption is to be increased to approximately 14.3%, and that of the natural gas to approximately 7.5%, in comparison to the proportion of coal consumption which will fall to approximately 59%. The installed capacity of non-fossil energy power generation will reach approximately 740 million kilowatts or so, generating about 2 trillion kilowatt hours of electricity. The average power coal consumption of coal-fired power plants will decrease by about 1 gram year-on-year.

As proposed in Guidance I, wind power and solar power should be promoted on a gradual basis. The investment monitoring and early warning mechanism for wind power and photovoltaic power (“PV”) should be enhanced, the scale of new construction in areas with idle capacity in wind and solar power should be cut down, so as to ensure the “double drop” of curtailed wind power, PV in terms of both volume and proportion. The key wind power base projects should be built in an orderly manner with emphasis on promoting the construction of distributed wind power, low wind speed wind power and offshore wind power projects. The construction of wind power grid parity demonstration projects should be actively promoted, and the road maps for wind power grid parity should be worked and formulated.

2. On 5 March 2018, the NEA released the investment monitoring and early warning results of wind power development in 2018.

Gansu, Xinjiang (including the Corps), and Jilin are classified into Red-alert Areas. Inner Mongolia and Heilongjiang are Orange-alert Areas, and Xinzhou City, Shuozhou City and Datong City in Northern Shanxi, Yulin City in northern Shaanxi, and Zhangjiakou City and Chengde City in Hebei Province are subject to the Orange-alert management. Other provinces (autonomous regions, municipalities) and regions are Green-alert Areas.

1. 2018年2月26日，國家能源局(「國家能源局」)印發2018年能源工作指導意見(「《意見一》」)。

《意見一》指出，2018年全國能源消費總量控制在45.5億噸標準煤左右。非化石能源消費比重提高到14.3%左右，天然氣消費比重提高到7.5%左右，煤炭消費比重下降到59%左右。非化石能源發電裝機達到7.4億千瓦左右、發電量達到2萬億千瓦時左右。燃煤電廠平均供電煤耗同比減少1克左右。

《意見一》提出，穩步發展風電和太陽能發電。強化風電、光伏(「光伏」)發電投資監測預警機制，控制棄風、棄光嚴重地區新建規模，確保風電、光伏發電棄電量和棄電率實現「雙降」。有序建設重點風電基地項目，推動分散式風電、低風速風電、海上風電項目建設。積極推進風電平價上網示範項目建設，研究制定風電平價上網路線圖。

2. 2018年3月5日，國家能源局發佈2018年度風電開發投資監測預警結果。

甘肅、新疆(含兵團)、吉林為紅色預警區域。內蒙古、黑龍江為橙色預警區域，山西北部忻州市、朔州市、大同市，陝西北部榆林市以及河北省張家口市和承德市按照橙色預警管理。其他省(區、市)和地區為綠色預警區域。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

The wind power development and construction in Red-alert Areas are ground to a halt, and taking effective measures to solve the problem of wind power stock depletion will be the top priority. The ongoing construction of approved wind power projects is suspended, and the unapproved wind power projects that have been included in the country's plan and joined to each year's implementation plan are suspended. The grid-connection applications of projects whose construction and approval have been postponed are ceased by power grid enterprises. No annual construction scale should be newly added into those Orange-alert Areas except the wind power projects that are in line with the plan and included in the annual implementation plan, and the demonstration projects and market-based bidding projects organized by the NEA, while the projects that have been included in the annual implementation plan can continue their construction after approval.

3. On 2 July 2018, National Development and Reform Commission ("NDRC") issued the Guide on Innovating and Improving the Green Development Price Mechanism (the "Guidance II"), which clarifies the price reform development of four aspects including sewage treatment, energy conservation and environmental protection.

Guidance II underlines the need to accelerate the establishment and improvement of a resource environmental price mechanism that fully reflects market supply-demand and resource scarcity, and reveals the ecological value and environmental damage cost, to perfect the price policy that is conducive to green development, to incorporate the ecological environment cost into the economic operation cost, to incentivize more social capital to enter the ecological environment protection field, to facilitate resource conservation, ecological environment protection and pollution prevention, to promote the formation of a green development space pattern, industrial structure, production mode and lifestyle, so as to constantly meet the people's growing needs of beautiful ecological environment.

Guidance II puts forward that by 2020, the price mechanism and price policy system favorable to green development will have been largely formed, which can significantly intensify resource conservation and internalization of ecological environment costs; by 2025, price mechanism aligned with the requirements of green development will have been more complete and implemented into all aspects of the whole society.

紅色預警的區域暫停風電開發建設，集中精力採取有效措施解決存量風電消納問題。已核准的風電項目暫緩建設，已納入規劃且列入各年度實施方案未核准的風電項目暫停核准，電網企業停止受理緩建和暫停核准項目的併網申請。橙色預警地區除符合規劃且列入年度實施方案的風電項目和國家能源局組織的示範項目及市場化招標項目外，不再新增年度建設規模，之前已納入年度實施方案的項目可以繼續核准建設。

3. 2018年7月2日，國家發展和改革委員會(「國家發改委」)出台《關於創新和完善促進綠色發展價格機制的意見》(「《意見二》」)，明確了污水處理、節能環保等四個方面的價格改革方向。

《意見二》強調，要加快建立健全能夠充分反映市場供求和資源稀缺程度、體現生態價值和環境損害成本的資源環境價格機制，完善有利於綠色發展的價格政策，將生態環境成本納入經濟運行成本，撬動更多社會資本進入生態環境保護領域，促進資源節約、生態環境保護和污染防治，推動形成綠色發展空間格局、產業結構、生產方式和生活方式，不斷滿足人民群眾日益增長的優美生態環境需要。

《意見二》提出，到2020年，基本形成有利於綠色發展的價格機制、價格政策體系，促進資源節約和生態環境成本內部化的作用明顯增強；到2025年，適應綠色發展要求的價格機制更加完善，並落實到全社會各方面各環節。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Guidance II also deals with sewage treatment, energy conservation and environmental protection. On the one hand, it proposes to improve the sewage treatment fee-collection policy, establish a dynamic adjustment mechanism for urban sewage treatment fees, a differential fee-charging mechanism for corporate sewage discharge, and a fee-charging mechanism coordinated with sewage treatment standards, to build up a healthy market-based mechanism for the collection of sewage treatment service fees in cities and towns, gradually incorporate the service fees into the sewage treatment fees in cities and towns, and explore the establishment of a peasant household payment system for sewage treatment. On the other hand, it proposes to establish a better electricity price mechanism that can help energy conservation and environmental protection, materialize the differentiated electricity price policy, the peak-valley electricity price formation mechanism and the electricity-support policy for some environmental protection industries, so as to give full play to the leverage of electricity prices, and promote energy-saving and emission reduction in energy-intensive industries, guide the optimal allocation of power resources, promote the optimization and upgrade of industrial structure and energy structure, as well as the development of related environmental protection industries.

The promulgation of Guidance II will create opportunities for the sustainable and healthy development of the Group's sewage treatment, environmental protection and energy saving and other businesses.

4. On 3 July 2018, the State Council issued the Three-Year Action Plan to Win the Blue Sky Battle (the "Action Plan"). The Action Plan elaborated the overall thinking, basic goals, primary missions and backup measures of air pollution prevention and control work, and provided the timeline and road map for winning the blue sky battle.

The Action Plan proposes that by 2020, the total emissions of sulfur dioxide and nitrogen oxides will have declined by more than 15% from 2015, respectively.

Accelerate the adjustment of energy structure and build a clean, low-carbon and efficient energy system. Effectively carry forward clean heating in the northern regions, continue to implement total coal consumption control in key areas, conduct comprehensive rectification of coal-fired boilers, improve energy utilisation efficiency, and accelerate the development of clean energy and new energy. Carry out investigations on unorganized emissions of key industries such as steel, building materials, nonferrous metals, thermal power, coking, foundry, etc., and coal-fired boilers, establish management standing book, and implement in-depth governance on unorganized emissions from links of transportation, loading, unloading, storage, transfer, and technological process of materials (including waste residue). By the end of 2018, Beijing-Tianjin-Hebei and surrounding areas should have basically fulfilled their governance tasks, in comparison to the Yangtze River Delta and the Fen-wei Plains by the end of 2019, and the whole country by the end of 2020.

《意見二》中涉及污水處理、節能環保方面，一是完善污水處理收費政策，建立城鎮污水處理費動態調整機制、企業污水排放差別化收費機制、與污水處理標準相協調的收費機制，健全城鎮污水處理服務費市場化形成機制，逐步實現城鎮污水處理費基本覆蓋服務費用，探索建立污水處理農戶付費制度。二是健全促進節能環保的電價機制，完善差別化電價政策、峰谷電價形成機制以及部分環保行業用電支持政策，充分發揮電力價格的槓桿作用，推動高耗能行業節能減排、淘汰落後，引導電力資源優化配置，促進產業結構、能源結構優化升級和相關環保業發展。

《意見二》的頒佈將為本集團的污水處理及節能環保等業務的持續健康發展帶來機遇。

4. 2018年7月3日，國務院印發《打贏藍天保衛戰三年行動計劃》（「《行動計劃》」），明確了大氣污染防治工作的總體思路、基本目標、主要任務和保障措施，提出了打贏藍天保衛戰的時間表和路線圖。

《行動計劃》提出，到2020年，二氧化硫、氮氧化物排放總量分別比2015年下降15%以上。

要加快調整能源結構，構建清潔低碳高效能源體系。有效推進北方地區清潔取暖，重點區域繼續實施煤炭消費總量控制，開展燃煤鍋爐綜合整治，提高能源利用效率，加快發展清潔能源和新能源。開展鋼鐵、建材、有色、火電、焦化、鑄造等重點行業及燃煤鍋爐無組織排放排查，建立管理台賬，對物料（含廢渣）運輸、裝卸、儲存、轉移和工藝過程等無組織排放實施深度治理，2018年底前京津冀及週邊地區基本完成治理任務，長三角地區和汾渭平原2019年底前完成，全國2020年底前基本完成。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

Vigorously cultivate green environmental protection industry. Scale up the green industry, develop energy-saving and environmental protection industries, clean production industries and clean energy industries, and foster new development momentums. Actively support and cultivate a host of large-scale energy-saving and environmental protection leading enterprises with international competitiveness, support the construction of technological innovation capabilities of enterprises, speed up the mastery of major key core technologies, and facilitate the industrialization development and application of key technologies and equipment for atmospheric controlling. Actively promote integrated solutions on energy-saving and environmental protection, accelerate the development of new forms of industries such as energy management contract (“**EMC**”), third party governance and social monitoring in the handling of environmental pollution, and cultivate an array of high level, specialized energy-saving environmental protection service companies.

Work out a special plan to heavily eliminate and shutdown unqualified coal-fired units less than 300,000 kilowatts that cannot meet standards of environmental protection, energy consumption and safety. The cut-off installed capacity, coal consumption and pollutant discharge indicators of the shutdown units are allowed to be transacted or replaced, and the construction of ultra-low emission coal-fired units with equal capacity can be arranged on an overall basis. The newly installed capacity of coal-fired units in key areas should be strictly controlled, and the newly-added electricity consumption in the region should be satisfied mainly by non-fossil energy generation and external power transmission.

The Action Plan specifies the schedule for air pollution prevention and control work for different areas and underlines the need for governance on non-electricity industry, which is conducive to the optimized development of the Group's environmental protection and energy saving solutions.

5. On 19 August 2018, the NEA and the Ministry of Ecology and Environment jointly issued the Notice on Publishing the 2018 Targets and Tasks on Ultra-low Emission and Energy-saving Transformation for Coal-fired Power Industry in Various Provinces (Regions or Municipalities) (the “**Notice**”).

As arranged in the Notice, ultra-low emission and transformation in the national coal-fired power industry reached 48,680,000 kw and energy-saving transformation amounted to 53,905,000 kw.

大力培育綠色環保產業。壯大綠色產業規模，發展節能環保產業、清潔生產產業、清潔能源產業，培育發展新動能。積極支持培育一批具有國際競爭力的大型節能環保龍頭企業，支持企業技術創新能力建設，加快掌握重大關鍵核心技術，促進大氣治理重點技術裝備等產業化發展和推廣應用。積極推行節能環保整體解決方案，加快發展合同能源管理(「**合同能源管理**」)、環境污染第三方治理和社會化監測等新業態，培育一批高水平、專業化節能環保服務公司。

制定專項方案，大力淘汰關停環保、能耗、安全等不達標的30萬千瓦以下燃煤機組。對於關停機組的裝機容量、煤炭消費量和污染物排放量指標，允許進行交易或置換，可統籌安排建設等容量超低排放燃煤機組。重點區域嚴格控制燃煤機組新增裝機規模，新增用電量主要依靠區域內非化石能源發電和外送電滿足。

《行動計劃》分地區明確了大氣污染防治的時間表，並再次強調非電行業的治理需求，有利於本集團環保及節能解決方案業務的優化發展。

5. 2018年8月19日，國家能源局、生態環境部聯合發佈《關於印發2018年各省(區、市)煤電超低排放和節能改造目標任務的通知》(「**通知**」)。

《通知》安排2018年全國煤電完成超低排放改造4,868萬千瓦，節能改造5,390.5萬千瓦。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

The Notice requires the local government and relevant enterprises to adopt intensified measures to accelerate the transformation progress and facilitate the clean and efficient development of the coal-fired power industry. The relevant works should be basically completed in 2018 in the central region and in 2020 in the western region. For those coal-fired generating units not fulfilling the national standards, it is necessary to speed up the implementation of transformation in strict compliance with the relevant standards. For those coal-fired generating units that no transformation is involved or are not up to standards after transformation, elimination or shutdown may take place. The energy efficiency standards and air pollutant emission indicators after the transformation of such generating units shall comply with the relevant regulations and requirements.

The Notice sets clear targets for the ultralow emission renovation capacity of coal power and energy conservation, which is expected to form favorable impacts on the environmental protection and energy-saving businesses of the Group.

6. On 31 August 2018, the Ministry of Ecology and Environment issued the Guidance on Further Deepening the Reform of "Release, Management and Compliance" Reform in Eco-environment and Promoting the Quality Development of the Economy ("**Guidance III**").

Guidance III emphasizes the necessity to promote the development of environmental protection business and formulate better economic policies on eco-environment. It encourages the set-up of the National Green Development Foundation, establishment of environmental liability insurance system, and formation of emissions trading market at both regional and national levels.

Guidance III suggests accelerating the implementation of eco-environmental projects and releasing the effective needs of the environmental protection industry. It focuses on the seven battlefields of the uphill battle for prevention and control of pollution and promotes the construction of major governance projects so as to effectively drive the development of the environmental protection industry. It provides guidance to localities in preparing for pollution prevention and control projects, and disclosing project information and investment needs to the public.

《通知》要求，各地和相關企業要加大力度、加快改造，促進煤電清潔高效發展，中部地區力爭在2018年前基本完成，西部地區在2020年完成；要嚴格按照相關標準，對於不能滿足國家標準要求的燃煤機組要加快實施改造，對不改造或改造後仍不達標的機組予以淘汰關停。機組改造後的能效水平和大氣污染物排放指標要符合有關規定要求。

《通知》設定了煤電超低排放和節能改造的明確目標，預計將對本集團環保節能產業形成利好。

6. 2018年8月31日，生態環境部印發《關於生態環境領域進一步深化「放管服」改革，推動經濟高質量發展的指導意見》（「《意見三》」）。

《意見三》強調，要推進環保產業發展，健全生態環境經濟政策。積極推動設立國家綠色發展基金，建立環境責任保險制度，推動建立區域性及全國性排污權交易市場。

《意見三》提出，加快生態環境項目實施，釋放環保產業有效需求。以打好污染防治攻堅戰七大標誌性戰役為重點，推進重大治理工程建設，有效帶動環保產業發展。指導各地做好污染防治攻堅項目儲備規劃，及時向社會公開項目信息與投資需求。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

Guidance III points out the necessity to promote the innovation of the governance model of eco-environment and enhance the development effect of the environmental protection industry; to accelerate the establishment of ecological environment big data platform, form a mature system for mandatory information disclosure on ecological environmental protection, and put great efforts in maintaining environmental credit record of polluting companies; to speed up the establishment of the national comprehensive service platform for the transformation of scientific achievements in ecological environmental protection and regularly publish the catalogue of advanced applicable technologies and information on environmental protection equipment and technology requirements; to accelerate the implementation of eco-environmental projects and release the effective needs of the environmental protection industry while establishing a sound central database for environmental protection investment projects, providing guidance to the localities in preparing for pollution prevention and control projects, and disclosing project information and investment needs to the public; to speed up the formulation and amendment of standards and norms for water and air pollutant emissions in key industries, giving full play to the expected guidance and promotion of standards for the development of the environmental protection industry, and promote the healthy development of the environmental protection industry.

Guidance III emphasizes the needs to consolidate the guidance of industrial norms by introducing a third-party guarantee payment platform for PPP projects and environmental pollution third-party governance projects in the ecological environment, conducting assessment on credit rating of environmental protection enterprises, and disclosing information of eco-environmental benchmark enterprises and illegal enterprises in ecological environment. It improves the technical evaluation method for ecological environment projects, formulates the "Guidelines for Technical Evaluation of Ecological Environment Projects" through different classifications, guides bidding institutions to streamline the flow and methods of evaluation, increases the significance of the ranking of ecological environment technology and ecological environment evaluation, curbs the winning of bids at vicious low price and promotes the healthy development of the environmental protection industry.

The issuance of Guidance III has further clarified that the national environmental protection industry is driven by policies on environmental pollution control, and will continue to maintain a good momentum of rapid development, bringing new opportunities for the sustainable development of the environmental protection business of the Group.

《意見三》指出，要推進生態環境治理模式創新，提升環保產業發展效果；加快生態環境大數據平台建設，建立健全生態環境保護信息強制性公開制度，大力推行排污企業環境信用記錄；加快建立國家生態環境保護科技成果轉化綜合服務平台，定期發佈先進適用技術推薦目錄以及環保裝備、技術需求信息；加快生態環境項目實施，釋放環保產業有效需求，建立健全中央環保投資項目儲備庫，指導各地做好污染防治攻堅項目儲備規劃，及時向社會公開項目信息與投資需求；加快制修訂重點行業水、大氣污染物排放標準和規範，充分發揮標準對環保產業發展的預期引領和倒逼促進作用，促進環保產業健康發展。

《意見三》強調，加強行業規範引導，對生態環境領域PPP項目與環境污染第三方治理項目引入第三方擔保支付平台，開展環保企業信用等級評價，實施生態環保標桿企業和生態環境違法企業信息公開。完善生態環境項目技術評標方法，分類制定出台《生態環境項目技術標評標指南》，指導招投標機構完善評標流程和方法，加大生態環境技術和生態環境效果評價分值權重，限制惡性低價中標，促進環保產業健康發展。

《意見三》的頒佈，進一步明確了我國環保產業受環境污染治理政策拉動，將繼續保持快速發展的良好勢頭，為本集團環保產業持續發展帶來新的契機。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

7. On 30 October 2018, NDRC and the NEA jointly issued the Clean Energy Consumption Action Plan (2018–2020) (the “**Plan**”).

The Plan points out that remarkable results have been achieved in clean energy consumption in 2018, and, by 2020, the problem of clean energy consumption will be basically solved. The Plan also sets out regulations for clean energy consumption targets of various provinces and regions.

The Plan clearly states that, in 2018, 2019 and 2020, the average utilization rate of wind power shall be higher than 88% and 90%, and reaching the international advanced level, while the curtailment rate of wind power shall be less than 12% and 10%, and being controlled at a reasonable level; and the utilization rate of PV power generation shall be less than 95% with curtailment rate of lower than 5%.

The Plan proposes to further strengthen the government's role in guidance, optimize the layout of power supply, reinforce the guidance on macroeconomic policies, improve the construction of power grid infrastructures and increase the level of assessment and monitoring on consumption, and facilitate the continuous improvement in the ability of clean energy consumption in various regions. First, control the pace of power supply development at reasonable level by further placing focus on regions with higher consumption demand in the central and eastern regions in terms of scale of clean energy development, and encourage the priority of developing decentralized and distributed renewable energy; second, establish sound systems and mechanisms for clean energy consumption, accelerate the development of grid parity of the generation of wind power and PV power, and achieve grid parity between new onshore wind turbines and coal-fired power generators in 2020; third, give full play to the role of the grid resource allocation platform. By the end of 2020, over 30%, on average, of renewable energy is targeted to be transmitted via main inter-provincial and inter-regional channels.

The Plan emphasizes that it is necessary to mainly capitalize on transactions in the power market while focusing on the reinforcement of the driving force in the market, speeding up the reform in the power market, seizing the potential of peak shifting of the power supply side, and facilitating the coordination among source, grid, load and storage, so as to further improve the optimized allocation of clean energy, such as wind power, PV power and hydropower, within a broader coverage. The Plan also suggests the overall enhancement of the regulation capacity of the power system, and further expand the scale of load market trade on clean energy to replace captive power plants. In 2018, the power generation from clean energy instead of captive power plants is targeted to be more than 10 billion kWh per year; by 2020, alternative power is targeted to exceed 50 billion kWh.

7. 2018年10月30日，國家發改委、國家能源局印發《清潔能源消納行動計劃(2018–2020年)》(《**計劃**》)。

《計劃》指出，2018年清潔能源消納取得顯著成效，到2020年基本解決清潔能源消納問題，並對各省區清潔能源消納目標做出規定。

《計劃》明確，2018、2019、2020年，風電方面需確保全國平均利用率分別高於88%、90%、達到國際先進水平，棄風率分別低於12%、10%和控制合理水平；光伏發電利用率高於95%，棄光率低於5%。

《計劃》提出，要進一步加強政府引導作用，優化電源佈局，加強宏觀政策引導，完善電網基礎設施建設，提高消納考核及監管水平，護航各地區清潔能源消納能力持續提升。一是合理控制電源開發節奏，清潔能源開發規模進一步向中東部消納條件較好地區傾斜，優先鼓勵分散式、分佈式可再生能源開發；二是建立健全清潔能源消納體制機制，加快推進風電、光伏發電平價上網進程，2020年新增陸上風電機組實現與煤電機組平價上網；三是充分發揮電網資源配置平台作用，2020年底前，主要跨省區輸電通道中可再生能源電量比例力爭達到平均30%以上。

《計劃》強調，要以電力市場交易為重要抓手，着力強化市場推動作用，加快電力市場化改革，深挖電源側調峰潛力，促進源網荷儲互動，以進一步深化風電、光伏、水電等清潔能源在更大範圍內的優化配置。全面提升電力系統調節能力，進一步擴大清潔能源替代自備電廠負荷市場交易規模，2018年，清潔能源年替代自備電廠發電量力爭超過100億千瓦時；到2020年，替代電量力爭超過500億千瓦時。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

The issuance of the Plan is conducive to the sustainable development of the renewable energy equipment manufacturing business of the Group.

8. On 27 December 2018, the 2019 National Energy Work Conference (the “**Conference**”) was convened in Beijing.

It is pointed out at the Conference that the major targets and missions on energy development for the year 2018 were successfully completed by showing a continuous enhancement in the ability to guarantee power supply, an obviously optimized consumption structure, a steady reduction in consumption level, and a significant improvement in development benefits of the industry, which further consolidated and developed a favorable momentum with upward trend and quality enhancement at a moderate pace. The achievements include the gradual expansion of the clean energy business and the further optimization of renewable energy planning and the industrial policy mechanism, with installed capacity of renewable energy reaching 700 million kW, installed capacity of hydropower, wind power and PV power generation reaching 350 million kW, 180 million kW and 170 million kW, respectively; the Action Plan on Clean Energy Consumption was vigorously implemented, which significantly improved the level of clean energy consumption with an expected annual curtailment rate of wind power of 7.7%, representing a year-on-year decrease of 4.3 percentage points and curtailment rate of PV power of 3%, representing a year-on-year decrease of 3 percentage points. The major battles have achieved a good start with continuous progress on air pollution prevention and control works in the energy industry while the level of reform and open-up policies implemented in the energy industry has been increasing steadily, the reform of power system has made positive progress, the reform of “release, management and compliance” has been further advanced, and the compliant governance of the energy industry has been continuously reinforced.

It is proposed at the Conference that, practical works should be well coordinated and organized in 2019 in making new breakthroughs and vigorously promoting the high-quality development of power. The proportion of non-fossil energy consumption should be raised to approximately 14.6% and the national curtailment rate of wind power maintained at below 10% while curtailment rate of PV power and hydropower will be lower than 5%.

《計劃》的發佈有利於本集團可再生能源設備製造業務的持續發展。

8. 2018年12月27日，2019年全國能源工作會議(「**會議**」)在北京召開。

會議指出，2018年能源發展主要目標任務順利完成，能源供給保障能力持續增強，消費結構顯著優化，能耗水平穩步降低，行業發展效益明顯提高，進一步鞏固發展了穩中向好、穩中提質的良好態勢；其中，清潔能源產業穩步壯大，可再生能源規劃和產業政策體系進一步完善，可再生能源裝機突破7億千瓦，水電、風電、光伏發電裝機分別達到3.5億、1.8億和1.7億千瓦；大力實施的清潔能源消納行動計劃，清潔能源消納狀況顯著好轉，預計全年平均棄風率為7.7%，同比下降4.3個百分點；棄光率為3%左右，同比下降3個百分點；重大攻堅戰役實現良好開局，能源行業大氣污染防治工作持續推進；能源改革開放水平穩步提高，電力體制改革取得積極進展，「放管服」改革深入推進，能源行業依法治理不斷深化。

會議提出，2019年要切實抓好籌劃組織，大力推動能源高質量發展邁出新步伐。非化石能源消費比重提高到14.6%左右，全國平均棄風率低於10%，棄光率和棄水率均低於5%。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

It is mentioned at the Conference that it is necessary to further improve clean energy consumption works, prudently implement the "Implementation Plan for Solving the Problem on Curtailed Hydropower, Wind and PV Power" and the "Action Plan on Clean Energy Consumption (2018-2020)", improve the market mechanism of power-supported services, promote the implementation of the renewable energy power quota system, capture the opportunities for full-scale secure acquisition of renewable energy power generation and prioritized power generation, encourage the development and utilization of renewable energy, and expand the capacity of clean energy consumption via multiple channels.

It is requested at the Conference that in 2019, the curtailment amount and curtailment rate of electricity should be maintained at a reasonable level, while by 2020, the issues on curtailment of hydropower, wind power and PV power should be basically solved. It is necessary to thoroughly implement "the Opinions of the CPC Central Committee and the State Council on Establishing a New Mechanism for More Effective Balanced Regional Development", by taking into full considerations of the integrity, economy and market consumption ability of the system, promoting the standardized development of clean energy while vigorously developing distributed clean energy, improving relevant policies and guarantees, market mechanisms and standard systems, expanding the coverage of pilot programs, and striving to achieve a balanced power supply and demand at regional level.

It is stressed at the Conference that the energy work of 2019 should make new achievements in building a clean, low-carbon, safe and efficient energy system based on the fundamental requirements for high-quality development and should make new steps in promoting quality development of energy.

The major missions for the energy work of 2019 had been outlined at the Conference, which demonstrated an optimistic attitude towards the clean energy industry, pointed out the work direction for the Group in optimization of assets and acceleration of transformation, and put forward the work requirements for each business to pursue high-quality development.

會議提到，要進一步做好清潔能源消納工作，認真落實《解決棄水棄風棄光問題實施方案》和《清潔能源消納行動計劃(2018-2020年)》，完善電力輔助服務市場機制，推動實施可再生能源電力配額制，抓好可再生能源發電全額保障性收購和優先發電，鼓勵可再生能源就近開發利用，多渠道拓展清潔能源消納能力。

會議要求，到2019年棄電量和棄電率保持在合理水平，到2020年基本解決棄水棄風棄光問題。要深入落實《中共中央國務院關於建立更加有效的區域協調發展新機制的意見》，統籌考慮系統整體性、經濟性和市場消納能力，在推動清潔能源規模化發展的同時，大力發展分佈式清潔能源，完善相關政策保障、市場機制和標準體系，推進擴大試點示範，努力實現區域性能源供需平衡。

會議強調，2019年能源工作要按照高質量發展的根本要求，在構建清潔低碳、安全高效的能源體系上取得新成效，着力推動能源高質量發展邁出新步伐。

會議部署了2019年能源工作主要任務，向好清潔能源產業，為本集團優化資產、加速轉型指明瞭工作方向，提出了各業務要高質量發展的工作要求。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Key Business Development

Pursuant to the Merger Agreement entered into by China Energy and Guodian Group on 5 February 2018, since the Completion Date, all assets, liabilities, business, personnel, contracts, qualifications and all the other rights and obligations of Guodian Group were inherited and undertaken by China Energy. China Energy received the "Anti-Monopoly Review Decision of Putting No Ban on Concentration of Undertakings" (Fan Long Duan Shen Cha Han [2018] No. 26) (《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)) issued by the Anti-monopoly Bureau of State Administration for Market Regulation on 27 August 2018. Currently, the conditions of completion have been fully satisfied, and change in registration of relevant shares is being handled. China Energy has obtained de facto controlling power of the Company.

In 2018, the Group kept consolidating its safety base as well as improving internal control, deepened the promotion of quality and efficiency improvement, strived to be a leaner and better performer, fully deepened market-oriented reform, always insisted on technology innovation-driven development, and made significant progress in the transformation and development of the Company. The Company firmly established the customer-oriented concept, further enhanced the service and safeguard function of science and technology environmental protection industry, promoted complementary advantages among resources, actively explored applications of the Company's well-proven technologies in coal and coal chemical industries. The Company insisted on boosting international strategies and took firm steps towards overseas business. In the year, the value of new contracts in Indonesia, India, Bangladesh and other countries and regions exceeded RMB100 million.

#### Environmental Protection Business

The Company actively developed new business growth points for environmental protection industry, and strived to realize the sustainable development of enterprises.

In 2018, the Group was committed to environmental upgrading and reconstruction in stock thermal power market, and built low-cost zero emission systems for desulphurisation wastewater treatment, super-high sulfur coal low-emission demonstration project, and white plume elimination demonstration project. Based on the demands for safe, energy-saving and efficient operation of eco-islands of power plants, smart environmental protection platforms developed by the Company were applied in 33 power plants, which realized optimal operation and preventive maintenance of eco-islands of thermal power plants.

#### 主要業務發展

根據國家能源集團與國電集團於2018年2月5日簽署的《合併協議》，自交割日起，國電集團的全部資產、負債、業務、人員、合同、資質及其他一切權利與義務由國家能源集團承繼及承接。國家能源集團於2018年8月27日收到國家市場監督管理總局反壟斷局出具的《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)。目前，《合併協議》約定的交割條件已全部滿足，相關股份變更登記正在辦理中，國家能源集團已獲得本公司的實際控制權。

2018年，本集團不斷夯實安全基礎，不斷提升內部管控，深入推進提質增效，加快推進瘦身健體，全面深化市場化改革，始終堅持科技創新驅動，推動公司轉型發展；牢固樹立以客戶為中心的理念，進一步增強科技環保產業的服務和保障作用，加大資源優勢互補，積極拓展公司成熟技術在煤炭、煤化工領域的應用；堅持推動國際化戰略，海外業務邁出堅實步伐，本年度新簽印尼、印度、孟加拉等國家和地區的國際項目逾人民幣1億元。

#### 環保業務

本集團積極培育環保產業新的業務增長點，着力實現企業可持續發展。

2018年本集團致力於存量火電市場的環保提標改造，建成了低成本脫硫廢水零排放示范項目、超高硫煤超低排放示范項目、消除白色煙羽示范項目；圍繞電站環保島安全節能高效運行的需求，開發的智慧環保平台在33家電廠應用，實現火電廠環保島系統的優化運行和預知維護。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

With the increasingly mature environmental protection market, clients prefer integrated, one-stop and lifetime solutions. The Group actively innovated business model, explored integrated near zero emission model of desulphurisation, denitrification, ash removal and white plume elimination, explored green and ecological environmental protection platform mode for coordinated disposal of sludge of coal-fired power plants, lifetime management mode of catalyst based on big data analysis, as well as smart operation and maintenance mode of eco-island based on smart interlocking.

隨着環保市場的日益成熟，客戶更加青睞綜合型、一站式、全壽命週期的解決方案。本集團積極創新商業模式，探索脫硫脫硝除塵消除白色煙羽和廢水處理一體化近零排放模式、探索燃煤電站協同處置污泥的綠色生態環保平台模式、探索基於大數據分析的催化劑全壽命週期管理模式，以及基於智慧連鎖的環保島智慧運維模式。

As at 31 December 2018, the Group's desulphurisation and denitrification projects under construction were set out as follows:

於2018年12月31日，本集團在建脫硫脫硝項目情況如下表所示：

Projects	項目	Number 數量	Installed capacity (MW) 裝機容量 (兆瓦)
Desulphurisation projects under construction	在建脫硫項目	22	16,144
Including: Desulphurisation reconstruction projects	其中：脫硫改造項目	11	6,514
Desulphurisation renovation EPC projects	脫硫改造EPC項目	11	6,514
Desulphurisation concession reconstruction projects	脫硫改造特許項目	-	-
Newly built desulphurisation projects	脫硫新建項目	11	9,630
Newly built desulphurisation EPC projects	脫硫新建EPC項目	10	8,310
Newly built desulphurisation concession projects	脫硫新建特許項目	1	1,320
Denitrification projects under construction	在建脫硝項目	15	12,409
Including: Denitrification renovation projects	其中：脫硝改造項目	10	7,509
Denitrification renovation EPC projects	脫硝改造EPC項目	10	7,509
Denitrification concession reconstruction projects	脫硝改造特許項目	-	-
Newly built denitrification projects	脫硝新建項目	5	4,900
Newly built denitrification EPC projects	脫硝新建EPC項目	4	3,580
Newly built denitrification concession projects	脫硝新建特許項目	1	1,320

Currently, the models of concession operations of the Group's environmental protection business are categorized into three types: general concession model, the operation and maintenance model of general contracting for tariff (generating income from tariff for desulphurisation, and assuming the responsibility for the supply of materials and the disposal of desulphurisation by-products in addition to general operation and maintenance) and the operation and maintenance model (generating income from general operations and maintenance). As of 31 December 2018, the desulphurisation concession operation of the Group had an aggregate installed capacity of 15,890 MW, and the operating units of denitrification concession operation had an aggregate installed capacity of 11,100 MW; the desulphurisation generating units under the operation and maintenance model of general contracting for tariff had an installed capacity of 2,020 MW; the desulphurisation generating units under the operation and maintenance model had an installed capacity of 17,430 MW.

目前，本集團環保業務特許經營模式分為三種：一般特許經營模式、電價總包運維模式(獲得脫硫電價收益，除負責一般性運維外還負責物耗供應及脫硫副產物的處置)、運維模式(獲得一般性運維收益)。截至2018年12月31日止，本集團脫硫特許經營在運機組裝機總容量為15,890兆瓦，脫硝特許經營在運機組裝機總容量為11,100兆瓦；電價總包運維模式脫硫機組為2,020兆瓦；運維模式脫硫機組為17,430兆瓦。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

As of 31 December 2018, the annual production capacity of denitrification catalysts, the key material for denitrification service of the Group was 19,000 m<sup>3</sup>.

In terms of water treatment, the Group fully promoted whole-power plant water conservation renovation and waste water “zero emission”. Mine water treatment technology has been applied in the Zaoquan Mine of Shenhua Ningxia Coal Industry Group Co., Ltd. The Company implemented “the Demonstration Project of Comprehensive Utilization of Mine Water of Hesigewula Open-pit Mine”, and promoted “Industrial Planning of Water Resources in Baili Mine Area” of Shenhua Shandong Coal Group Corporation Limited, “Integrated Industrial Park for Green Intelligent Circular Economy” of Shenhua Inner Mongolia Coal Coking Co., Ltd. and “Green Intelligent Freight Station” of Shenhua Hangjin Energy Co., Ltd. The Company won the bid for Bangladesh S. Alam Boiler Feedwater and Desalination Project and realized “zero” breakthrough in overseas business. As of 31 December 2018, the Group processed approximately 195,650,000 tons of sewage (including reclaimed water) and reduced the cumulative chemical oxygen demand (“COD”) emissions by approximately 58,400 tons.

#### **Energy Conservation Solutions Business**

In the aspect of energy conservation business, Shizuishan Comprehensive Energy Conservation Retrofit Project undertaken by the Group has been completed substantially, with a significant flow path retrofit effect, and a series of issues in relation to the main unit and auxiliary systems which have bothered the owner since operation have been eliminated. This project represented that NC17 type steam turbine flow patch retrofit technology of the Company has been mature and reached the domestic leading level. Economical efficiency, safety and reliability of steam turbines after flow patch retrofit have been improved remarkably. Its design and guarantee heat consumption were at the international leading level among 300MW steam turbines.

In respect of power plant EPC business, several projects of the Group have achieved great results and have been recognised. Zhongyang PV project was successfully connected to the grid in one time in June 2018, reaching a high standard in the industry, and this PV poverty relief project was highly appraised by Lvliang Municipal Government, representing a milestone for the Company in launching PV EPC business. The first wind turbine generator for Chaghanhua Wind Power Project was successfully connected to the grid for power generation in December 2018, marking the first solid step the Company has taken towards wind power EPC area.

截至2018年12月31日止，本集團脫硝服務的關鍵材料—脫硝催化劑的年產能為19,000立方米。

水處理方面，本集團全面推進全廠節水改造和廢水「零排放」。礦井水處理技術已應用於神華寧夏煤業集團有限責任公司的棗泉煤礦；開展賀斯格烏拉露天礦礦井水綜合利用示范項目；推進神華神東煤炭集團有限責任公司「百里礦區水資源產業化規劃」、神華內蒙古煤焦化有限責任公司「綠色智能循環經濟一體化工業園區」和神華杭錦能源有限責任公司「綠色智能集運站」項目；中標孟加拉艾薩拉姆鍋爐補給水和海水淡化項目，實現海外項目「零」突破。截至2018年12月31日止，本集團本年度污水處理(含中水)量約為19,565萬噸，本年度化學需氧量(「COD」)累計減排量約為5.84萬噸。

#### **節能解決方案業務**

節能業務方面，本集團承建的石嘴山綜合節能改造項目基本完成，流通改造效果顯著，並為業主消除了投運來一系列本體及輔助系統的問題。標誌着公司NC17型汽輪機流通改造技術已基本成熟，且處於國內領先水平。汽輪機流通改造後的經濟性和安全可靠顯著提升，其設計和保證熱耗處於300MW級汽輪機的國際先進水平。

電站總承包業務方面，本集團多個項目收獲成果、贏得認可。中陽光伏項目於2018年6月高標準併網一次成功，作為光伏扶貧項目得到呂梁市政府高度評價，在本公司開啟光伏EPC總承包業務方面具有里程碑意義；查干花風電項目首台風機於2018年12月成功併網發電，標誌着本公司在風電EPC領域邁出了堅實第一步。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

The market expansion of plasma ignition business has been greatly affected by the decline of the new infrastructure coal market with the saturation of the market for low-nitrogen combustion retrofitting.

等離子點火業務市場開拓受新增基建煤電市場下滑影響較大，低氮燃燒改造業務市場趨於飽和。

### Wind Power Products and Services Business

### 風電產品及服務業務

The Group's Wind Turbine Generator ("WTG") sales volumes by product type for the years ended 31 December 2018 and 2017 are set forth below:

本集團於截至2018年及2017年12月31日止年度按產品類型分的風機銷量如下：

		Completed Sales 完成銷售 (units) (套)		As at 31 December 2018 2018年12月31日止 Confirmed Orders (units) 已確認訂單(套)
		2018	2017	
1.5MW	1.5兆瓦	-	119	599
1.65MW	1.65兆瓦	-	-	30
2.0MW	2.0兆瓦	490	507	1,016
3.0MW	3.0兆瓦	-	7	23
<b>Total</b>	<b>總數</b>	<b>490</b>	<b>633</b>	<b>1,668</b>

Being customer satisfaction oriented, the Group kept improving quality services. In 2018, the Group implemented 188 quality improvement projects, and improved the construction of service system and time efficiency of services, practically addressed the site issues concerned by the owners. In the year, unit failure rate decreased significantly year-on-year; completion rate of emergency treatment reached 100%; 4 customer satisfaction surveys were conducted and customer satisfaction increased by 5 percentage points year on year.

本集團以客戶滿意為導向，持續提升質量服務。2018年實施質量改進188項，完善了服務體系建設，提高了服務時效，切實解決業主關心的現場問題。本年度機組故障率同比大幅下降、應急問題處理完成率达到100%、進行了4次客戶滿意度調查，滿意度同比提高了5個百分點。

### Great efforts in developing the domestic market

### 全力開拓國內市場

In 2018, faced with challenges and difficulties, the Group has taken proactive measures for its marketing system and spared no efforts to develop the domestic market with new purchase orders amounting to RMB10.518 billion. Such measures include:

2018年，本集團市場營銷體系積極面對挑戰，迎難而上，全力開拓國內市場。全年本集團新簽訂單約人民幣105.18億元。其中：

- Guodian Longyuan Power Technology and Engineering Co., Ltd. ("Longyuan Engineering"), a subsidiary, actively explored the PV power plant construction market, and undertook the first PV power plant EPC project which was successfully connected to the grid, proving the capacity of EPC general contracting in fields of large thermal power plants, wind power plants and PV power plants.
- 附屬公司國電龍源電力技術工程有限責任公司(「龍源工程」)積極開拓光伏電站建設市場，承擔了首個光伏電站EPC項目並成功併網，目前已具備大型火電廠、風電站、光伏電站的EPC總承包能力。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

- United Power, a subsidiary, and Beijing Enterprises Wind Power Co., Ltd. established a strategic cooperative relationship in the contract on a 49.5MW wind power project in Comai, Tibet, which signified the completion of further strategic planning of the wind turbines of United Power in ultra-high altitude areas in Tibet; meanwhile, the new model 3.2MW-141 won the bid for the circular economic demonstration project of State Power Investment Corporation Limited at Huolin River, which marked the very first step to tap into the market in medium to high speed areas.
- Guodian Zhishen, a subsidiary, extensively expanded the nuclear power market. In 2018, it won the bid for the Instrument Control Special Devices and Tools Project of Tianwan Nuclear Power and a certain Nuclear Power Control System Project of Chinese Academy of Sciences. The latter was the first application of Guodian Zhishen's EDPF-NT platform to nuclear power non-safety level system, marking the further expansion of the scope of application of Guodian Zhishen's products in the nuclear power market.
- 附屬公司聯合動力與北控風力發電有限公司建立戰略合作關係，簽約西藏措美49.5MW風電項目，標誌着聯合動力風機在西藏超海拔地區完成進一步戰略佈局；同時，以新機型3.2MW-141中標國家電力投資集團有限公司霍林河循環經濟示範工程，為開拓中高風速地區市場邁出了堅實的第一步。
- 附屬公司國電智深大力開拓核電市場，2018年先後中標田灣核電站某機組儀控專用工器具項目、中科院某核電控制系統項目，後者是國電智深EDPF-NT平台首次應用於核電非安全級系統，標誌着國電智深產品在核電市場的應用範圍進一步擴展。

In 2018, the newly signed order amount outside China Energy was approximately RMB2.125 billion, representing an increase as compared to that for the corresponding period last year. Among them, Longyuan Environmental received an order amount of RMB728 million outside China Energy, representing a year-on-year increase of 45.04%, indicating remarkable success in the development of the non-electricity market outside China Energy with new orders amounting to RMB355 million. The company won the bid for the ultra-low emission transformation project of Asia Pulp and Paper (APP), which marks that Longyuan Environmental has entered into the paper manufacturing industry for the first time.

#### Actively Expanding Overseas Markets

In 2018, the Company strengthened international cooperation and external publicity on every side, participated in the Wind Expo 2018 in Japan, the "International Ocean Energy Conference" in France, and Vietnam International Electrical Technology & Equipment Exhibition, and the Electric Equipment and Skill Exhibition and made use of multi-language promotional videos and English brochures to improve the Company's international publicizing platform.

2018年本集團系統外新簽訂單約人民幣21.25億元，較去年有所提升。其中，附屬公司龍源環保全年實現系統外新簽訂單7.28億元，同比提升45.04%，特別是系統外非電市場開拓成效顯著，新簽訂單3.55億元，而中標金光集團APP(中國)廣西某超低排放改造項目，標誌着龍源環保首次進入造紙行業。

#### 積極拓展海外市場

2018年本公司全方位加強國際合作與對外宣傳工作，參加了日本國際風力發電展覽會、法國國際海洋能大會、越南電力設備及技術展覽會，並通過多語種宣傳片、英文宣傳冊等多種方式完善公司國際化宣傳平台。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Further penetrating the key country markets, Longyuan Environmental has integrated new changes in Indian market, adjusted its market development strategies in a timely fashion, and formulated measures for risk prevention and control in advance while cooperating with central enterprises to form alliance for the bid for a flue gas desulphurisation EPC project in Greece; Longyuan Technology actively explored markets in India, Zimbabwe and South Africa; United Power proceeded to the follow-up operation and maintenance services of China Longyuan Power Group Corporation Limited (“Longyuan Power”) De Aar South Africa project, which has made outstanding contributions to the local people's access to electricity, and is of great significance to accelerate the pace of internationalization strategy of China's energy companies as well as strengthen the cooperation and exchange of renewable energy technologies between China and South Africa. Guodian Technology & Environment Group (Hong Kong) Co., Ltd., a subsidiary, actively explored export of engineering services and export and import of equipment to take advantage of overseas platforms, closely responded to market needs, and conducted business in export and import trade, financing service, EPC consortium and other new business domains (such as captive power stations and geothermal projects).

In 2018, the Company has signed overseas orders of approximately RMB104 million. The key projects are the procurement of desulphurisation equipment, engineering boiler water-filling equipment and seawater desalination equipment for the project in Islam, Bangladesh signed by Longyuan Environmental and Lucency, respectively. In addition, Longyuan Technology signed a plasma application project in Nanshan, Indonesia, and Guodian Zhishen signed a coal-fired power generation engineering terminal project of Shenhua Guohua Pembangkitan Jawa-bali and a series of supplementary contracts.

### Committed to technological innovation and research and development

The Group dedicated itself to technological innovation and research and development to enhance core competitiveness. The dedication of the Group led to a number of technological achievements in the following respects:

- The Group has set up a complete scientific and technological R&D system and currently operates 4 national scientific R&D platforms including the “National Key Laboratory of Wind Power Equipment and System Technology”, 11 provincial scientific R&D platforms, 1 post-doctoral scientific research center, and 2 workstations of academics and experts, with incomparable advantages in this regard domestically.

進一步深挖重點國別市場，龍源環保結合印度市場的新變化，及時調整市場開發策略，做好風險防控措施，同時與央企強強聯合，共同投標希臘某煙氣脫硫EPC項目；龍源技術積極開拓印度、津巴布韋和南非市場；聯合動力繼續執行龍源電力集團股份有限公司(「龍源電力」)南非德阿項目後續運維服務，為解決當地人民用電做出傑出貢獻，對加快我國能源企業國際化戰略步伐，以及加強中南兩國可再生能源技術合作和交流等方面具有重要意義；附屬公司國電科技環保集團香港有限公司積極探索工程服務出口和設備進出口貿易業務，發揮境外平台優勢，緊密對接市場需求，在進出口貿易、融資服務、EPC聯合體以及新的領域(如自備電站、地熱項目)方面等開展業務。

2018年本公司累計簽訂海外訂單約1.04億元，重點項目為龍源環保和朗新明分別簽署的孟加拉艾薩拉姆項目工程脫硫設備、工程鍋爐補給水設備和海水淡化設備採購。此外，龍源技術簽署了印尼南山某等離子應用項目，國電智深簽署了神華國華(印尼)爪哇發電有限公司某燃煤發電工程碼頭項目及一系列增補合同。

### 致力於技術革新和研發

本集團為增強核心競爭力，在科技創新及研發方面努力不懈，在本集團業務多個領域取得了豐碩成果：

- 搭建完備的科技研發體系。本集團目前擁有「風電設備及系統技術國家重點實驗室」等4個國家級科研平台、11個省級科研平台，2個博士後科研工作站，1個院士專家工作站，科研實力居國內行業領軍地位。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

- The Group actively participated in formulating and modifying national and industry standards. By the end of December 2018, it has led the preparation of 1 national standard and revision of 1 national standard, and participated in preparing and revising 52 national standards; led the preparation of 5 industry standards, and participated in preparing 34 industry standards; and led the preparation of one local standard. In 2018, the Group obtained a total of 324 patents, including 50 invention patents.
- In terms of environmental protection, the Low-cost Desulphurisation Zero Liquid Discharge Technology Demonstration Project of Longyuan Environmental Protection was successfully implemented with technical level reaching the international leading level. In terms of renewable energy, United Power applied the applied 270° electric pitch control technology and 300kW ocean tide power generating unit of the underwater video technology was successfully deployed into the sea and combined to the grid for power generation; in terms of power electronics and information technology, the intelligent DCS system with open-end platform of Guodian Zhishen was put into operation at the thermal power plant of Inner Mongolia Dongsheng.
- 積極參與國家及行業標準的制訂和修訂工作。截止2018年12月底，共計主持編製國家標準1項、主持修訂國家標準1項、參與編製及修訂國家標準52項。主持編製行業標準5項、參與編製行業標準34項、主持編製地方標準1項。2018年度本集團共計獲得專利324件，其中發明專利50件。
- 環保方面，龍源環保低成本脫硫廢水零排放技術示範工程順利實施，技術水平達到國際領先水平；新能源方面，聯合動力自主研发的應用270°電動變槳技術和 underwater 視頻技術的300kW海洋潮流能發電機組成功下海，並順利併網發電運行；電力電子及信息化方面，國電智深基於平台開放型的智能DCS系統在內蒙古東勝熱電廠投入運行。

As a result of the remarkable achievements in technological innovation and R&D, in 2018, the Group has established a strong foothold in this field while winning numerous awards:

本集團的技術革新和研發在2018年也獲得多項行業肯定及獲頒多項獎項，亮點頗多：

- United Power received the State Science and Technology Improvement Award (second prize) for “R&D and Large-scale Application of Key Technology for Wind Power Generators with High Efficiency and Low Wind Speed”.
- United Power received the gold medal of 20th China Patent Award for “Method and System for Synergetic Control on Power of Wind Power Farms”.
- United Power received the Hebei Provincial Science and Technology Improvement Award (first prize) for “R&D and Large-scale Application of Key Technology for Malfunction Diagnosis on Wind Turbine Drive Chains”.
- United Power received the China Power Technology Improvement Award (second prize) for “Research and Large-scale Application of Integrated Blade Intelligent Design and Manufacturing Technology for Wind Turbines with Large Capacity”.
- Longyuan Environmental Protection received the China Power Innovation Award (first prize) for “Key Technology and Application of Zero Emission of Low-cost Desulphurisation Wastewater in Large Coal-fired Power Plants”.
- 聯合動力《高效低風速風電機組關鍵技術研發和大規模工程應用》獲得國家科學技術進步二等獎。
- 聯合動力《一種風電場功率協同控制方法及其系統》獲得第二十屆中國專利金獎。
- 聯合動力《風電機組傳動鏈故障診斷關鍵技術研發與大規模應用》獲得河北省科學技術進步一等獎。
- 聯合動力《大容量風電機組一體化葉片智能設計製造技術研究與大規模工程應用》獲得中國電力科技進步二等獎。
- 龍源環保《大型燃煤電站低成本脫硫廢水零排放關鍵技術與應用》獲得中國電力創新獎一等獎。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

- United Power received the China Power Innovation Award (first prize) for "Research and Industrial Application of Advanced Blade Design and Manufacturing Technology for Wind Turbines with Large Capacity and Low Wind Speed".
- Longyuan Environmental Protection received the Science and Technology Award (first prize) for "Development of Key Technology Development for Large-scale Carbon Reduction in Coal-based Energy Industry" from China Coal Industry Association.
- United Power received the Energy Innovation Award (first prize) for "Innovation and Application of Key Technology for High-performance Blade Design, Manufacturing and Inspection for Wind Turbines" from the China Energy Research Society.
- 聯合動力《大容量低風速風電機組先進葉片設計、製造技術研究及產業化應用》獲得中國電力創新獎一等獎。
- 龍源環保《煤基能源產業規模化碳減排關鍵技術開發》獲得中國煤炭工業協會科學科學技術獎一等獎。
- 聯合動力《風電機組高性能葉片設計製造檢測關鍵技術創新及應用》獲得中國能源研究會能源創新一等獎。

### ANALYSIS OF 2018 FINANCIAL RESULTS

Please read this section in conjunction with the consolidated financial statements of the Group for the year ended 31 December 2018.

#### Analysis on consolidated results

##### Revenue

Consolidated revenue of the Group in 2018 was approximately RMB11,411.8 million, representing a decrease of approximately 2.5% as compared with approximately RMB11,704.6 million in 2017. As compared with 2017, revenues from environmental protection solutions and energy conservation solutions increased by RMB593.8 million and RMB48.2 million, or 12.9% and 2.5%, respectively. Revenues from wind power products and services and solar power products and services businesses (discontinued operation) decreased by approximately RMB881.5 million and RMB1.6 million, respectively, representing decreases of 18.6% and 100%. The increase in revenue generated from the environmental protection business was mainly due to confirmed revenue from the new business, coal closure renovation and plume treatment. The increase in revenue generated from energy conservation solution was mainly due to the increase in revenue generated from general contract of power stations business; the decrease in revenue generated from wind power products and services business was mainly due to the decrease in the sales volume of wind turbine generators of the Group in 2018; the decrease in revenue generated from solar power products and services business (discontinued operation) was mainly due to discontinued operation.

### 2018年財務業績分析

閱讀本節時請一併閱讀截至2018年12月31日止年度本集團的合併財務報表。

#### 合併業績分析

##### 收入

2018年，本集團合併收入約為人民幣11,411.8百萬元，與2017年的約人民幣11,704.6百萬元相比，約減少2.5%。與2017年相比，環保解決方案和節能解決方案收入分別增加人民幣593.8百萬元及人民幣48.2百萬元，增加率分別為12.9%及2.5%。風電產品及服務業務和太陽能產品及服務業務(已終止經營)收入分別減少人民幣881.5百萬元及人民幣1.6百萬元，減少率分別約為18.6%及100%。環保業務產生的收入增加主要是由於新業務煤場封閉改造及煙羽治理確認收入所致，節能解決方案收入增加主要是由於電站建設總承包業務的收入增加所致；風電產品及服務業務產生的收入下降主要是由於2018年本集團風機銷售數量有所下降，太陽能產品及服務業務(已終止經營)產生的收入減少主要是由於終止經營所致。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

The following table sets out the Group's revenues by segment and as a percentage of the total revenue of the Group for the years ended 31 December 2018 and 2017, respectively:

下表分別載列截至2018年及2017年12月31日止年度按分部劃分的本集團收入及其佔本集團總收入的百分比：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
<b>Environmental protection and energy conservation solutions:</b>	<b>環保及節能解決方案：</b>				
Environmental protection	環保	<b>5,212.8</b>	<b>45.7</b>	4,619.0	39.5
Energy conservation solutions	節能解決方案	<b>2,001.2</b>	<b>17.5</b>	1,953.0	16.7
<b>Total</b>	<b>合計</b>	<b>7,214.0</b>	<b>63.2</b>	6,572.0	56.2
<b>Renewable energy equipment manufacturing and services:</b>	<b>可再生能源設備製造及服務：</b>				
Wind power products and services	風電產品及服務	<b>3,868.9</b>	<b>33.9</b>	4,750.4	40.6
Solar power products and services (discontinued operation)	太陽能產品及服務 (已終止經營)	–	<b>0.0</b>	1.6	0.0
<b>Total</b>	<b>合計</b>	<b>3,868.9</b>	<b>33.9</b>	4,752.0	40.6
All others	所有其他	<b>328.9</b>	<b>2.9</b>	380.6	3.2
<b>Total</b>	<b>總計</b>	<b>11,411.8</b>	<b>100.0</b>	11,704.6	100.0

#### Cost of sales

#### 銷售成本

In 2018, consolidated cost of sales for the Group amounted to approximately RMB8,756.5 million, representing a decrease of approximately RMB 100.4 million or 1.1%, as compared to that in 2017 of approximately RMB8,856.9 million. This decrease was primarily due to the significant decrease in cost of sales for the Group's wind power products and services business, and the increase in costs of sales for environmental protection solutions and energy conservation solutions, which were consistent with the changes in revenues from such businesses.

2018年，本集團合併銷售成本約為人民幣8,756.5百萬元，較2017年的約人民幣8,856.9百萬元減少約為人民幣100.4百萬元或1.1%。下降的主要原因是本集團風電產品及服務業務的銷售成本大幅減少，環保解決方案、節能解決方案銷售成本增加，與該等業務收入變化趨勢相一致。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

The following table sets out the Group's cost of sales by segment and as a percentage of total cost of sales of the Group for the years ended 31 December 2018 and 2017, respectively:

下表分別載列截至2018年及2017年12月31日止年度按分部劃分的本集團銷售成本及其佔本集團總銷售成本的百分比：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
<b>Environmental protection and energy conservation solutions:</b>	環保及節能解決方案：				
Environmental protection	環保	4,134.7	47.2	3,623.0	40.9
Energy conservation solutions	節能解決方案	1,728.4	19.8	1,630.3	18.4
<b>Total</b>	<b>合計</b>	<b>5,863.1</b>	<b>67.0</b>	<b>5,253.3</b>	<b>59.3</b>
<b>Renewable energy equipment manufacturing and services:</b>	可再生能源設備製造及服務：				
Wind power products and services	風電產品及服務	2,678.3	30.6	3,365.1	38.0
Solar power products and services (discontinued operation)	太陽能產品及服務 (已終止經營)	12.7	0.1	9.5	0.1
<b>Total</b>	<b>合計</b>	<b>2,691.0</b>	<b>30.7</b>	<b>3,374.6</b>	<b>38.1</b>
All others	所有其他	202.4	2.3	229.0	2.6
<b>Total</b>	<b>總計</b>	<b>8,756.5</b>	<b>100.0</b>	<b>8,856.9</b>	<b>100.0</b>

### Gross profit and gross profit margin

For the foregoing reasons, gross profit of the Group in 2018 amounted to approximately RMB2,655.3 million, representing a decrease of approximately RMB192.4 million, or 6.8%, as compared to that in 2017 of approximately RMB2,847.7 million. The decrease in gross profit was mainly due to the decrease in gross profit for wind power products and services business. The average gross profit margin of the Group across all segments decreased from 24.3% in 2017 to 23.3% in 2018, which was primarily attributable to the decrease in gross profit margin for the environmental protection and energy conservation solutions business.

### 毛利與毛利率

鑒於上述原因，本集團2018年的毛利約為人民幣2,655.3百萬元，與2017年的約人民幣2,847.7百萬元相比減少約人民幣192.4百萬元或6.8%，毛利下降主要是由於風電產品及服務業務毛利減少所致。本集團所有分部平均毛利率從2017年的24.3%減少至2018年的23.3%，毛利率減少主要是因為環保及節能解決方案的毛利率下降所致。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

The following table sets out the Group's gross profit/(loss) and gross profit margins by segment for the years ended 31 December 2018 and 2017, respectively:

下表分別載列截至2018年及2017年12月31日止年度按分部劃分的本集團毛利/(毛虧)和毛利率：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
<b>Environmental protection and energy conservation solutions:</b>	<b>環保及節能解決方案：</b>				
Environmental protection	環保	<b>1,078.1</b>	<b>20.7</b>	996.0	21.6
Energy conservation solutions	節能解決方案	<b>272.8</b>	<b>13.6</b>	322.7	16.5
<b>Renewable energy equipment manufacturing and services:</b>	<b>可再生能源設備製造及服務：</b>				
Wind power products and services	風電產品及服務	<b>1,190.6</b>	<b>30.8</b>	1,385.3	29.2
Solar power products and services (discontinued operation)	太陽能產品及服務 (已終止經營)	<b>(12.7)</b>	<b>N/A</b>	(7.9)	N/A
All others	所有其他	<b>126.5</b>	<b>38.5</b>	151.6	39.8
<b>Total</b>	<b>總計</b>	<b>2,655.3</b>	<b>23.3</b>	2,847.7	24.3

#### Other revenue

#### 其他收入

Other revenue of the Group's continuing operations decreased by approximately RMB23.4 million, or 6.6%, from approximately RMB355.1 million for 2017 to approximately RMB331.7 million for 2018, which was primarily due to the decrease in interest income during the year. Other revenue of the Group's discontinued operation increased by approximately RMB24.4 million, or 186.3%, from approximately RMB13.1 million for 2017 to approximately RMB37.5 million for 2018, which was primarily due to the increase in rental income for the housing and equipment leased by Guodian Solar Co., Ltd. ("Guodian Solar").

2018年，本集團持續經營業務的其他收入約人民幣331.7百萬元，較2017年的約人民幣355.1百萬元減少約人民幣23.4百萬元或6.6%，主要原因是本年利息收入減少；本集團已終止經營業務的其他收入約人民幣37.5百萬元，較2017年的約人民幣13.1百萬元增加約人民幣24.4百萬元或186.3%，主要原因是國電光伏有限公司(「國電光伏」)租賃房屋及設備的租賃收入增加。

#### Other net income/(losses)

#### 其他收益/(虧損)淨額

Other net income from continuing operations of the Group for 2018 was approximately RMB42.3 million, while other net income for 2017 was approximately RMB560.2 million, representing a decrease of approximately RMB517.9 million, or 92.4%, which was primarily due to the net gain on disposal of subsidiaries of approximately RMB463.2 million in the previous year. Other net losses from the Group's discontinued operation was approximately RMB3.4 million for 2018, representing an decrease of approximately RMB111.9 million or 103.1% as compared to other net income of approximately RMB108.5 million for 2017, which was primarily due to the net gain on disposal of subsidiaries of approximately RMB98.3 million in the previous year, and the decrease in gain on debt restructuring of approximately RMB10.7 million.

2018年，本集團持續經營業務其他收益淨額約人民幣42.3百萬元，較2017年其他收益淨額約人民幣560.2百萬元減少約人民幣517.9百萬元或92.4%，主要是由於上年處置附屬公司產生的淨收益約人民幣463.2百萬元；本集團已終止經營業務的其他虧損淨額約人民幣3.4百萬元，較2017年其他收益淨額約人民幣108.5百萬元減少約人民幣111.9百萬元或103.1%，主要是由於其上年處置附屬公司產生淨收益約人民幣98.3百萬元，債務重組利得減少約人民幣10.7百萬元。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### **Selling and distribution expenses**

Selling and distribution expenses of the Group's continuing operations decreased by approximately RMB291.7 million or 30.9%, from approximately RMB945.5 million for 2017 to approximately RMB653.8 million for 2018, which was primarily due to the decrease in the after-sales service fee and warranty of wind turbines. The Group reversed selling and distribution expenses of the discontinued operation approximately RMB9.4 million, which was mainly due to the reversal of warranty.

### **Administrative expenses**

Administrative expenses of the Group's continuing operations increased by approximately RMB208.2 million or 12.1%, from approximately RMB1,721.0 million for 2017 to approximately RMB1,929.2 million for 2018. The Group reversed administrative expenses of the discontinued operation approximately RMB129.0 million, which was mainly due to collection of impaired receivables and reversal of loss allowance correspondingly.

### **Operating profit/(loss)**

As a result of the foregoing factors, the operating profit of the Group's continuing operations decreased by approximately RMB645.5 million, or 58.4%, from approximately RMB1,104.5 million for 2017 to approximately RMB459.0 million for 2018. The discontinued operation of the Group changed from an operating loss of approximately RMB347.4 million for 2017 to an operating profit of approximately RMB159.8 million for 2018, increased by approximately RMB507.2 million or 146.0%.

### **Finance costs**

Finance costs of the Group's continuing operations increased by approximately RMB16.3 million, or 2.9%, from approximately RMB563.8 million for 2017 to approximately RMB580.1 million for 2018. Finance cost of the Group's discontinued operation decreased by approximately RMB2.2 million, or 31.9% from approximately RMB6.9 million for 2017 to approximately RMB4.7 million for 2018.

### **Profit/(loss) before taxation**

As a result of foregoing factors, profit before taxation of the Group's continuing operations decreased by approximately RMB687.1 million or 109.5%, from approximately RMB627.4 million for 2017 to the loss of approximately RMB59.7 million for 2018; the Group's discontinued operation increased by approximately RMB509.4 million, or 143.8%, from the loss before taxation of approximately RMB354.3 million for 2017 to the profit before taxation of approximately RMB155.1 million for 2018.

### **銷售及分銷開支**

2018年，本集團持續經營業務銷售及分銷開支約人民幣653.8百萬元，較2017年的約人民幣945.5百萬元減少約人民幣291.7百萬元或30.9%，主要是由於風機產品售後服務費及質保金的減少；本集團已終止經營業務轉回銷售及分銷開支約人民幣9.4百萬元，主要是質保金沖回。

### **行政開支**

2018年，本集團持續經營業務行政開支約人民幣1,929.2百萬元，較2017年的約人民幣1,721.0百萬元增加約人民幣208.2百萬元或12.1%；本集團已終止經營業務轉回行政開支約人民幣129.0百萬元，主要是由於資產減值損失轉回及賠償金減少。

### **經營利潤/(虧損)**

鑒於上述原因，本集團持續經營業務的經營利潤從2017年的約人民幣1,104.5百萬元減少至2018年的約人民幣459.0百萬元，減少約人民幣645.5百萬元或58.4%；本集團已終止經營業務從2017年的經營虧損約人民幣347.4百萬元轉為2018年的經營利潤約人民幣159.8百萬元，增加約人民幣507.2百萬元或146.0%。

### **財務成本**

2018年，本集團持續經營業務的財務成本約人民幣580.1百萬元，較2017年的約人民幣563.8百萬元增加約人民幣16.3百萬元或2.9%；2018年，本集團已終止經營業務的財務成本約人民幣4.7百萬元，較2017年約人民幣6.9百萬元減少約人民幣2.2百萬元或31.9%。

### **稅前利潤/(虧損)**

鑒於上述原因，本集團持續經營業務的稅前利潤從2017年的約人民幣627.4百萬元減少至2018年的虧損約人民幣59.7百萬元，減少約人民幣687.1百萬元或109.5%；本集團已終止經營業務從2017年的稅前虧損約人民幣354.3百萬元增加至2018年的稅前利潤約人民幣155.1百萬元，增加約人民幣509.4百萬元或143.8%。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### **Income tax**

The Group's income tax charges for continuing operations decreased by approximately RMB197.9 million, or 109.4%, which was primarily due to the decrease in the current income tax expenses and the increase in deferred tax assets recognised mainly in respect of unused tax losses. The effective tax rate for the Group's continuing operations decreased from 28.8% for 2017 to 28.4% for 2018.

#### **Profit for the year**

As a result of the foregoing factors, the Group recorded profit for the year of approximately RMB112.4 million in 2018, and the profit of approximately RMB90.8 million in 2017.

#### **Profit/(loss) attributable to non-controlling interests**

As a result of the foregoing factors, non-controlling interests of the Group decreased by approximately RMB48.8 million, from profit attributable to non-controlling interests of approximately RMB47.1 million for 2017 to a loss attributable to non-controlling interests of approximately RMB1.7 million for 2018.

#### **Profit attributable to equity shareholders of the Company**

As a result of the foregoing factors, profit attributable to equity shareholders of the Company was approximately RMB114.1 million for 2018, representing an increase of approximately RMB70.4 million, from a profit attributable to equity shareholders of the Company of approximately RMB43.7 million for 2017.

#### **所得稅**

本集團持續經營業務的當期所得稅費用減少約人民幣197.9百萬元或109.4%，主要由於本集團本年確認為遞延所得稅資產的可抵扣虧損增加。本集團持續經營業務的實際稅率從2017年的28.8%減少至2018年的28.4%。

#### **本年利潤**

鑒於上述原因，2018年本集團錄得本年利潤為約人民幣112.4百萬元，而2017年錄得利潤約人民幣90.8百萬元。

#### **非控股權益應佔利潤／(虧損)**

鑒於上述原因，本集團非控股權益由2017年應佔利潤約人民幣47.1百萬元減少至2018年的應佔虧損約人民幣1.7百萬元，減少約人民幣48.8百萬元。

#### **本公司權益股東應佔利潤**

鑒於上述原因，本公司2018年的權益股東應佔利潤為約人民幣114.1百萬元，和2017年的權益股東應佔利潤為約人民幣43.7百萬元相比增加約人民幣70.4百萬元。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Analysis of Segment Results

#### 分部業績分析

The following table sets out Group's segment revenues, segment gross profit and segment operating profit, each as a percentage of the total revenue, gross profit and operating profit of the Group for the years ended 31 December 2018 and 2017, respectively:

下表分別載列截至2018年及2017年12月31日止年度本集團的分部收入、分部毛利和分部經營利潤以及各自佔相關期間本集團收入、毛利和經營利潤的百分比：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
<b>Environmental protection and energy conservation solutions</b>	<b>環保及節能解決方案</b>				
Environmental protection:	環保：				
Revenue	收入	<b>5,212.8</b>	<b>45.7</b>	4,619.0	39.5
Gross profit	毛利	<b>1,078.1</b>	<b>40.6</b>	996.0	35.0
Operating profit	經營利潤	<b>372.8</b>	<b>60.3</b>	615.9	81.3
Energy conservation solutions:	節能解決方案：				
Revenue	收入	<b>2,001.2</b>	<b>17.5</b>	1,953.0	16.7
Gross profit	毛利	<b>272.8</b>	<b>10.3</b>	322.7	11.3
Operating profit	經營利潤	<b>107.1</b>	<b>17.3</b>	181.6	24.0
<b>Renewable energy equipment manufacturing and services</b>	<b>可再生能源設備</b>				
Wind power products and services:	風電產品及服務：				
Revenue	收入	<b>3,868.9</b>	<b>33.9</b>	4,750.4	40.6
Gross profit	毛利	<b>1,190.6</b>	<b>44.8</b>	1,385.3	48.6
Operating profit	經營利潤	<b>36.7</b>	<b>5.9</b>	245.0	32.4
Solar power products and services (discontinued operation):	太陽能產品及服務 (已終止經營)：				
Revenue	收入	-	-	1.6	-
Gross loss	毛利	<b>(12.7)</b>	<b>(0.5)</b>	(7.9)	(0.3)
Operating profit/(loss)	經營利潤/(虧損)	<b>159.8</b>	<b>25.8</b>	(347.4)	(45.9)

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Environmental Protection and Energy Conservation Solutions

#### 環保及節能解決方案

##### Environmental protection

##### 環保

##### Revenue

##### 收入

Revenue from the environmental protection business increased by approximately RMB593.8 million or 12.9%, from approximately RMB4,619.0 million for 2017 to approximately RMB5,212.8 million for 2018. The increase was mainly attributable to the increase in revenue from the new business, coal closure renovation and plume treatment. In particular, coal closure renovation business benefited from the opportunity of the restructuring of China Energy, and the Group targeted to track a number of projects with great potentialities to exploit and power plants with sound operation conditions within the system of China Energy, as a new business direction.

環保業務收入從2017年的約人民幣4,619.0百萬元增加至2018年的約人民幣5,212.8百萬元，增加約人民幣593.8百萬元或12.9%。主要是由於增加了新業務煤場封閉改造及煙羽治理的收入。其中，煤場封閉改造項目得益於國家能源集團重組的契機，本集團鎖定跟蹤國家能源集團系統內一批挖掘潛力大且經營狀況好的電廠項目，以作為新的業務方向。

The following table sets out the revenues from each business line of the Group's environmental protection business, each as a percentage of the revenue from this business, for the years ended 31 December 2018 and 2017, respectively:

下表分別載列截至2018年及2017年12月31日止年度本集團環保業務中各業務線的收入，及其佔相關年度該業務收入的百分比：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
Desulphurisation	脫硫	2,478.7	47.5	2,626.8	56.9
Denitrification	脫硝	811.4	15.6	700.6	15.2
Low NOx combustion equipment	低氮燃燒設備	122.0	2.3	83.3	1.8
Water treatment	水處理	832.9	16.0	856.3	18.5
Ash removal	除塵	337.7	6.5	352.0	7.6
Coal closure renovation and plume treatment	煤場封閉改造及煙羽治理	630.1	12.1	—	—
<b>Total</b>	<b>總計</b>	<b>5,212.8</b>	<b>100.0</b>	<b>4,619.0</b>	<b>100.0</b>

##### Cost of sales

##### 銷售成本

Cost of sales for the environmental protection business of the Group increased by approximately RMB511.7 million or 14.1%, from approximately RMB3,623.0 million for 2017 to approximately RMB4,134.7 million for 2018, which was consistent with the increase in revenues from such business line, which was mainly attributable to the new business of the Group, coal closure renovation and plume treatment.

本集團環保業務的銷售成本從2017年的約人民幣3,623.0百萬元增加至2018年的約人民幣4,134.7百萬元，相比增加了511.7百萬元或14.1%。這與該業務線的收入增加一致，主要原因是由於本集團新增了煤場封閉改造及煙羽治理業務所致。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### Gross profit and gross profit margin

As a result of the foregoing reasons, gross profit attributable to the environmental protection business increased by approximately RMB82.1 million, or 8.2%, from approximately RMB996.0 million for 2017 to approximately RMB1,078.1 million for 2018. Gross profit margin for this business decreased from 21.6% to 20.7%, which was primarily attributable to the decrease in gross profit margins for the desulphurisation, which accounted for a large proportion.

The following table sets out the gross profit margins for the business lines comprising the Group's environmental protection business for the year ended 31 December 2018 and 2017, respectively:

		2018 %	2017 %
Desulphurisation	脫硫	17.3	22.4
Denitrification	脫硝	41.6	33.4
Low NOx combustion equipment	低氮燃燒設備	8.1	2.5
Water treatment	水處理	25.1	19.7
Ash removal	除塵	14.9	12.6
Coal closure renovation and plume treatment	煤場封閉改造及煙羽治理	11.6	-

### Energy conservation solutions

#### Revenue

Revenue attributable to the energy conservation business increased by approximately RMB48.2 million or 2.5%, from approximately RMB1,953.0 million for 2017 to approximately RMB2,001.2 million for 2018.

### 毛利及毛利率

鑒於上述原因，環保業務產生的毛利從2017年的約人民幣996.0百萬元增加至2018年的約人民幣1,078.1百萬元，增加約人民幣82.1百萬元或8.2%。此業務的毛利率從2017年的約21.6%減少至2018年的約20.7%，主要因為佔比較大的脫硫業務毛利率有所下降。

下表分別載列截至2018年及2017年12月31日止年度構成本集團環保業務的業務線毛利率：

### 節能解決方案

#### 收入

節能業務產生的收入從2017年的約人民幣1,953.0百萬元增加至2018年的人民幣約2,001.2百萬元，增加約人民幣48.2百萬元或2.5%。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

The following table sets out the revenues from the business lines of the Group's energy conservation business, each as a percentage of revenue from this business, for the years ended 31 December 2018 and 2017, respectively.

下表分別載列截至2018年及2017年12月31日止年度本集團節能業務中各業務線的收入，及其佔相關年度該業務收入的百分比：

		2018		2017	
		(RMB million)	%	(RMB million)	%
		(人民幣百萬元)		(人民幣百萬元)	
Plasma-assisted coal ignition and combustion stabilization	等離子體點火及穩燃	242.9	12.1	250.9	12.8
Steam turbine flow passage retrofitting and maintenance	汽輪機流通改造及維修	12.9	0.6	28.8	1.5
Energy conservation equipment renovation	節能設備改造	4.1	0.2	80.9	4.1
Waste heat recovery	餘熱回收	0.4	0.1	144.1	7.4
Energy conservation service <sup>(Note)</sup>	節能服務 <sup>(附註)</sup>	407.1	20.3	428.7	22.0
General contracting for power stations	電站建設總承包	1,333.8	66.7	1,019.6	52.2
<b>Total</b>	<b>總計</b>	<b>2,001.2</b>	<b>100.0</b>	<b>1,953.0</b>	<b>100.0</b>

Note: Energy conservation service refers to the "EMC" referred to in 2017 Annual Report.

附註：節能服務項目即2017年年報中所列「合同能源管理」業務。

#### Cost of sales

Cost of sales for the energy conservation solutions business increased by approximately RMB98.1 million or 6.0%, from approximately RMB1,630.3 million for 2017 to approximately RMB1,728.4 million for 2018, which was consistent with the increase in revenue from this business line.

#### 銷售成本

節能解決方案業務產生的銷售成本從2017年的約人民幣1,630.3百萬元增加至2018年的約人民幣1,728.4百萬元，增長約人民幣98.1百萬元或6.0%，這與該業務線的收入增長趨勢一致。

#### Gross profit and gross profit margins

As a result of the foregoing reasons, gross profit attributable to the energy conservation business decreased by approximately RMB49.9 million or 15.5%, from approximately RMB322.7 million for 2017 to approximately RMB272.8 million for 2018. Gross profit margin for this business decreased from approximately 16.5% to approximately 13.6%, mainly attributable to the decreased gross profit margin of general contracting for power stations.

#### 毛利及毛利率

鑒於上述原因，節能業務產生的毛利從2017年的約人民幣322.7百萬元下降至2018年的約人民幣272.8百萬元，減少約人民幣49.9百萬元或15.5%。此業務的毛利率從2017年的約16.5%下降至2018年的約13.6%。減少的主要原因是因為收入所佔比例較大的電站建設總承包業務毛利率有所下降。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### Renewable energy equipment manufacturing and services

#### Wind power products and services

##### Revenue

Revenue attributable to the wind power products and services business decreased by approximately RMB881.5 million, or 18.6%, from approximately RMB4,750.4 million for 2017 to approximately RMB3,868.9 million for 2018. The decrease in the revenue was mainly attributable to the decrease in number of wind turbines sold by the Group.

##### Cost of sales

Cost of sales attributable to the wind power products and services business decreased by approximately RMB686.8 million or 20.4%, from approximately RMB3,365.1 million for 2017 to approximately RMB2,678.3 million for 2018, which was consistent with the decrease in revenue from such business.

##### Gross profit and gross profit margin

As a result of the foregoing reasons, gross profit attributable to the wind power products and services business decreased by approximately RMB194.7 million or 14.1%, from approximately RMB1,385.3 million for 2017 to approximately RMB1,190.6 million for 2018. Gross profit margin for this business increased slightly from 29.2% for 2017 to 30.8% for 2018.

#### Solar power products and services (discontinued operation)

##### Revenue

Revenue attributable to the solar power products and services business decreased by approximately RMB1.6 million or 100%, from approximately RMB1.6 million for 2017 to RMB Nil for 2018, which was mainly due to the zero revenue from the Group's shutdown of production lines in the solar power products manufacturing business.

##### Cost of sales

Cost of sales attributable to the solar power products and services business increased by approximately RMB3.2 million or 33.7%, from approximately RMB9.5 million for 2017 to approximately RMB12.7 million for 2018.

### 可再生能源設備製造及服務

#### 風電產品及服務

##### 收入

風電產品及服務業務的收入從2017年的約人民幣4,750.4百萬元下降至2018年的約人民幣3,868.9百萬元，減少約人民幣881.5百萬元或18.6%。下降的主要原因是本集團風機銷售數量有所下降。

##### 銷售成本

風電產品及服務業務的銷售成本從2017年的約人民幣3,365.1百萬元下降至2018年的約人民幣2,678.3百萬元，減少約人民幣686.8百萬元或20.4%，這與該等業務的收入下降趨勢一致。

##### 毛利與毛利率

鑒於上述原因，風電產品及服務業務的毛利從2017年的約人民幣1,385.3百萬元下降至2018年的約人民幣1,190.6百萬元，減少約人民幣194.7百萬元或14.1%。此業務2018年的毛利率為30.8%，與2017年的29.2%略有上升。

#### 太陽能產品及服務(已終止經營)

##### 收入

太陽能產品及服務業務收入從2017年的約人民幣1.6百萬元減少到2018年的人民幣零元，減少約人民幣1.6百萬元或100%，主要原因是本集團太陽能產品製造業務生產線停產，從而導致無收入。

##### 銷售成本

太陽能產品及服務業務的銷售成本從2017年的約人民幣9.5百萬元增加至2018年的約人民幣12.7百萬元，增加約人民幣3.2百萬元或33.7%。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Gross loss

As a result of the foregoing reasons, gross loss of the solar power products and services business of the Group for 2018 was approximately RMB12.7 million.

#### Liquidity and Source of Capital

In 2018, the Group's cash is mainly used in business operations and the repayment of bank borrowings due.

The following table sets out the net cash flows of the Group for the years ended 31 December 2018 and 2017, and the cash and cash equivalents as at 31 December 2018 and 2017, respectively:

		2018 (RMB million) (人民幣百萬元)	2017 (RMB million) (人民幣百萬元)
Net cash generated from operating activities	經營活動產生之現金淨額	530.5	1,007.7
Net cash (used in)/generated from investing activities	投資活動(使用)/產生之現金淨額	(318.8)	1,078.9
Net cash used in financing activities	融資活動使用之現金淨額	(776.1)	(2,525.8)
Cash and cash equivalents as at 31 December	於12月31日的現金及現金等價物	3,436.5	3,994.1

#### Net cash generated from operating activities

Net cash generated from the Group's operating activities for 2018 was approximately RMB530.5 million in 2018, as compared to the net cash generated from the Group's operating activities of approximately RMB1,007.7 million for 2017, which was mainly due to the decrease in the Group's revenue during the year.

#### Net cash (used in)/generated from investing activities

Net cash used in the Group's investing activities for 2018 was approximately RMB318.8 million, as compared to the net cash generated from the Group's investing activities of approximately RMB1,078.9 million for 2017. The decrease of the net cash generated from the Group's investing activities was mainly attributable to the decrease in the cash received from the recovery of investment income and the disposals of interests in subsidiaries.

#### 毛虧

鑒於上述原因，本集團截至2018年太陽能產品及服務業務的毛虧約為人民幣12.7百萬元。

#### 流動資金和資本來源

2018年，本集團的現金主要供業務經營及償還到期銀行借款之用。

下表分別載列截至2018年及2017年12月31日止年度本集團的現金流量淨額及於2018年及2017年12月31日本集團的現金及現金等價物：

#### 經營活動產生之現金淨額

本集團2018年經營活動產生的現金淨額約為人民幣530.5百萬元，而2017年本集團經營活動產生的現金淨額約為人民幣1,007.7百萬元，主要是因為本集團本年收入下降所致。

#### 投資活動(使用)/產生之現金淨額

本集團2018年投資活動使用的現金淨額約為人民幣318.8百萬元，而2017年的投資活動產生現金淨額約為人民幣1,078.9百萬元。投資活動產生之現金淨額減少主要是由於本集團取得投資收益和出售附屬公司收到的現金減少所致。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### **Net cash used in financing activities**

Net cash used in the Group's financing activities for 2018 was approximately RMB776.1 million, as compared to the net cash used in the Group's financing activities of approximately RMB2,525.8 million for 2017, primarily due to the increase in the borrowings obtained by the Group by RMB1,630.8 million this year.

### **Working capital**

As at 31 December 2018, the Group's cash and cash equivalents were approximately RMB3,436.5 million in total, representing a decrease of approximately RMB557.6 million, as compared to approximately RMB3,994.1 million for 2017. As at 31 December 2018, the Group had total unutilised bank facilities of approximately RMB14,348.0 million.

The Group's liability-to-asset, which is calculated as total liabilities by total assets, decreased from 78% as at 31 December 2017 to 77% as at 31 December 2018.

The Group's net gearing ratio, which is calculated by dividing net debt (including interest-bearing other payables and interest-bearing borrowings, less cash and cash equivalents) by the sum of total equity plus net debt, amounted to 51.7% as at 31 December 2018.

Based on the existing cash resources and unutilised bank credit facilities, the Directors are of the opinion that the Group will have enough working capital to support current requirements and daily operations for the coming 12 months.

### **Inventory analysis**

The inventories were approximately RMB3,017.4 million as at 31 December 2018, which decreased by approximately RMB128.0 million, or 4.1%, from approximately RMB3,145.4 million as at 31 December 2017. The decrease was primarily attributed to the decrease in demands for products and decrease in production of United Power.

### **Trade and bills receivables**

Trade and bills receivables decreased by approximately RMB355.4 million or 2.8% from approximately RMB12,842.8 million as at 31 December 2017 to approximately RMB12,487.4 million as at 31 December 2018.

### **Deposits, prepayments and other receivables**

The Group's deposits, prepayments and other receivables decreased by approximately RMB300.4 million or 15.0%, from approximately RMB2,001.2 million as at 31 December 2017 to approximately RMB1,700.8 million as at 31 December 2018. The decrease was primarily attributable to the decrease in receivables from related parties of the Group.

### **融資活動使用之現金淨額**

本集團2018年融資活動使用的現金淨額約為人民幣776.1百萬元，而2017年融資活動使用的現金淨額約為人民幣2,525.8百萬元，主要是因為本集團本年取得借款增加1,630.8百萬元。

### **運營資金**

於2018年12月31日，本集團的現金以及現金等價物總計約為人民幣3,436.5百萬元，與2017年的約人民幣3,994.1百萬元相比，減少約人民幣557.6百萬元。於2018年12月31日，本集團尚未使用的銀行信貸總計約為人民幣14,348.0百萬元。

本集團的資產負債率，由總債務除以本集團的總資產的比例核算，該比率由2017年12月31日的78%減少至2018年12月31日的77%。

本集團的淨債務負債率，由淨債務(包括有息其他應付款項和有息借款減去的現金和現金等價物)除以本集團的權益總額及淨債務總和計算，該比率於2018年12月31日為51.7%。

基於現有資金來源以及尚未使用的銀行信貸額度，董事認為本集團的運營資金足以支撐當前的需求以及未來12個月的日常運作。

### **存貨分析**

存貨從2017年12月31日的約人民幣3,145.4百萬元減少約人民幣128.0百萬元或4.1%至2018年12月31日的約人民幣3,017.4百萬元。主要是由於聯合動力產品需求下降，生產減少所致。

### **應收賬款及票據**

應收賬款及票據從2017年12月31日的約人民幣12,842.8百萬元減少約人民幣355.4百萬元或2.8%至2018年12月31日的約人民幣12,487.4百萬元。

### **按金、預付款項及其他應收款項**

本集團的按金、預付款及其他應收款項從2017年12月31日的約人民幣2,001.2百萬元減少約人民幣300.4百萬元或15.0%至2018年12月31日的約人民幣1,700.8百萬元。此減少主要是本集團應收關聯方款項減少。

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Trade and bills payables

Trade and bills payables decreased by approximately RMB485.3 million or 5.0% from approximately RMB9,684.7 million as at 31 December 2017 to approximately RMB9,199.4 million as at 31 December 2018, which was primarily attributable to a decrease in sales volume of the Group for the year, and thus a decrease in subcontract payment, equipment costs, costs of raw materials and freight payable.

#### Indebtedness

The following table sets forth the Group's borrowings as at 31 December 2018 and 2017:

#### 應付賬款及票據

應付賬款及票據從2017年12月31日的約人民幣9,684.7百萬元減少約人民幣485.3百萬元或5.0%至2018年12月31日的約人民幣9,199.4百萬元。主要是本集團本年應付分包工程款、設備款、原材料款及運費減少。

#### 債項

下表載列於2018及2017年12月31日本集團的借款情況：

		As at 31 December 2018 於2018年12月31日 (RMB million) (人民幣百萬元)	As at 31 December 2017 於2017年12月31日 (RMB million) (人民幣百萬元)
<b>Long-term interest-bearing borrowings</b>	<b>長期帶息借款</b>		
Bank loans:	銀行貸款：		
Secured	有抵押	279.5	269.5
Unsecured	無抵押	59.2	160.2
Other loans	其他貸款	791.5	622.9
Private placement notes (unsecured)	私人配售債務融資工具 (無抵押)	2,453.7	2,448.5
Corporate bonds	公司債券	2,035.8	2,035.4
<b>Sub-total</b>	<b>小計</b>	<b>5,619.7</b>	5,536.5
Less: Current portion of long-term borrowings	減：長期借款的即期部份	<b>(1,926.4)</b>	(1,482.8)
<b>Total</b>	<b>合計</b>	<b>3,693.3</b>	4,053.7
<b>Short-term interest-bearing borrowings</b>	<b>短期帶息借款</b>		
Bank loans:	銀行貸款：		
Secured	有抵押	925.0	-
Unsecured	無抵押	4,534.0	5,616.5
Other loans:	其他貸款：		
China Energy (unsecured)	國家能源集團(無抵押)	500.0	600.0
Related parties under China Energy (unsecured)	國家能源集團附屬(無抵押)	150.0	-
Current portion of long-term borrowings	長期借款的即期部份	1,926.4	1,482.8
<b>Total</b>	<b>合計</b>	<b>8,035.4</b>	7,699.3
<b>Total indebtedness</b>	<b>債項總額</b>	<b>11,728.7</b>	11,753.0

## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

As at 31 December 2018, the Group's indebtedness decreased by approximately 0.2% from approximately RMB11,753.0 million as at 31 December 2017 to approximately RMB11,728.7 million. The proportion of short-term indebtedness to overall indebtedness increased from approximately 65.5% as at 31 December 2017 to approximately 68.5% as at 31 December 2018, which was mainly due to changes in the structure of long-term borrowings and short-term borrowings as the current portion in long-term borrowings increased.

All of the Group's borrowings are denominated in RMB. The following table sets out the maturity status of the Group's long-term borrowings (including current portion) as at 31 December 2018 and 31 December 2017 respectively:

於2018年12月31日，本集團債項約為人民幣11,728.7百萬元，比於2017年12月31日的債項約人民幣11,753.0百萬元減少約0.2%。其中短期債項佔總債項的比例從於2017年12月31日的約65.5%增加至2018年12月31日的約68.5%，主要是由於本年長期借款中即期部分增加，改變了長短期借款的比例結構。

本集團期內所有的借款都以人民幣計算。下表載列本集團分別於2018年12月31日及2017年12月31日的長期借款(包括即期部分)到期情況：

		<b>As at 31 December 2018</b>	As at 31 December 2017
		<b>於2018年12月31日 (RMB million) (人民幣百萬元)</b>	於2017年12月31日 (RMB million) (人民幣百萬元)
Less than 1 year or on demand	1年內或按要求償還	<b>1,926.4</b>	1,482.8
More than 1 year but less than 2 years	1年以上但2年以內	<b>709.3</b>	1,721.9
More than 2 years but less than 5 years	2年以上但5年以內	<b>2,976.3</b>	2,321.7
More than 5 years	5年以上	<b>7.7</b>	10.1
<b>Total</b>	<b>合計</b>	<b>5,619.7</b>	5,536.5

The effective interest rate of the Group (determined by dividing total interest expenses for 2018 by the average of the sums of outstanding borrowings as at 1 January 2018 and 31 December 2018) increased from approximately 3.9% for 2017 to approximately 4.1% for 2018. The increase in the Group's effective interest rate was primarily due to the increase in the interest rates of private placement notes and short-term bank loans.

本集團的實際利率(以2018年總利息開支除以2018年1月1日與2018年12月31日的未償還借款的平均值釐定)從2017年的約3.9%上升至2018年的約4.1%，主要是本年私人配售債務融資工具和短期借款利率上升。

### Contingent liabilities

The Group's contingent liabilities as at 31 December 2018 primarily consisted of bid, performance and litigation guarantee provided by the Group.

### 或有負債

本集團於2018年12月31日的或有負債主要包括本集團提供的投標、履約及訴訟保函。

### Pledge of assets

Details of pledge of assets of the Company are set out in notes 16, 21 and 24 to the Financial Statements.

### 資產抵押

本公司資產抵押的詳情載於財務報表附註16、21及24。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

### 管理層討論與分析(續)

#### Major investment

In 2018, the Group fulfilled a total investment amount of RMB536.87 million, of which the infrastructural investment amount was RMB361.92 million, which was used to construct the Jiangsu Suqian Phase II Desulphurisation and Denitrification Concession Project and the 49.5MW Inner Mongolia Chifeng Chaghanhua Experimental Wind Power Project; the amount of technological upgrading investment was RMB174.95 million, which was mainly used for the technological upgrading and transformation of desulphurisation and denitrification concession projects, sewage treatment plants, and blade plants, etc.

#### Material Acquisition and Disposal

According to the Agreement on Purchase of Assets by Issuance of Shares and its supplementary agreements signed by the Company and Tianjin Zhonghuan Semiconductor Co., Ltd. ("**Zhonghuan Semiconductor**"), the Company will dispose 90% equity interest in Guodian Solar to Zhonghuan Semiconductor, and Zhonghuan Semiconductor will issue 83,983,137 ordinary shares to the Company as consideration. The disposal was approved by the Securities Regulatory Commission of China on 7 May 2018. On 30 June 2018, the Company completed the transaction on disposal of 90% equity interest in Guodian Solar to Zhonghuan Semiconductor. On 16 August 2018, the non-public issued consideration shares of Zhonghuan Semiconductor were listed on the Shenzhen Stock Exchange.

Save as disclosed above, the Group did not have any other material acquisition and disposal during the year ended 31 December 2018.

#### Market risk

The Group is exposed to various risks associated with its business operations, including credit and counterparty risk, interest rate risk, liquidity risk and exchange rate risk.

#### Credit and counterparty risk

The Group's credit risk is primarily attributable to cash at bank and in hand, trade and bills receivables, deposits, prepayments and other receivables and other non-current assets. Management has a credit policy in place and the exposure to these credit risks are monitored on an ongoing basis.

Substantially all of the Group's cash at bank and in hand are deposited in the stated owned/controlled PRC banks which the directors of the Company assessed the credit risk to be insignificant.

The Group performed credit evaluations on all of its customers, and monitors outstanding receivables due from such customers on an ongoing basis. The Group's credit evaluation focuses on a customer's payment history and its ability to pay and takes into account industry and customer-specific considerations, as well as the general macroeconomic climate. The Group generally requires its customers to settle progress billings and other debts in accordance with agreed contract terms.

#### 重大投資

本集團2018年完成投資共計人民幣536.87百萬元，其中，基建投資人民幣361.92百萬元，用於建設江蘇宿遷二期脫硫、脫硝特許經營項目及內蒙古赤峰查乾花49.5MW實驗風力發電項目；技改投資人民幣174.95百萬元，主要用於脫硫脫硝特許經營項目技術升級改造、水處理廠技術升級改造、葉片廠房技術升級改造。

#### 重大收購或出售

根據本公司與天津中環半導體股份有限公司(「**中環股份**」)簽訂的發行股份購買資產協議及其補充協議，本公司將國電光伏的90%股權出售予中環股份，且中環股份向本公司發行83,983,137股普通股作為代價。該項處置於2018年5月7日通過中國證券監督管理委員會的審核批准。於2018年6月30日，本公司將國電光伏的90%股權出售予中環股份的交易已完成。於2018年8月16日，中環股份本次非公开发行的代價股份已於深圳證券交易所上市。

除以上已披露者，於截至2018年12月31日止年度內，本集團無任何其他重大收購或出售。

#### 市場風險

本集團面臨著與其業務經營有關的多種風險，包括信貸和交易對手風險、利率風險、流動資金風險和匯率風險。

#### 信貸和交易對手風險

本集團信貸風險主要歸因於銀行存款及庫存現金、應收賬款及票據、按金、預付款項和其他應收款項，以及其他非流動資產。本集團定有內部信貸政策，並以持續的方式對其交易對方信貸風險進行監控。

本集團絕大部分現金都存於中國國有或國有控股的銀行業金融機構中。因此，本公司董事認為該等風險並不重大。本集團對其所有客戶進行信用評估，並持續監控客戶的重大應收款項。

本集團的信用評估注重客戶的付款記錄及付款能力，並考慮行業和客戶的具體因素，以及宏觀經濟環境。本集團一般要求其客戶按照合約協議條款支付進度付款和其他債務。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### **Interest rate risk**

The Group's interest rate risk arises primarily from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk.

The Group regularly reviews and monitors the mix of fixed and variable rate borrowings in order to manage its interest rate risks. During the year, however, management of the Group did not consider it is necessary to use interest rate swaps to hedge their exposure to interest.

### **Liquidity risk**

The nature of the Group's business gives rise to significant irregularity in its cash flow. Through regular collection of receivables and while ensuring sound operations, thereby was able to significantly increase the Company's operating cash. Meanwhile, the Group proposed to improve its financing structure and increase the proportion of long-term loans by issuing mid-term and long-term bonds and introducing financial leasing. The Group is committed to ensuring sufficient working capital to meet its operating needs or having access to adequate bank credit to maintain uninterrupted operations. The Group's cash flow position is essential for its continuous development and expansion.

### **Exchange rate risk**

The continued development and expansion of the Group's international operations is expected to result in increased exposure to exchange rate risk, arising primarily through export sales which would typically be denominated in foreign currencies. The Group expects that its future export sales will principally be denominated in either United States dollars or Hong Kong dollars. In 2018, the Group recorded an exchange gain of RMB8.3 million, mainly because the Hong Kong dollars deposits of the Company and other receivables due from Guodian Technology & Environment Group Hong Kong Corporation Limited, a subsidiary, were priced in Hong Kong dollars and there had been an appreciation in the Hong Kong dollar. The Directors of the Company consider that the Group's exchange rate risk is insignificant. The Group does not currently hedge against its exchange rate risk.

RMB currently is not a freely convertible currency and the PRC government may at its discretion restrict access to foreign currency exchange for current account transactions in the future. Changes in such foreign exchange controls may adversely affect the Group's international operations and sales, and may limit the Group's ability to satisfy its foreign exchange denominated obligations. In addition, the Group may be restricted from paying dividends on its listed H-shares to shareholders by any such policy changes.

### **利率風險**

本集團的利率風險主要來自於長期借款。浮動利率借款使本集團暴露於現金流利率風險之下。

本集團定期審查並監控固定利率及浮動利率借款的組合。然而，本集團管理層認為在本年度無需通過利率掉期，對沖本集團的利率風險。

### **流動資金風險**

鑒於其所經營的業務性質，本集團的現金流量具有顯著的不規則性。本集團在保證經營狀況良好的前提下，通過常態化應收賬款清收，大幅改善了公司經營現金。同時，本集團擬通過發行中長期債券、開展融資租賃等業務，改善融資結構，提高長期借款比例，本集團旨在確保其有足夠營運資金以達到其經營需求，或者能夠獲得充足的銀行信貸以不中斷地持續運營。本集團的現金流量狀況對於其持續發展和擴張不可或缺。

### **匯率風險**

本集團國際業務的持續發展和擴張預計將導致其面臨的匯率風險增加。這種增加主要來自於通常以外幣計價的出口銷售。本集團預計其未來的出口銷售將主要以美元或港元計價。本集團於2018年發生匯兌收益約為人民幣8.3百萬元，主要是由於本公司港幣存款及應收附屬公司國電科技環保集團香港有限公司以港幣計價，港幣升值帶來的。本公司董事認為匯率風險不重大。本集團目前未對沖其匯率風險。

目前人民幣並不是自由兌換的貨幣，未來中國政府可能會酌情決定限制經常賬戶交易的外匯準入。對外幣兌換管控的變化可能會對本集團的國際業務和銷售帶來負面影響，也可能會限制本集團滿足其外匯計價義務。此外，由於政策變化，本集團向其股東支付上市的H股的股息可能會被限制。



## MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

### BUSINESS PROSPECTS FOR 2019

#### **Adhere to market orientation to enhance market development capabilities**

The Group will strengthen its marketing capacity and enhance the contribution of new products, new technologies, new markets and new business models to market development. It will cultivate a high-quality marketing team and explore a collaborative marketing model that combines regional marketing of the Company with the professional marketing of its subsidiaries. It will strengthen research on international business capabilities and collaborative development of internal enterprises.

#### **Adhere to the drive of innovation to promote the ability of scientific and technological innovation**

The Group will strengthen the drive of innovation, enhance the construction of scientific research system, strengthen major scientific and technological research, and play a leading role in science and technology. It will focus on the in-depth management of research and technology projects, implement fine management on the whole process of scientific and technological projects. It will improve the scientific research platform, strengthen collaborative innovation; promote the development of smart and intelligent business, and promote scientific and technological cooperation and exchange.

#### **Adhere to the construction of quality services to enhance the reputation of the enterprise brand**

The Group will increase its effort on quality management and control, improve the quality assessment system, and continue to carry out quality and service improvement work to further reduce enterprise quality risks. It will strengthen the quality service function of the marketing system of the Company, improve the service capabilities of the whole life cycle, and strive to improve customer satisfaction.

#### **Adhere to the construction of compliance to consolidate the bottom line of risk prevention**

The Group will comprehensively promote the construction of the "Guodian Technology & Environment under Rule of Law", adhere to compliant governance, compliance management, and standard management, and adhere to the integrated construction of rule of law system, rule of law capabilities, and the rule of law culture. It will prevent financial risks to ensure the safety of the capital chain. It will strengthen audit supervision, adhere to risk and problem orientation, implement full audit coverage, rigorous audit standards, improve long-term mechanisms to escort the transform and develop of enterprises.

### 2019年業務展望

#### **堅持市場導向，增強市場開拓能力**

本集團要強化營銷能力建設，提高新產品、新技術、新市場、新商業模式對市場開拓的貢獻；培養高素質營銷團隊，探索公司區域營銷與附屬公司專業營銷有機結合的協同營銷模式；加強國際業務能力及內部企業協同發展的研究。

#### **堅持創新驅動，推進科技創新能力**

本集團要強化創新驅動，加強科研體系建設，加強重大科技攻關，發揮好科技引領作用。以深度管理在研科技項目為抓手，開展全過程科技項目精細化管理；完善科研平台，強化協同創新；推動智慧業務發展，推進科技合作交流。

#### **堅持品質服務建設，提升企業品牌美譽度**

本集團要加大品質管控力度，健全品質考核體系，持續開展品質和服務提升工作，進一步降低企業品質風險；強化公司營銷體系品質服務職能，提高全生命週期服務能力，著力提升客戶滿意度。

#### **堅持合規性建設，夯實風險防範底線**

本集團要全面推進「法治科環」建設，堅持依法治理、合規經營、規範管理共同推進，堅持法治體系、法治能力、法治文化一體建設；防範金融風險，確保資金鏈安全；加強審計監督，堅持風險和問題導向，實施審計全覆蓋，嚴格審計標準，健全長效機制，護航企業轉型發展。

# DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

## 董事、監事及高級管理人員

### BOARD OF DIRECTORS

The Board of Directors consists of eleven Directors, including three executive Directors, four non-executive Directors and four independent non-executive Directors. The functions and responsibilities of the Board of Directors include: convening general meetings, reporting its work in general meetings, implementing resolutions approved in general meetings, ascertaining the Company's business plans and investment plans, preparing the Company's annual budget and final accounts, preparing the Company's profit distribution plans and proposals for the increase in or reduction of registered capital and exercising other powers, functions and responsibilities as set out in the Articles of Association of the Company (the "AOA"). The Company has entered into a service contract or appointment letter with each Director.

The following table sets out certain information relating to the Directors of the Company. The members of the third session of the Board were re-elected and appointed at the first extraordinary general meeting of the Company held on 8 August 2017. The current term for all the Directors will expire on 7 August 2020.

### 董事會

董事會由11名董事組成：3名執行董事、4名非執行董事及4名獨立非執行董事。董事會的職能及職責包括：召集股東大會；於股東大會上報告董事會的工作；執行股東大會通過的決議；確定本公司業務計劃及投資計劃；制訂本公司年度預算及決算；制訂本公司利潤分配方案及關於註冊資本增減的議案；以及行使本公司《公司章程》(《公司章》)所賦予的其他權力、職能及職責。本公司與各董事訂立了服務合約或任命書。

下表載述有關本公司董事的若干資料。本公司於2017年8月8日舉行的2017年第一次臨時股東大會上進行第三屆董事會成員的重選及委任。本屆所有董事的任期將於2020年8月7日屆滿。

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment / Re-appointment 委任／重選日期
Mr. CHEN Dongqing 陳冬青先生	53	Executive Director and Chairman of the Board 執行董事兼董事長	4 February 2016 2016年2月4日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. ZHANG Jun 張軍先生	55	Executive Director 執行董事	September 2004 2004年9月	Appointed on 8 August 2017 2017年8月8日獲委任
Mr. TANG Chaoxiong 唐超雄先生	51	Executive Director 執行董事	12 October 2015 2015年10月12日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. WANG Zhongqu 王忠渠先生	57	Non-executive Director 非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. ZHANG Wenjian 張文建先生	55	Non-executive Director 非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. GU Yuchun 顧玉春先生	55	Non-executive Director 非執行董事	8 August 2017 2017年8月8日	Appointed on 8 August 2017 2017年8月8日獲委任
Mr. YAN Andrew Y. 閻焱先生	61	Non-executive Director 非執行董事	8 June 2012 2012年6月8日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. SHEN Xiaoliu 申曉留先生	68	Independent Non-executive Director 獨立非執行董事	29 March 2016 2016年3月29日	Re-appointed on 8 August 2017 2017年8月8日獲重選

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment / Re-appointment 委任/重選日期
Mr. QU Jihui 曲久輝先生	61	Independent Non-executive Director 獨立非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. XIE Qiuye 謝秋野先生	59	Independent Non-executive Director 獨立非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. Yeung Chi Tat 楊志達先生	49	Independent Non-executive Director 獨立非執行董事	8 August 2017 2017年8月8日	Appointed on 8 August 2017 2017年8月8日獲委任

**Mr. CHEN Dongqing** is the Secretary of the Party Committee, an executive Director and the Chairman of the Board of the Company. Mr. CHEN joined the Group on 4 February 2016. Mr. CHEN served as the deputy director of the Quality and Technology Office of the Thermal Power Construction Department and the New Energy Development Office of the Power Construction Department of State Power Corporation; the director of the General Office of the Engineering & Construction Department and the deputy head of the Engineering & Construction Department of Guodian Group; the vice general manager of the Southern Branch of Guodian Group; the vice general manager of Guodian Guangdong Power Co., Ltd.; and the secretary of the leading Party members' group and the vice general manager of Guodian Fujian Power Co. Ltd., the deputy secretary of the Party Committee, executive director and general manager of the Company. Mr. CHEN obtained a master's degree in Power Plant Engineering from Northeast China Institute of Electric Power Engineering. Mr. CHEN is a senior engineer.

**陳冬青先生**，為本公司黨委書記、執行董事兼董事長。陳先生於2016年2月4日加入本集團。陳先生歷任國家電力公司火電建設部質量技術處副處長、電源建設部新能源發展處副處長，國電集團工程建設部綜合處處長、工程建設部副主任，國電南方分公司副總經理，國電廣東電力有限公司副總經理，國電福建電力有限公司黨組書記、副總經理，本公司黨委副書記、執行董事及總經理等職務。陳先生畢業於東北電力學院發電廠工程專業並獲得碩士學位。陳先生是高級工程師。

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

**Mr. ZHANG Jun** is the deputy Secretary of the Party Committee of the Company, an executive Director and the general manager. Mr. ZHANG joined the Group in September 2004. He has ever been the engineer, deputy superintendent, superintendent of North China Electric Power Bureau-Beijing Power Equipment Factory First Branch; the engineer of the Foreign Investment Introduction Office and economist of the Multi-economy Office of Beijing Power Equipment Factory; the manager of the Manufacture Department and the general manager of Longwei Company of Longyuan Electric Power Group Corporation; the manager of the Hi-tech Industry Department of Longyuan Electric Power Group Corporation Limited; the Party Group member, the assistant to general manager and vice general manager of Guodian Technology & Environment Group Corporation Limited (the predecessor of the Company); the general manager of Longwei Power Generation Technology Co., Ltd (later renamed as "Guodian United Power Technology Company Limited"); the vice director of the Technology and Comprehensive Industry Department of Guodian Group; the vice president and Party Group member of Guodian New Energy Technology Research Institute; the secretary of the Party Committee of Guodian Science and Technology Research Institute (Environmental Protection Research Institute) and the vice president of Guodian Science and Technology Research Institute. Mr. ZHANG graduated from Chongqing University and obtained the bachelor's degree in casting, and then graduated from Tsinghua University and obtained the degree of MBA. Mr. ZHANG is a senior engineer.

**Mr. TANG Chaoxiong** is a member of the Party Committee, an executive Director, the vice general manager and the chief accountant of the Company. Mr. TANG concurrently serves as the chairman of Longyuan Technology. Mr. TANG joined the Group on 12 October 2015. Mr. TANG served as the deputy director of the financial department of Sichuan Electric Power Corporation; the deputy director of the financial department of State Power Corporation; director of the financing and accounting division of the financial property department of Guodian Group; the vice general manager and a member of the Party Committee of Guodian Finance Co., Ltd.; the vice general manager and a member of the Party Committee of China Guodian Capital Holdings Ltd.; and the vice chairman of Bank of Shizuishan Co. Ltd.. Mr. TANG obtained a bachelor's degree in finance and accounting from Changsha Normal College of Water Resources and Electric Engineering (currently known as Changsha University of Science & Technology) and a master's degree in accounting from Hunan University of Finance and Economics (currently known as Hunan University). Mr. TANG is a senior accountant.

**張軍先生**，為本公司黨委副書記、執行董事及總經理。張先生於2004年9月加入本集團。張先生歷任華北電力局北京電力設備總廠一分廠工程師、車間副主任、主任，北京電力設備總廠外資引進辦公室工程師、多經處經濟師，龍源電力集團公司龍威公司製造部經理、總經理，國電電力股份有限公司高科技產業部經理，國電科技環保集團有限公司(本公司前身)黨組成員、總經理助理、副總經理，龍威發電技術服務有限公司(後更名為「國電聯合動力技術有限公司」)總經理，國電集團科技與綜合產業部副主任，國電新能源技術研究院副院長、黨組成員，國電科學技術研究院(環境保護研究院)黨委書記、副院長。張先生畢業於重慶大學鑄造專業並取得學士學位，亦畢業於清華大學工商管理專業並取得工商管理碩士學位。張先生是高級工程師。

**唐超雄先生**，為本公司黨委委員、執行董事、副總經理及總會計師。唐先生目前還兼任龍源技術董事長。唐先生於2015年10月12日加入本集團。唐先生歷任四川省電力公司財務部副處長，國家電力公司財務部副處長，國電集團財務產權部財會處處長，國電財務有限公司副總經理、黨組成員，國電資本控股有限公司副總經理、黨組成員，石嘴山銀行股份有限公司副董事長。唐先生畢業於長沙水利電力師範學院(現為長沙理工大學)，獲得財務與會計專業學士學位，亦於湖南財經大學(現為湖南大學)獲得會計專業碩士學位。唐先生是高級會計師。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. WANG Zhongqu** is a non-executive Director of the Company. Mr. WANG also serves as the chief supervisor of the Work Safety of Guodian Group. Mr. WANG joined the Group on 16 May 2014. Mr. WANG served successively as the boiler engineer at Electric Power Research Institute in Hebei Province; the engineer and the manager of production planning of Electric Power Industry Bureau of Hebei Province; the assistant to the manager of Electric Power plant of Xibaipo branch of Hebei Power Grid; the deputy manager of Hengshui Power Plant of Hebei Province; the manager and the deputy head of the Power Plant Preparatory Office of Hanfeng Power Plant of Hebei Power Plant; and the deputy head of the Work Safety Office of Guodian Group; the chief supervisor of the Work Safety and the head of the Work Safety Office of Guodian Group. Mr. WANG obtained a bachelor's degree in thermal energy and power from Shandong Industry Institution and a master's degree in power engineering from North China Electric Power University. Mr. WANG is a senior engineer.

**Mr. ZHANG Wenjian** is a non-executive Director of the Company. He also serves as the director and deputy Party secretary of the Science and Technology Department (the Office of the Science and Technology Committee) of China Energy. Mr. ZHANG joined the Group on 16 May 2014. Mr. ZHANG served successively as the deputy head of the Electric Usage Office; the head of the Electric Dispatch Office; the manager of the Production Planning; the assistant of the director and the deputy director of Hengshui Electric Power Bureau; the secretary of the Party Committee of Hanfeng Power plant; the director of Xingtai Power plant; the deputy head and head of the marketing department of Guodian Group; and the head of the Technology and General Industry Office of Guodian Group. Mr. ZHANG obtained a bachelor's degree in Power plant and Electric Power System from North China Electric Power University, and a master's degree from North China Electric Power University in technology economy and management. Mr. ZHANG is a senior engineer.

**王忠渠先生**，為本公司非執行董事。王先生同時擔任國家能源集團安全生產總監。王先生於2014年5月16日加入本集團。王先生歷任河北省電力研究所鍋爐室工程師，河北省電力工業局生計處工程師、科長，河北省電力公司西柏坡發電廠廠長助理，河北省電力公司衡水發電廠生產副廠長，河北省電力公司邯峰發電廠籌建處副主任、發電廠廠長，國電集團安全生產部副主任，國電集團安全生產總監、安全生產部主任。王先生畢業於山東工業大學熱能動力專業，獲得學士學位；亦畢業於華北電力大學動力工程專業，獲得碩士學位。王先生是高級工程師。

**張文建先生**，為本公司非執行董事。張先生同時擔任國家能源集團科技部(科技委辦公室)主任、副書記。張先生於2014年5月16日加入本集團。張先生歷任衡水電業局用電所副所長、調度所所長、生技科科長、局長助理、副局長，邯峰電業局黨委書記，邢台電業局局長，國電集團市場營銷部副主任、市場營銷部主任，國電集團科技與綜合產業部主任。張先生畢業於華北電力學院發電廠及電力系統專業，獲得學士學位；亦畢業於華北電力大學技術經濟與管理專業，獲得碩士學位。張先生是高級工程師。

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. GU Yuchun** is a non-executive Director of the Company. Mr. GU is concurrently a member of the Party Committee and the vice general manager of Guodian Power Development Co., Ltd.. Mr. GU joined the Group on 8 August 2017. He has ever been the vice chief engineer of Electric Power Planning & Engineering Institute; the project manager of ABB ALSTOM Beijing Engineering Consulting Company; the department director of the US-funded Puqi Saide Power Generation Co., Ltd; the project manager and the vice chief engineer of Beijing Boqi Technology Co., Ltd; the vice director and the director of the Electric Power Development Department of Guodian Group North China Branch; the general manager of Guodian Inner Mongolia Dongsheng Co-Generation Power Co., Ltd.; the vice chief engineer of Guodian Power Development Co., Ltd. and concurrently the general manager and the vice secretary of the Party Committee of Guodian Construction Investment Inner Mongolia Energy Co., Ltd; the assistant to general manager of Guodian Power Development Co., Ltd. and the general manager and the vice secretary of the Party Committee of Guodian Construction Investment Inner Mongolia Energy Co., Ltd. Mr. GU graduated from Zhejiang University and obtained the degree of bachelor of thermal power; then graduated from Huazhong University of Science and Technology and obtained the degree of master of power engineering; and finally graduated from Nankai University and obtained the degree of EMBA. Mr. GU is a professor-level senior engineer.

**Mr. YAN Andrew Y.** is a non-executive Director of the Company and serves concurrently as the founding managing partner of SAIF Partners. Mr. YAN joined the Group on 8 June 2012. Mr. YAN served as the lead engineer at Jianghuai Aviation Instrument Factory; the economist of Washington headquarter of the World Bank; a researcher of Hudson Institute in the United States; the director of strategic planning and business development for the Asia Pacific region of Sprint International Corporation successively; the managing director of Emerging Markets Partnership, the management company of AIG Asia Infrastructure Fund; and the head of Hong Kong office of AIG Asia Infrastructure Fund. Mr. YAN majored in airplane design and obtained his bachelor's degree in engineering from Nanjing University of Aeronautics and Astronautics (formerly known as Nanjing Aeronautic Institute). He studied for a master's degree in sociology from Peking University and obtained a master's degree in international political economy from Princeton University.

**顧玉春先生**，為本公司非執行董事。顧先生同時擔任國電電力發展股份有限公司黨委委員、副總經理。顧先生於2017年8月8日加入本集團。顧先生歷任電力規劃設計總院副總工程師，ABB ALSTOM北京工程諮詢公司項目經理，美資浦圻賽德發電有限公司部門主任，北京博奇科技有限公司項目經理、副總工程師，國電集團華北分公司電源發展部副主任、主任，國電內蒙古東勝熱電有限公司總經理，國電電力發展股份有限公司副總工程師兼國電建投內蒙古能源有限公司總經理、黨委副書記，國電電力發展股份有限公司總經理助理兼國電建投內蒙古能源有限公司總經理、黨委副書記。顧先生畢業於浙江大學熱能動力專業取得學士學位，並於華中科技大學動力工程專業取得工程碩士學位，亦於南開大學高級工商管理專業取得高級工商管理碩士學位。顧先生是教授級高級工程師。

**閻焱先生**，為本公司非執行董事，並為賽富亞洲投資基金的創始管理合夥人。閻先生於2012年6月8日加入本集團。閻先生歷任江淮航空儀表廠主管工程師，華盛頓世界銀行總部經濟學家，美國哈德遜研究所研究員，Sprint International Corporation亞太區戰略規劃及業務發展董事，AIG亞洲基礎設施投資基金的管理公司Emerging Markets Partnership之董事總經理及香港辦公室主任。閻先生畢業於南京航空學院(現南京航空航大)飛機設計專業，並獲得工程學學士學位。閻先生曾於北京大學攻讀社會學碩士學位，並獲得普林斯頓大學國際政治經濟碩士學位。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. SHEN Xiaoliu** is an independent non-executive Director of the Company. Mr. SHEN joined the Group on 29 March 2016. Mr. SHEN is a professor of the School of Control and Computer Engineering of North China Electric Power University, and an expert of the State Key Laboratory of Alternate Electric Power System with Renewable Energy Resources and the Key Laboratory of the Institution of the energy internet and power big data of North China Electric Power University. Mr. SHEN served as a technician in Shanxi Linfen Electric Power Bureau; an engineer at the dispatching center of the Electric Power Bureau of Shanxi Province; a teacher in the thermal power engineering teaching and research section of the Beijing Graduate School of North China Electric Power University; the director of the information center of the Electric Power Bureau of Shanxi Province; and the deputy division director of the education division of Shanxi Electric Power Company. Mr. SHEN obtained a bachelor's degree in Industrial Automation from the Department of Electrical Engineering of Taiyuan University of Technology, and a master's degree in Electric Power System and Automation engineering from the Beijing Graduate School of North China Electric Power University.

**Mr. QU Jihui** is an independent non-executive Director of the Company. Mr. QU joined the Group on 16 May 2014. Mr. QU currently serves as a researcher and the director of academic degree evaluation committee of Research Center for Eco-environmental Sciences, Chinese Academy of Sciences. Mr. QU serves concurrently as the vice chairman in All-China Environment Federation; the vice chairman of Chinese Society for Environmental Sciences; the vice chairman of Chinese Society for Sustainable Development; a member of the National Advisory Council on Environment, etc.. Mr. QU has ever served as the deputy director and the director of the Research Center for Eco-environmental Sciences, Chinese Academy of Sciences. Mr. QU's research field focused on the science and technology on water quality as well as water pollution control, etc.. Mr. QU has been nominated as an independent non-executive director of Dongjiang Environmental Company Limited (HK.0895; SZ.002672). Mr. QU Jihui obtained a PhD degree from Harbin University of Civil Engineering and Architecture. Mr. QU was elected as an academicians of Chinese Academy of Engineering in 2009.

**申曉留先生**，為本公司獨立非執行董事。申先生於2016年3月29日加入本集團。申先生現任華北電力大學控制與計算機工程學院教授，國家新能源電力系統重點實驗室、華北電力大學能源互聯網與電力大數據研究所專家。歷任山西臨汾電業局技術員，山西省電業局調度中心工程師，華北電力大學北京研究生部動力系熱自教研室教師，山西省電業局信息中心主任，山西省電力公司教育處副處長。申先生畢業於太原理工大學電機系工業自動化專業並獲得學士學位，亦畢業於華北電力大學北京研究生部，獲得電力系統及其自動化專業工學碩士學位。

**曲久輝先生**，為本公司獨立非執行董事。曲先生於2014年5月16日加入本集團。曲先生現任中國科學院生態環境研究中心研究員及學位委員會主任。兼任中華環保聯合會副主席、中國環境科學學會副理事長、中國可持續發展研究會副理事長、國家環境諮詢委員會委員等職務。曲先生曾任中國科學院生態環境研究中心副主任及主任。其研究領域為水質科學與技術，水污染治理等。曲先生同時也是東江環保股份有限公司(HK.0895；SZ.002672)的獨立非執行董事。曲久輝先生獲得哈爾濱建築大學博士學位，並於2009年當選中國工程院院士。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. XIE Qiuye** is an independent non-executive Director of the Company. Mr. XIE joined the Group on 16 May 2014. Mr. XIE currently serves as the Party Committee secretary and the president of Electric Power Planning & Engineering Institute and Party Committee secretary and the board chairman (executive director) of Electric Power Planning & Engineering Institute. Mr. XIE has ever served successively as the deputy chief engineer and the vice president of Northwestern Electric Power Design Institute, the deputy president and the chief engineer of China Power Construction Engineering Consulting Corporation; the manager of power generation branch of China Power Engineering Consulting (Group) Corporation; the president of Central Southern China Electric Power Design Institute and the executive vice president of Electric Power Planning and Engineering Institute. Mr. XIE obtained a bachelor's degree in thermal energy from Chongqing University. Mr. XIE is a professor-level senior engineer and a national investigation and design master.

**Mr. YEUNG Chi Tat** is an independent non-executive Director of the Company. Mr. YEUNG joined the Group on 8 August 2017. Currently, he is the deputy president and Executive Council Member of the Hong Kong Independent Non-Executive Director Association, the deputy-president of Young Professional Alliance – Accountancy Sector, the deputy president of Hong Kong General Chamber of Wine & Spirits, the Greater China Development Working Committee member of the Association of Hong Kong Accountants and a certified public accountant practicing in Hong Kong. He is also an Independent Director of New Hope Dairy Holdings Co., Ltd. (SZ.002946), an Independent Non-executive Director of Boer Power Holdings Limited (HK.1685) and Sitoy Group Holdings Limited (HK.1023). He was an Independent Non-executive Director of Ta Yang Group Holdings Limited (HK.1991), from May 2007 to September 2017; and an Independent Non-executive Director of ANTA Sports Products Limited (HK.2020, "Anta"), from February 2007 to June 2018, he is the vice president of Anta now. Mr. Yeung received a bachelor's degree in Business Administration from the University of Hong Kong and a master's degree in Professional Accounting with distinction from the Hong Kong Polytechnic University. He is a fellow member of the Institute of Chartered Accountants in England and Wales, the Hong Kong Institute of Certified Public Accountants and the Association of Chartered Certified Accountants and a Senior International Finance Manager of the International Financial Management Association. Mr. Yeung worked at a major international accounting firm for over 10 years and then worked for various Hong Kong listed companies as the financial controller and company secretary. He possesses extensive experience in auditing, corporate restructuring and corporate finance.

**謝秋野先生**，為本公司獨立非執行董事。謝先生於2014年5月16日加入本集團。謝先生現任電力規劃設計總院黨委書記、院長，電力規劃總院有限公司黨委書記、董事長(執行董事)。歷任西北電力設計院副總工程師、副院長，中國電力建設工程諮詢公司副總經理兼總工程師，中國電力工程顧問集團公司發電工程分公司經理，中南電力設計院院長，及電力規劃設計總院常務副院長。謝先生獲得重慶大學熱能專業學士學位，是教授級高級工程師及全國勘察設計大師。

**楊志達先生**，為本公司獨立非執行董事。楊先生於2017年8月8日加入本集團。楊先生現為香港獨立非執行董事協會的常務副會長及常務理事、青年專業聯盟會計界副會長、香港酒業總商會副會長、香港會計師專業協會之大中華發展工作委員會委員及香港執業會計師。彼亦為新希望乳業股份有限公司(SZ.002946)的獨立董事、博耳電力控股有限公司(HK.1685)及時代集團控股有限公司(HK.1023)的獨立非執行董事。彼自2007年5月至2017年9月擔任大洋集團控股有限公司(HK.1991)的獨立非執行董事，及自2007年2月至2018年6月擔任安踏體育用品有限公司(HK.2020)(「安踏」)的獨立非執行董事，楊先生現為安踏的副總裁。楊先生獲香港大學工商管理學士學位以及獲香港理工大學專業會計碩士學位(甲級)。彼為英格蘭及威爾斯特許會計師公會、香港會計師公會及英國特許公認會計師公會資深會員及國際財務管理協會的高級國際財務管理師。楊先生於一間主要國際會計師行任職超逾十年，其後曾任多間香港上市公司的財務總監兼公司秘書。彼具備核數、企業重組及企業融資服務方面的豐富經驗。

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

#### BOARD OF SUPERVISORS

The Board of Supervisors of the Company (the “**Board of Supervisors**”) currently consists of five members. Save for the employee representative Supervisors that are elected by employees, Supervisors are elected by the Shareholders of the Company (“**Shareholders**”). Supervisors serve a term of three years after which they may be re-elected or re-appointed. The responsibilities of the board of Supervisors include, amongst others, reviewing and verifying the financial report, business report and profit distribution plan prepared by the Board of Directors, and (upon doubt, if any) appointing certified public accountants and certified public auditors to re-examine the financial information of the Company; supervising the financial activities of the Company; supervising the performance of Directors, president and other senior management and safeguarding against any breach of the law, administrative regulations and provisions of the AOA in the course of discharging their duties; requiring Directors, president and senior management to correct actions that may harm the interests of the Company and exercising other rights granted to them by the AOA.

#### SUPERVISORS

The following table sets out certain information relating to the Supervisors of the Company. The members of the third session of the board of Supervisors were re-elected and appointed at the first extraordinary general meeting of the Company held on 8 August 2017. The current term for all the Supervisors will expire on 7 August 2020.

#### 監事會

本公司的監事會(「**監事會**」)現時由5名成員組成。除職工代表監事由僱員選出外，監事均由本公司股東(「**股東**」)選出，任期三年，如獲重選或重新委任可予連任。監事會的職責包括：審閱及核實董事會編製的財務報告、業務報告及利潤分配方案；並(如有疑問)委任執業會計師及執業核數師重新審查本公司的財務資料；監察本公司的財務活動；監察董事、總經理及其他高級管理人員的表現，及監察他們於執行職務時的行為有否違反法律、行政規定及公司章程；要求董事、總經理及高級管理人員糾正有損本公司利益的行動；以及行使《公司章程》賦予他們的其他權力。

#### 監事

下表列示有關本公司監事的若干信息。本公司於2017年8月8日召開的2017年第一次臨時股東大會上進行第三屆監事會成員的重選及委任。本公司本屆所有監事的任期將於2020年8月7日屆滿。

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment/ Election/Re-appointment 委任/獲選/重選日期
Mr. LUAN Baoxing 樂寶興先生	52	Chairman of the Board of Supervisors 監事會主席	9 September 2016 2016年9月9日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. XU Xingzhou 許興洲先生	57	Supervisors 監事	16 May 2011 2011年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. YANG Xiangbin 楊向斌先生	53	Supervisors 監事	9 September 2016 2016年9月9日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Ms. HE Lili 何麗麗女士	43	Employee Representative Supervisor 職工代表監事	18 March 2014 2014年3月18日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. LI Wei 李偉先生	45	Employee Representative Supervisor 職工代表監事	10 March 2008 2008年3月10日	Re-appointed on 8 August 2017 2017年8月8日獲重選

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. LUAN Baoxing** is the Chairman of the Board of Supervisors. Mr. LUAN joined the Group on 9 September 2016. Mr. LUAN concurrently serves as the director and secretary of the financial property department of China Energy, and as the director of China Guodian Capital Holdings Ltd., the director of Longyuan Power (HK.0916), the director of Guodian Fuels Co., Ltd and the supervisor of Guodian Shandong Power Co., Ltd concurrently. Mr. LUAN successively served as the deputy chief of the finance and fund department and the chief of the accounting cost division of the financial department of Heilongjiang Electric Power Company; the deputy chief and the chief of accounting cost division of Northeast Electric Power Group; the deputy director general of the financial department of State Power Corporation Northeast Branch; associate chief accountant and the director of the financial department of Chongqing Electric Power; the deputy director of the finance and property department, the deputy director and the director of the capital operation and property management department of Guodian Group; the general manager and the deputy secretary of leading party group of Guodian Capital Holdings; the board chairman, the general manager and the deputy secretary of the leading party group of Guodian Finance; and the director of the Financial Management Department of Guodian Group. Mr. LUAN obtained a bachelor's degree in accounting from Heilongjiang University, a degree of MBA from Harbin Institute of Technology. Mr. LUAN is a senior accountant and Certified Public Accountant.

**Mr. XU Xingzhou** is a Supervisor of the Company. Mr. XU joined the Group on 16 May 2011. Mr. XU concurrently serves as the leader of the inspection team of Party Group of China Energy. Mr. XU has ever served successively as the deputy director and the director of the salary and insurance division of the human resource department of State Power Corporation; the deputy head of the human resources department of Guodian Group; the chairman of the board of supervisors of Guodian Suqian Company and Guodian Kaiyuan Company; the head of the Social Insurance Center of Guodian Group, and the head of the human resources department of Guodian Group. Mr. XU obtained a bachelor's degree in management engineering from Jilin University of Technology. Mr. XU is a senior economist.

**樂寶興先生**，為本公司監事會主席。樂先生於2016年9月9日加入本集團。樂先生同時擔任國家能源集團財務產權部主任、書記，兼任國電資本控股有限公司董事、龍源電力(HK.0916)董事、國電燃料有限公司董事、國電山東電力有限公司監事。樂先生歷任黑龍江省電力公司財產資金處副處長、財務部會計成本處處長，中國東北電力集團公司財務部會計成本處副處長、處長，國家電力公司東北公司財務部副主任，重慶電力公司副總會計師兼財務部主任，國電集團財務產權部副主任、資本運營與產權管理部副主任、資本運營與產權管理部主任，國電資本控股有限公司總經理、黨組副書記，國電財務有限公司董事長、總經理、黨組副書記，國電集團財務管理部主任。樂先生畢業於黑龍江大學會計學專業，獲得學士學位；亦畢業於哈爾濱工業大學MBA專業，獲得碩士學位。樂先生是高級會計師、註冊會計師(CPA)。

**許興洲先生**，為本公司的監事。許先生於2011年5月16日加入本集團。許先生同時擔任國家能源集團黨組巡視組組長。許先生歷任國家電力公司人力資源部工資保險處副處長及處長，國電集團人力資源部副主任，國電宿遷公司及國電開遠公司監事會主席，國電集團社會保險中心主任，國電集團人力資源部主任。許先生畢業於吉林工業大學管理工程學專業，獲得學士學位。許先生是高級經濟師。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. YANG Xiangbin** is a Supervisor of the Company. Mr. YANG joined the group on 9 September 2016. Mr. YANG serves as the director of Capital Operation Department of China Energy and the director of China Longyuan Power concurrently. Mr. YANG has ever served as the chief of the budget division of the financial department of Heilongjiang Electric Power Co., Ltd.; the deputy chief, the chief general of the budget division, the chief and the deputy director general of the finance and property department, and the deputy director general of the financial management department of Guodian Group; the secretary of party committee, the director and the deputy general manager of Inner Mongolia Pingzhuang Coal Industry (Group) Co., Ltd.; the deputy chairman of Inner Mongolia Pingzhuang Energy Co., Ltd.(SZ.000780); and the director of the Capital and Asset Management Department of Guodian Group. Mr. YANG graduated from Harbin Electric Power College majoring in financial accounting of electric power industry and then graduated from Northeast Electric Power College majoring in management engineering. He also obtained a master's degree in business administration from the Open University of Hong Kong. Mr. YANG is a senior accountant and Certified Public Accountant.

**Ms. HE Lili** is an employee representative Supervisor of the Company. Ms. HE joined the Group on 18 March 2014. Ms. HE concurrently serves as a member of the Party Committee and the Secretary of Discipline Inspection Commission of the Company. Ms. HE has ever served as a technician of rubber plant production division of Sinopec Beijing Yanshan Company; the deputy head of politics and work department and the head of the human resources department of Guodian Group, and the chairman of the labor union of the Company. Ms. HE obtained a degree of MBA from Beijing University of Aeronautics and Astronautics. Ms. HE is a senior administration engineer and a senior economist.

**Mr. LI Wei** is an employee representative Supervisor of the Company. Mr. LI joined the Group 10 March 2008. Mr. LI serves concurrently as the deputy general economic manager and the director of the audit department of the Company. Mr. LI has ever served successively as the deputy director of the audit department and the deputy director of the financial department of China National Electronic Materials Corporation; the deputy chief accountant of United Power; and the deputy director of the supervision and audit department and the director of supervision department (disciplinary inspection office) of the Company. Mr. LI obtained a bachelor's degree in economics from Hangzhou Dianzi University and a degree of MBA from Beijing University of Aeronautics and Astronautics. Mr. LI is a senior accountant.

**楊向斌先生**，為本公司的監事。楊先生於2016年9月9日加入本集團。楊先生同時擔任國家能源集團資本運營部主任，兼任龍源電力董事。楊先生歷任黑龍江省電力有限公司財務部預算處處長，國電集團財務產權部預算處副處長、財務產權部預算處處長、財務產權部副主任，財務管理部副主任，內蒙古平莊煤業(集團)有限責任公司黨委書記、董事、副總經理，內蒙古平莊能源股份有限公司(SZ.000780)副董事長，國電集團資本與資產管理部主任。楊先生畢業於哈爾濱電力學院電力工業財務會計專業，後畢業於東北電力學院管理工程專業，亦於香港公開大學工商管理專業取得工商管理碩士學位。楊先生是高級會計師、註冊會計師(CPA)。

**何麗麗女士**，為本公司的職工代表監事。何女士於2014年3月18日加入本集團。何女士同時擔任本公司黨委委員、紀委書記。何女士歷任中石化北京燕山石化公司橡膠廠生產技術處技術員，國電集團政治工作部綜合處副處長、人力資源部綜合處處長，本公司工會主席。何女士畢業於北京航空航天大學工商管理專業，獲得碩士學位。何女士是高級政工師、高級經濟師。

**李偉先生**，為本公司的職工代表監事。李先生於2008年3月10日加入本集團。他同時擔任本公司副總經濟師兼審計部主任。李先生歷任中國電子物資總公司審計處副處長及財務部副總經理，聯合動力副總會計師，本公司審計部副經理、監察審計部副經理、監察部(紀檢辦)經理。李先生畢業於杭州電子科技大學會計專業，獲得經濟學學士學位；亦畢業於北京航空航天大學工商管理專業，獲得碩士學位。李先生是高級會計師。

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

#### SENIOR MANAGEMENT

#### 高級管理人員

The following table sets out certain information relating to the senior management of the Company.

下表載列有關本公司高級管理人員的若干資料。

Name 姓名	Age 年齡	Current position 現任職位	Date of Joining the Group 加入日期
Mr. CHEN Dongqing 陳冬青先生	53	Secretary of the Party Committee, Chairman of Board 黨委書記、董事長	29 March 2016 2016年3月29日
Mr. ZHANG Jun 張軍先生	55	Deputy Secretary of the Party Committee, General Manager 黨委副書記、總經理	September 2004 2004年9月
Mr. TANG Chaoxiong 唐超雄先生	51	Member of the Party Committee, Deputy General Manager and Chief Accountant 黨委委員、副總經理及總會計師	12 October 2015 2015年10月12日
Mr. ZHANG Xiaodong 張曉東先生	43	Member of the Party Committee, Deputy General Manager and Chairman of the Labor Union 黨委委員、副總經理、工會主席	1 November 2010 2010年11月1日
Mr. CAI Zhaowen 蔡兆文先生	50	Member of the Party Committee, Deputy General Manager, Secretary of the Board and the Joint Company Secretary 黨委委員、副總經理、董事會秘書、聯席公司秘書	18 March 2014 2014年3月18日
Ms HE Lili 何麗麗女士	43	Member of the Party Committee and Secretary to the Disciplinary Committee 黨委委員、紀委書記	18 March 2014 2014年3月18日
Mr. TANG Jian 唐堅先生	48	Member of the Party Committee and Deputy General Manager 黨委委員、副總經理	12 October 2015 2015年10月12日
Mr. CHU Jingchun 褚景春先生	42	Member of the Party Committee and Deputy General Manager 黨委委員、副總經理	13 July 2011 2011年7月13日
Mr. LI Caiyun 李彩雲先生	50	Member of the Party Committee and Deputy General Manager 黨委委員、副總經理	15 July 2014 2014年7月15日

**Mr. CHEN Dongqing** – Please see details under the section headed “Board of Directors” above.

**陳冬青先生** – 請參閱上文「董事會」部份相關內容。

**Mr. ZHANG Jun** – Please see details under the section headed “Board of Directors” above.

**張軍先生** – 請參閱上文「董事會」部份相關內容。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. TANG Chaoxiong** – Please see details under the section headed “Board of Directors” above.

**Mr. ZHANG Xiaodong** is a member of the Party Committee, a deputy general manager, the chairman of the labor union of the Company. Mr. ZHANG joined the Group on 1 November 2010. Mr. ZHANG has ever served as project principal of Energy Conservation Information Dissemination Center and project principal of the project construction division of the Information Center of the State Economic and Trade Commission; the deputy director of research and consulting division of the SASAC’s Information Center and director of the application and development division of the SASAC’s Information Center. Mr. ZHANG obtained a bachelor’s degree in electric technology from Taiyuan Heavy Machinery Institute, and a degree of MBA from Beijing University of Aeronautics and Astronautics. Mr. ZHANG is a senior engineer.

**Mr. CAI Zhaowen** is a member of the Party Committee, a deputy general manager, board secretary of the Company and joint secretary of the Company. Mr. CAI also serves as the chairman of the board of Supervisors of Longyuan Technology. Mr. CAI joined the group on 18 March 2014 and was appointed as the joint secretary of the Company on 30 March 2017. Mr. CAI has ever served successively as the deputy general manager of Yichun Xing Anling Wind Power Co., Ltd., Yilan Longyuan Wind Power Co., Ltd., and Huanan Longyuan Wind Power Co., Ltd; the director of the planning and development department and a general manager assistant and the director of planning and development department of Longyuan Power. Mr. CAI graduated from Tsinghua University, obtained a bachelor’s degree with a double major in hydraulic architecture and environmental engineering, and a degree of MBA. Mr. CAI is a senior engineer.

**Ms. HE Lili** – Please see details under the section headed “Board of Supervisors” above.

**Mr. TANG Jian** is a member of the Party Committee, a vice president of the Company. Mr. TANG serves as the chairman, and the secretary of the Party Committee of Longyuan Environmental. Mr. TANG joined the Group on 12 October 2015. Mr. TANG served as the vice director of the power generation department of the Yangzhou No. 2 Power Plant in Jiangsu; the vice director of preparation for the production department and director of the operation department and director of business planning department of Guodian Changzhou Power Generating Co., Ltd.; a member of the Party Committee and the vice general manager of Guodian Bengbu Power Generation Co., Ltd.; the deputy head of the Coal-fired Power Office, head of the Coal-fired Power Office and head of the General Office of the Engineering & Construction Department of Guodian Group; the general manager and the deputy secretary of the Party Committee of Beijing Guodian Longyuan Environmental Engineering Co., Ltd.. Mr. TANG obtained a bachelor’s degree in power plant thermal energy and power engineering from China University of Mining and Technology. Mr. TANG is a senior engineer.

**唐超雄先生** – 請參閱上文「董事會」部份相關內容。

**張曉東先生**，為本公司黨委委員、副總經理、工會主席。張先生於2010年11月1日加入本集團。張先生歷任國家經貿委節能信息傳播中心項目負責人以及國家經貿委信息中心項目建設處項目負責人，國資委信息中心研究諮詢處副處長、國資委信息中心應用開發處處長。張先生畢業於太原重型機械學院，獲得電氣技術學士學位；亦畢業於北京航空航天大學工商管理專業，獲得碩士學位。張先生是高級工程師。

**蔡兆文先生**，為本公司黨委委員、副總經理、董事會秘書及聯席公司秘書。蔡先生目前還兼任龍源技術監事會主席。蔡先生於2014年3月18日加入本集團，於2017年3月30日獲委任為本公司的聯席公司秘書。蔡先生歷任伊春興安嶺風力發電有限公司、依蘭龍源風力發電有限公司、樺南龍源風力發電有限公司常務副總經理，龍源電力計劃發展部主任，龍源電力總經理助理兼規劃發展部主任。蔡先生畢業於清華大學，獲得水工建築、環境工程專業雙學士學位，亦獲得工商管理專業碩士學位。蔡先生是高級工程師。

**何麗麗女士** – 請參閱上文「監事會」部份相關內容。

**唐堅先生**，為本公司黨委委員、副總經理。唐先生目前還兼任龍源環保董事長、黨委書記。唐先生於2015年10月12日加入本集團。唐先生歷任江蘇揚州第二發電廠發電部副主任，國電常州發電有限公司生產準備部副主任、運行部主任、經營計劃部主任，國電蚌埠發電有限公司黨委委員、副總經理，國電集團工程建設部火電處副處長、火電處處長、綜合處處長，北京國電龍源環保工程有限公司總經理、黨委副書記。唐先生畢業於中國礦業大學電廠熱能動力工程專業，獲得學士學位。唐先生是高級工程師。

## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

### 董事、監事及高級管理人員(續)

**Mr. CHU Jingchun** is a member of the Party Committee and the deputy general manager of the Company. Mr. CHU concurrently serves as the chairman, the president and the deputy secretary of the Party Committee of United Power, the director of the National Key Laboratory of Wind Power Equipment and Control, the director of the National Key Laboratory of Energy, Tide and Marine Power Generation Technology and the chairman of Longyuan Electrical. Mr. CHU joined the Group on 13 July 2011. Mr. CHU has ever served as the deputy head and the head of the Admissions Office of Students Affairs Division, the director of the Liaison Office of the Board, the deputy director of the Party Committee and the President Office, the director of the Council office, the director of Alumni Association Office, the deputy director (in charge of relevant work) and the director of the University-enterprise cooperation Office of North China Electric Power University; the manager of General Management Department of the Company; the secretary of the Party Committee and deputy general manager of Guodian United Power Technology Co., Ltd.; the general manager assistant and a member of the Party Committee of the Company. Mr. CHU obtained a master's degree in technology economy and management from the School of Economics and Management of Beijing University of Aeronautics and Astronautics and also obtained a doctor's degree in technology economy and management from North China Electric Power University. Mr. CHU is a professor-level senior engineer.

**Mr. LI Caiyun** is a member of the Party Committee and the deputy general manager of the Company. Mr. LI serves as the chairman; the secretary of the Party Committee of Guodian Longyuan Power Technology & Engineering Co., Ltd. Mr. LI joined the Group on 15 July 2014. Mr. LI successively served as the deputy director of construction site of Jiangsu Electric Power Construction No. 3 Engineering Company; the manager of architecture company; the director and the deputy chief engineer of the engineering department of Guodian Changzhou Power Generating Co., Ltd.; the deputy chief engineer and the deputy general manager of Guodian Taizhou Generation Co., Ltd.; the deputy chief and chief of the engineering department of bidding center of Guodian Group; the general manager assistant, a member of the Party Group of the Company; the general manager and the deputy secretary of Party Committee of Guodian Longyuan Power Technology & Engineering Co., Ltd.. Mr. LI obtained a bachelor's degree in industrial and civil construction from School of Water Resources and Hydropower Engineering Wuhan University. Mr. LI is a senior engineer.

**褚景春先生**，為本公司黨委委員、副總經理。褚先生目前還兼任聯合動力董事長、總經理、黨委副書記，風電設備及控制國家重點實驗室主任、國家能源潮汐海洋能發電技術重點實驗室主任，龍源電氣董事長。褚先生於2011年7月13日加入本集團。褚先生歷任華北電力大學招辦副主任、招辦主任，董事會聯絡辦公室主任，黨委辦公室副主任、校長辦公室副主任、理事會工作辦公室主任、校友會工作辦公室主任，校企合作辦公室副主任(主持工作)、校企合作辦公室主任；本公司綜合管理部經理，聯合動力黨委書記兼副總經理，本公司總經理助理、黨組成員。褚先生畢業於北京航空航天大學經管學院技術經濟及管理專業，獲得碩士學位，亦畢業於華北電力大學技術經濟及管理專業，獲得博士學位。褚先生是教授級高級工程師。

**李彩雲先生**，為本公司黨委委員、副總經理。李先生目前還兼任工程公司董事長、黨委書記。李先生於2014年7月15日加入本集團。李先生歷任江蘇電建三公司建築工地副主任、建築專業公司經理，國電常州發電有限公司工程部主任、副總工程師，國電泰州發電有限公司副總工程師、副總經理，國電集團招標中心副處長、招標中心工程處處長，本公司總經理助理、黨組成員，工程公司總經理、黨委副書記。李先生畢業於武漢水利電力學院工民建專業，獲得學士學位。李先生是高級工程師。



## DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

### JOINT COMPANY SECRETARIES

**Mr. CAI Zhaowen** – Please see details under the section headed “Senior Management” above.

**Mr. LEE Kwok Fai Kenneth** is the joint company secretary of the Company. Mr. LEE was appointed as the joint company secretary of the Company on 23 August 2018. Mr. LEE is a director and head of corporate secretarial services of TMF Hong Kong Limited. Mr. LEE has over 20 years of experience in providing transaction services and in financial due diligence, specialized in mergers and acquisitions. Mr. LEE is an associate member of Hong Kong Certified Public Accountants, a member of the American Institute of Certified Public Accountants in the United States and a Chartered Financial Analyst.

### 聯席公司秘書

**蔡兆文先生** – 請參閱上文「高級管理人員」部份相關內容。

**李國輝先生**，為本公司聯席公司秘書。李先生於2018年8月23日獲委任為本公司的聯席公司秘書。李先生為達盟香港有限公司之董事兼公司秘書服務部主管。李先生擁有超過20年諮詢服務經驗，以及併購交易的財務盡職調查服務經驗。李先生是香港註冊會計師、美國註冊會計師及特許金融分析師。



# REPORT OF THE BOARD OF DIRECTORS

## 董事會報告

The Board of Directors hereby presents to Shareholders this Annual Report and the audited financial statements for 2018 (“**Financial Statements**”).

### SHARE CAPITAL

As of 31 December 2018, the total issued share capital of the Company had been RMB6,063,770,000, divided into 6,063,770,000 shares of RMB1.0 each, including 4,754,000,000 domestic shares and 1,309,770,000 H shares. Details of movement in the share capital of the Company during the year are set out in Note 36 to the Financial Statements.

### PURCHASE, SALE OR REDEMPTION OF THE COMPANY'S LISTED SECURITIES

Neither the Company nor any of its subsidiaries purchased, sold or redeemed any of the Company's listed securities during the year ended 31 December 2018.

### PRE-EMPTIVE RIGHTS

According to the AOA or the PRC law, there are no provisions for pre-emptive rights requiring the Company to offer new shares to the existing Shareholders of the Company in proportion to their shareholdings.

### PRINCIPAL BUSINESS

The Company is principally engaged in (1) the business of environmental protection and energy conservation solutions, and (2) the business of renewable energy equipment manufacturing and service. The Company offers diversified products and services and uses diversified business models in its business operations. Details of subsidiaries and associates of the Company are set out in Notes 18 and 19 to the Financial Statements.

### RESULTS

The annual results of the Company and its subsidiaries for the year ended 31 December 2018 and the statement of financial position of the Company and its subsidiaries as of 31 December 2018 are set out in the audited Financial Statements of this Annual Report.

### BUSINESS REVIEW

A discussion and analysis on results performance during the year and material factors underlying its results and financial position and business prospect of the Group are set out in the Management's Discussion and Analysis section of this Annual Report. Details of financial risk management of the Group are set out in Notes 37 to the Financial Statements.

本公司董事會現向股東提呈其於2018年的本年度報告及經審核財務報表(「**財務報表**」)。

### 股本

於2018年12月31日，本公司已發行股本總數為人民幣6,063,770,000元，分為6,063,770,000股，每股面值人民幣1.0元的股份，其中內資股4,754,000,000股，H股1,309,770,000股。本公司股本於本年度的變動詳情載於財務報表附註36。

### 購買、出售或贖回本公司上市證券

本公司或其任何附屬公司於截至2018年12月31日止年度未購買、出售或贖回本公司任何上市證券。

### 優先購股權

根據《公司章程》或中國法律並無存在要求本公司按現有股東持股比例向其發售新股的優先購股權的規定。

### 主營業務

本公司的主營業務為(1)環保及節能解決方案業務，以及(2)可再生能源設備製造及服務業務。本公司供應多元化的產品及服務，並於開展業務時使用多樣化的業務模式。本公司附屬公司及聯營公司的詳情分別載於財務報表附註18及19。

### 業績

本公司及其附屬公司截至2018年12月31日止年度的業績以及本公司及其附屬公司於2018年12月31日的財務狀況載於本年報的經審核財務報表。

### 業務審視

有關本集團本年度的業績表現、影響業績和財務狀況的重要因素及業務展望的討論及分析，載於本年報的「管理層討論與分析」一節。有關本集團財務風險管理的詳情載於財務報表附註37。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### RELATIONSHIP WITH THE CONNECTED PERSONS OF PRINCIPAL BUSINESS

#### Employees

As of 31 December 2018, the Group has had 6,292 employees in total. In accordance with the applicable national laws and regulations and the applicable regulations of China Energy/Guodian Group, the Group has established a clear and transparent human resources (“HR”) system, including 28 HR rules and regulations at all levels, in order to protect the legitimate rights and interests of the employees. The Group has established and improved the management system of total salary based on market value and performance evaluation. The salary of staff is composed of basic salary, performance salary and reward salary. The performance salary is determined on the basis of company performance and performance evaluation, and reward salary is determined according to the completion of the company’s annual key work. The Group will pay social insurance premiums, housing funds, corporate annuities, etc., for the employees strictly in accordance with applicable national and local government policies and regulations. The Group also attaches great importance to the selection, training, incentive and development of talents, concentrates all kinds of superior resources on high-potential and high-performance employees.

#### Suppliers

The Group requires its subsidiaries to learn advanced experience in the industry, optimize the development process of qualified suppliers, introduce excellent suppliers of leading enterprises in the industry, speed up the verification and probation process of newly-developed suppliers, develop a reasonable development plan, and reasonably plan the procurement proposal, and make assessment and evaluation of suppliers from time to time.

### ORDERLY ADVANCING RULE BY LAW

In 2018, the Group continued to further carry forward and implement the Opinion on Comprehensively Promoting the Construction of Central Enterprises under the Rule by Law and the Regulations on the Principal Responsible Persons of Central Enterprises Carrying out the Duties of the First Responsible Person in Promoting the Construction of the Rule of Law of SASAC, the Implementation Plan for Comprehensively Promoting the Construction of “China Energy Ruled by Law” and Regulations on the Principal Responsible Persons of Central Enterprises Carrying out the Duties of the First Responsible Person in Promoting the Construction of the Rule by Law of China Energy, and comprehensively enhanced “Guodian Technology & Environment under Rule by Law” from the aspects of strengthening organization and leadership, strengthening the guarantee of law popularization, perfecting the working mechanism, cultivating the culture of ruling by law, and deepening the management of enterprises according to law, etc..

### 與主要業務有關人士的關係

#### 員工

於2018年12月31日，本集團共有員工6,292人。依據國家相關法律法規及國家能源集團／國電集團相關規定，本集團建立了清晰透明的人力資源制度，包括各級人力資源制度共28項，切實保障了員工的合法權益。本集團建立和完善了以市場價值為導向、以績效考核為基礎的工資總額管理體系，員工薪酬由基本工資、績效工資和獎勵工資三部份組成，績效工資依據公司業績及績效考核情況確定，獎勵工資依據公司年度重點工作完成情況確定，並嚴格按照國家和地方政府有關政策法規為員工繳納各項社會保險、住房公積金、企業年金等。本集團亦十分重視人才的選拔、培養、激勵和發展工作，集中各類優勢資源向高潛力、高績效員工傾斜。

#### 供應商

本集團要求附屬公司學習行業內先進經驗，優化合格供應商開發流程，引進行業內排名靠前的企業的優秀供應商，加快新開發供應商驗證試用環節，制定合理的開發計劃，亦不時對供應商作出考核和評價。

### 法治工作有序推進

2018年，本集團繼續深入貫徹落實國務院國資委《關於全面推進法治央企建設的意見》、《中央企業主要負責人履行推進法治建設第一責任人職責規定》以及國家能源集團《關於全面推進「法治國家能源」建設的實施方案》、《企業主要負責人履行推進法治建設第一責任人職責若干規定》的有關要求，從加強組織領導、強化普法保障、完善工作機制、培育法治文化、深化依法治企等方面全面推進「法治科環」建設各項工作。

# REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

## 董事會報告(續)

### COMPLIANCE WITH LAWS

The Group requires its subsidiaries to strictly abide by national laws and local regulations and industry standards. The relevant departments of the Group are responsible for monitoring, supervising and inspecting the management and implementation of laws and regulations of the subsidiaries on a regular basis and from time to time and assessing their implementation and compliance in these areas. In 2018, the Company was not aware of any event that had materially violated or had not been in compliance with the laws and regulations applicable to the Group and which had a significant impact on the Group's business and operation.

### ENVIRONMENTAL POLICIES

As an enterprise providing environmental protection, energy conservation and renewable energy equipment and services, the Group has always attached importance to the national environmental protection policies and fulfilled its social responsibility from the perspective of the survival and development of enterprises. The Group strictly implements the Environmental Protection Law of the People's Republic of China and the applicable industrial and local environmental protection rules and regulations of each affiliate, strictly implements the environmental protection requirements of projects, and ensures the simultaneous design, construction and production of the environmental protection facilities and the main works, so as to achieve efficient operation and emission according to standards.

As China attaches increasing importance to the environmental protection, governments at all levels have strengthened the supervision and surveillance of the environmental protection facilities. The frequencies of inspection vary depending on the operation items and location of the subsidiaries. In 2018, the frequency at which the project companies were inspected by the competent environmental protection authorities at all levels was on average about 16 times/year. In order to ensure the facilities for the desulfurization and denitrification projects were operated stably and met the discharge standards, a series of effective measures were taken, including the construction of the SIS system and safety control system and the construction of the HSE system of the National Occupational Safety Association (NOSA), carrying out the standardized construction of the operation management, carrying out the regular random check of the equipment non-leakage treatment, implementing the full coverage of technical supervision, strengthening the control of the field operation indicators, continuing to strengthen the standardization rectification of safety and civilization, thus improving the level of standardization in the safety and operation management of the project company in an all-round manner. In 2018, there was no environmental violation that had a significant impact on the Group.

As of 31 December 2018, there has had no environmental event with a significant impact on the Group's operational, financial or business prospects. The above discussion forms part of this Report of the Board of Directors.

### 法律遵守情況

本集團要求附屬公司嚴格遵守國家法律及各地規章、各行業準則。本集團相關部門負責定期及不時監測、監督及檢查各附屬公司的法律法規管理及執行情況，且評估其於該等領域的執行及遵守情況。於2018年內，本公司並不知悉發生重大違反或不遵守本集團適用的法律法規，且對本集團業務及經營造成重要影響的事件。

### 環保政策

作為一家提供環保節能及可再生能源設備及服務的企業，本集團一貫從企業生存和發展的高度，重視國家的環保政策，履行企業的社會責任。嚴格落實《中華人民共和國環保法》及各附屬公司適用的行業及地方環保制度及規定，嚴格執行項目的環保要求，確保環保設施和主體工程同時設計、施工、投產，實現高效運行和達標排放。

隨著國家對環境保護的重視程度逐漸增加，各級政府加強了對環保設施的監管和監察力度，根據附屬公司的經營項目和所處地域的不同，接受檢查的頻次不盡相同。以附屬公司龍源環保為例，2018年各項目公司接受各級環保部門檢查頻次平均約為16次/年。為保證各脫硫脫硝項目設施穩定運行，達標排放，採取了一系列有效的舉措，進行了SIS系統及安全管控系統建設及國家職業安全協會(NOSA)安健體系建設，推行運行管理標準化建設，開展設備無滲漏治理常態化抽查，落實技術監督全覆蓋，加強現場運行指標管控，繼續加強安全文明標準化整治，全面提升了項目公司安全、運行管理工作規範化水平。本年度未發生對本集團有重大影響的環境違規事件。

截至2018年12月31日止，未發生對本集團營運、財務或經營前景產生重大影響的環保事件。以上討論屬本董事會報告的一部分。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### DIVIDEND

The Board does not recommend the payment of a final dividend for the year ended 31 December 2018.

### PROPERTY, PLANT AND EQUIPMENT

Details of the movements in property, plant and equipment of the Company and its subsidiaries during the year are set out in Note 13 to the Financial Statements.

### RESERVES

Details of the movements in reserves of the Company during the year are set out in Note 36(a) to the Financial Statements, among which, details of reserves available for distribution to the Shareholders as of 31 December 2018 are set out in Note 36(e) to the Financial Statements.

### BANK LOANS AND OTHER BORROWINGS

Details of bank loans and other borrowings of the Company and its subsidiaries as of 31 December 2018 are set out in Note 29 to the Financial Statements.

### DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

The relevant information of the Directors, Supervisors and senior management of the Company at the date of this Annual Report, such as name, position in the Company and date of joining/appointment/re-election/resignation, is set out in the Directors, Supervisors and Senior Management section of this Annual Report.

The Company has received, from each of the independent non-executive Directors, an annual confirmation of his independence pursuant to Rule 3.13 of the Listing Rules and considers that all of the independent non-executive Directors are independent of the Company.

### BIOGRAPHIES OF DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

Biographical details of Directors, Supervisors and senior management are set out in the Directors, Supervisors and Senior Management section of this Annual Report.

### 股息

董事會不建議派發截至2018年12月31日止年度之末期股息。

### 物業、廠房及設備

本公司及其附屬公司物業、廠房及設備於本年度的變動詳情載於財務報表附註13。

### 儲備

本年度內本公司儲備的變動詳情載於財務報表附註36(a)，其中截至2018年12月31日止可供分配予股東的儲備詳情載於財務報表附註36(e)。

### 銀行貸款及其他借款

關於本公司及其附屬公司於2018年12月31日之銀行貸款及其他借款的詳情載於財務報表附註29。

### 董事、監事和高級管理人員

於本年報日期，本公司董事、監事和高級管理人員的有關資料，如姓名、本公司職位及加入／委任／重選／辭任日期，載於本年報的「董事、監事及高級管理人員」一節。

本公司已收到每名獨立非執行董事根據香港聯合交易所有限公司證券上市規則第3.13條就其各自的獨立性出具的年度確認書，並認為每名獨立非執行董事均獨立於本公司。

### 董事、監事和高級管理人員簡歷

董事、監事和高級管理人員的簡歷詳情載於本年報的「董事、監事及高級管理人員」一節。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### SERVICE CONTRACTS OF THE DIRECTORS AND SUPERVISORS

Each of the executive Directors and Supervisors of the Company entered into a service contract with the Company on 8 August 2017, which is preliminarily for a term of three years commencing from 8 August 2017. Each of the non-executive Directors and independent non-executive Directors entered into a letter of appointment with the Company on 8 August 2017, for a term of three years, with a clause of one-year automatic renewal.

Save as disclosed above, none of the Directors or Supervisors has entered into a service contract with the Company which is not determinable by the Company within one year without payment of compensation, other than statutory compensation.

### PERMITTED INDEMNITY PROVISIONS

Pursuant to the AOA, every Director, Supervisor and senior management of the Company shall be entitled to be indemnified out of the assets of the Company against all losses or liabilities which he/she may sustain or incur in relation to the execution of the duties of his/her office or otherwise in relation thereto. Besides, the Company has arranged appropriate insurance for Directors, Supervisors and senior management in respect of possible legal actions.

### DIRECTORS' AND SUPERVISORS' REMUNERATION

Details of the remuneration of the Directors and Supervisors of the Company are set out in Note 9 to the Financial Statements.

Details of the remuneration of five Individuals with highest emoluments of the Company are set out in Note 10 to the Financial Statements.

### PENSION SCHEMES

Details of pension schemes of the Company are set out in note 7(a) to the Financial Statements.

### INTERESTS OF DIRECTORS AND SUPERVISORS IN CONTRACTS, TRANSACTIONS OR ARRANGEMENTS

At any time during the year of 2018, there was no contract of significance, transaction or arrangement related to the Group's business in which the Company and its subsidiaries was a party, and in which a Director or Supervisor or an entity connected with a Director or a Supervisor had a material interest, either directly or indirectly, which subsisted during the year or at the end of the year.

### 董事及監事的服務合約

本公司各執行董事及監事已於2017年8月8日與本公司訂立了服務合約，各服務協議自2017年8月8日起初步為期三年。而各非執行董事及獨立非執行董事亦已於2017年8月8日與本公司訂立了委任函，為期三年，委任函包含自動延期一年的條款。

除上文所披露者外，概無董事或監事與本公司訂立本公司不可於一年內不付賠償(法定賠償除外)而終止的服務合約。

### 獲准許的彌償條文

根據《公司章程》，本公司每名董事、監事及高級管理人員在其執行職責或在其他方面與此有關之情況下可能蒙受或產生之所有損失或責任，有權獲得從本公司之資產中撥付彌償。此外，本公司已就其可能面對之有關法律行動安排適當的董事、監事及高級管理人員保險。

### 董事及監事的酬金

本公司董事及監事酬金的詳情載於財務報表附註9。

本公司的五位最高薪酬人士的薪酬詳情載於財務報表附註10。

### 退休金計劃

本公司退休金計劃的詳情載於財務報表附註7(a)。

### 董事及監事於合約、交易或安排的權益

於2018年度內的任何時間，本公司及其附屬公司概無直接或間接參與訂立與董事或監事或其有關連的實體有重大利益關係、與本集團業務有關、且於本年度內或結束時仍然有效的重要合約、交易或安排。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### INTERESTS OF DIRECTORS IN COMPETING BUSINESS

During the year of 2018, save as disclosed below, none of the Directors and their associates had any competing interests in any business which competed, or was likely to compete, either directly or indirectly, with the business of the Group:

### 董事於競爭業務的權益

於2018年度內，除下文所披露者外，概無董事及其聯繫人於任何與本集團業務直接或間接構成競爭或可能構成競爭的業務中擁有任何競爭權益：

Name of Director 董事姓名	Position in the Company 本公司職位	Other Equity 其他權益
Mr. WANG Zhongqu 王忠渠先生	Non-executive Director 非執行董事	Chief Production Security Officer of China Energy 國家能源集團安全生產總監
Mr. ZHANG Wenjian 張文建先生	Non-executive Director 非執行董事	Director and Deputy Party Secretary of the Science and Technology Department (the Office of the Science and Technology Committee) of China Energy 國家能源集團科技部(科技委辦公室)主任及副書記
Mr. GU Yuchun 顧玉春先生	Non-executive Director 非執行董事	Member of the Party Committee and the vice general manager of Guodian Power 國電電力黨委委員、副總經理

### INTERESTS AND SHORT POSITIONS OF THE DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT IN THE SHARES, UNDERLYING SHARES AND DEBENTURES

As of 31 December 2018, Mr. YAN Andrew Y., a non-executive Director of the Company, has been interested in 288,200,000 shares of the Company. Please refer to "Substantial Shareholders' Interests in Shares" for more information. Save as disclosed above, none of the Directors, Supervisors and senior management of the Company had any interests or short positions in the shares, underlying shares and debentures of the Company or any of its associated corporations (within the meaning of Part XV of the Securities and Futures Ordinance ("SFO")) which would have to be notified to the Company and The Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interests or short positions which they were taken or deemed to have under such provisions of the SFO) or which were required, pursuant to Section 352 of the SFO, to be registered in the register referred to therein, or which would fall to be disclosed to the Company and The Stock Exchange pursuant to the Model Code for Securities Transactions by Directors of Listed Issuers.

### 董事、監事及高級管理人員於股份、相關股份及債權證的權益及淡倉

於2018年12月31日，本公司非執行董事閻焱先生對本公司的288,200,000股股份擁有權益。更多資料請見「主要股東於股份之權益」。除上文所披露者之外，本公司各董事、監事及高級管理人員概無在本公司或其任何相聯法團(定義見《證券及期貨條例》(「《證券及期貨條例》」)第XV部)的股份、相關股份或債權證中擁有任何根據《證券及期貨條例》第XV部第7及8分部須知會本公司及香港聯合交易所有限公司的權益或淡倉(包括根據《證券及期貨條例》的該等條文被當作或視為擁有的權益或淡倉)，或根據《證券及期貨條例》第352條須登記於該條所指登記冊的權益或淡倉，或根據《上市發行人董事進行證券交易的標準守則》須知會本公司及香港聯合交易所有限公司的權益或淡倉。

### EQUITY-LINKED AGREEMENTS

No equity-linked agreements that will or may result in the Company issuing shares or that require the Company to enter into any agreements that will or may result in the Company issuing shares were entered into by the Company during the year or subsisted at the end of the year.

### 股票掛鈎協議

於年內或年度結束時，本公司概無訂立或存在任何股票掛鈎協議將會或可導致本公司發行股份，或規定本公司訂立任何協議將會或可導致本公司發行股份。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

#### SUBSTANTIAL SHAREHOLDERS' INTERESTS IN SHARES

As of 31 December 2018, to the knowledge of the Directors, the persons below (other than the Directors, Supervisors and senior management of the Company, only the Director Mr. YAN Andrew Y. is included) have interests or short positions in the shares or underlying shares of the Company which are required to be disclosed pursuant to Divisions 2 and 3 of Part XV of the SFO (the table has been updated according to the records of CCASS and the latest information in the Company's possession):

#### 主要股東於股份之權益

於2018年12月31日，就董事所知，下列人士(本公司董事、監事及高級管理人員除外，唯包括本公司董事閻焱先生)於本公司股份或相關股份中擁有根據《證券及期貨條例》第XV部第2及3分部須向本公司披露之權益或淡倉(該表已根據中央結算系統持股紀錄及本公司掌握最新情況更新)：

Shareholder Name	Share Category	Status	Number of Shares/ Underlying Shares Held 持有股份/ 相關股份數目 (shares) (股)	Percentage in the Relevant Class of Share Capital <sup>(1)</sup> 佔有關股本類別 之百分比 <sup>(1)</sup> %	Percentage in the Total Share Capital <sup>(1)</sup> 佔股本總數 之百分比 <sup>(1)</sup> %
China Energy 國家能源集團	Domestic shares 內資股	Interests of beneficial owner and controlled corporation 實益擁有人及受控公司之權益	4,754,000,000 <sup>(2)</sup> (Long position) (好倉)	100.00	78.40
Guodian Power 國電電力	Domestic shares 內資股	Interests of beneficial owner 實益擁有人之權益	2,376,500,000 <sup>(2)</sup> (Long position) (好倉)	49.99	39.19
Mr. YAN Andrew Y. 閻焱先生	H shares H股	Interests of beneficial owner and controlled corporation 實益擁有人及受控公司之權益	288,200,000 <sup>(3)</sup> (Long position) (好倉)	22.00	4.75
SAIF IV GP Capital Ltd. SAIF IV GP Capital Ltd.	H shares H股	Interests of beneficial owner and controlled corporation 實益擁有人及受控公司之權益	288,200,000 <sup>(3)</sup> (Long position) (好倉)	22.00	4.75
SAIF IV GP LP SAIF IV GP LP	H shares H股	Interests of beneficial owner and controlled corporation 實益擁有人及受控公司之權益	288,200,000 <sup>(3)</sup> (Long position) (好倉)	22.00	4.75
SAIF Partners IV L.P. SAIF Partners IV L.P.	H shares H股	Interests of beneficial owner 實益擁有人之權益	288,200,000 <sup>(3)</sup> (Long position) (好倉)	22.00	4.75
National Council for Social Security Fund of the PRC 全國社會保障基金理事會	H shares H股	Interests of beneficial owner 實益擁有人之權益	77,310,000 (Long position) (好倉)	5.90	1.27
State Grid International Development Limited 國家電網國際發展有限公司	H shares H股	Interests of beneficial owner 實益擁有人之權益	76,284,000 (Long position) (好倉)	5.82	1.26



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

#### Notes:

- (1) This percentage is calculated based on the number of relevant shares/ total shares issued by the Company as of 31 December 2018.
- (2) Pursuant to the Merger Agreement entered into by China Energy and Guodian Group on 5 February 2018, since the Completion Date, all the assets, liabilities, business, personnel, contracts, qualifications and all the other rights and obligations of Guodian Group were inherited and undertaken by China Energy. China Energy received the “Anti-Monopoly Review Decision of Putting No Ban on Concentration of Undertakings” (Fan Long Duan Shen Cha Han [2018] No. 26) (《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)) issued by the Anti-monopoly Bureau of State Administration for Market Regulation on 27 August 2018. Currently, the conditions of completion have been fully satisfied, and change in registration of relevant shares is being handled. China Energy has obtained de facto controlling power of the Company. China Energy has held 100% domestic shares of the Group directly and indirectly through Guodian Power. As of 31 December 2018, China Energy has held 46.09% of the total share equities of Guodian Power, and Guodian Power has owned 49.99% of the domestic shares of the Company. As a result, China Energy is deemed to own the equity in domestic shares held by Guodian Power.
- (3) Mr. YAN Andrew Y. indirectly held 22.00% interest in the H shares indirectly via SAIF Partners IV L. P. through SAIF IV GP Capital Ltd. and SAIF IV GP LP. He is the controlling shareholder of SAIF IV GP Capital Ltd., SAIF IV GP LP, and SAIF Partners IV L. P.. SAIF IV GP Capital Ltd. is the controlling shareholder of SAIF IV GP LP. SAIF IV GP LP is the controlling shareholder of SAIF Partners IV L.P.. SAIF Partners IV L.P. has 22.00% interest in the H shares. Therefore, Mr. YAN Andrew Y., SAIF IV GP Capital Ltd. and SAIF IV GP LP are deemed to have the interests in the H shares held by SAIF Partners IV L. P..

#### 附註：

- (1) 該百分比是以本公司於2018年12月31日已發行的相關股份數目／總股份數目計算。
- (2) 根據國家能源集團與國電集團於2018年2月5日簽署的《合併協議》，自交割日起，國電集團的全部資產、負債、業務、人員、合同、資質及其他一切權利與義務由國家能源集團承繼及承接。國家能源集團於2018年8月27日收到國家市場監督管理總局反壟斷局出具的《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)。目前，《合併協議》約定的交割條件已全部滿足，相關股份變更登記正在辦理中，國家能源集團已獲得本公司的實際控制權，其透過國電電力直接及間接持有本集團100%的內資股。於2018年12月31日，國家能源集團於國電電力股份總額中擁有46.09%的權益，國電電力擁有本公司49.99%的內資股。因此，國家能源集團被視為擁有國電電力所持有的內資股的權益。
- (3) 閻焱先生透過SAIF IV GP Capital Ltd.及SAIF IV GP LP經SAIF Partners IV L.P.間接持有22.00%的H股。閻焱先生是SAIF IV GP Capital Ltd.、SAIF IV GP LP以及SAIF Partners IV L.P.的控股股東。SAIF IV GP Capital Ltd.是SAIF IV GP LP的控股股東。SAIF IV GP LP是SAIF Partners IV L.P.的控股股東。SAIF Partners IV L.P.擁有22.00%的H股。因此，閻焱先生、SAIF IV GP Capital Ltd.以及SAIF IV GP LP被視為擁有SAIF Partners IV L.P.所持有H股的權益。

## MANAGEMENT CONTRACTS

The Company did not enter into any contract in respect of the management or administration of the entire or any significant part of the business of the Company nor did such contract subsist at any time during 2018.

## CONNECTED TRANSACTIONS

The Company has entered into certain contracts with its connected persons (as defined under Chapter 14A of the Listing Rules). These transactions were monitored and managed by the Company in accordance with the Listing Rules.

## 管理合約

2018年度內本公司並未於任何時間就有關本公司全部或任何重大部份業務的管理或行政工作訂立或存在任何合約。

## 關連交易

本公司已與其關連人士(定義見上市規則第14A章)訂立若干合約。此等交易乃由本公司根據上市規則監督和管理。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

Non-exempt connected transactions of the Group during 2018 are as follows (unless otherwise defined, capitalized terms used herein shall have the same meanings as those defined in the relevant announcements as mentioned below):

#### (1) Non-exempt One-off Connected Transaction

The Group did not enter into certain non-exempt one-off connected transactions in 2018.

#### (2) Non-exempt Continuing Connected Transaction

The Group entered into certain non-exempt continuing connected transactions in 2018.

For the continuing connected transactions item numbered one, two, three, four and eight, the Company has obtained approval from the shareholders' meeting on the annual caps for the year 2018. For the continuing connected transaction items numbered five, six, seven, nine, ten, eleven and twelve, the Company has obtained approval from the Board and has published announcements on the annual caps for the year 2018.

The table below sets out the annual caps and the actual transaction amounts of such continuing connected transactions.

下列為本集團於2018年度內的未獲豁免關連交易(除非另有定義,本年報所用之詞彙與如下公告所界定者具相同含義):

#### (1) 不獲豁免一次性關連交易

本集團於2018年度並未有發生不獲豁免一次性關連交易。

#### (2) 不獲豁免持續關連交易

本集團於2018年度訂立了若干不獲豁免持續關連交易。

就第一項、第二項、第三項、第四項及第八項持續關連交易而言,本公司已就2018年年度上限獲得股東大會批准通過。就第五項、第六項、第七項、第九項、第十項、第十一項及第十二項持續關連交易而言,本公司已就2018年年度上限向董事會取得批准,並就此刊發公告。

下表載列年度上限及該等持續關連交易的實際交易金額。

Connected Party 關連方	Transaction Type 交易類型	Annual Cap for 2018 2018年 年度上限 (RMB million) (人民幣百萬元)	Annual Actual Transaction Amount for 2018 2018年年度 實際交易金額 (RMB million) (人民幣百萬元)
1 Guodian Group 國電集團	Provision of products and services by the Group for Guodian Group and its subsidiaries 由本集團向國電集團及其附屬公司提供產品及服務	29,000.0	7,509.0
2 Guodian Group 國電集團	Provision of products and services by Guodian Group and its subsidiaries for the Group 由國電集團及其附屬公司向本集團提供產品及服務	1,000.0	313.3
3 United Power 聯合動力	The Group provides products and services for United Power and its subsidiaries 由本集團向聯合動力及其附屬公司提供產品及服務	900.0	357.1
4 United Power 聯合動力	United Power and its subsidiaries provide products and services for the Group 由聯合動力及其附屬公司向本集團提供產品及服務	500.0	-

# REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

## 董事會報告(續)

Connected Party 關連方	Transaction Type 交易類型	Annual Cap for 2018	Annual Actual Transaction Amount for 2018
		2018年 年度上限 (RMB million) (人民幣百萬元)	2018年年度 實際交易金額 (RMB million) (人民幣百萬元)
5 United Power 聯合動力	The Group leases properties for United Power and its subsidiaries 由本集團向聯合動力及其附屬公司出租物業	30.0	21.9
6 Longyuan Technology 龍源技術	The Group provides products and services for Longyuan Technology and its subsidiaries 由本集團向龍源技術及其附屬公司提供產品及服務	50.0	4.2
7 Longyuan Technology 龍源技術	Longyuan Technology and its subsidiaries provide products and services for the Group 由龍源技術及其附屬公司向本集團提供產品及服務	125.0	92.3
8 Guodian Capital Holdings Limited ("Guodian Capital Holdings") 國電資本控股有限公司 (「國電資本控股」)	Provision of deposit services by Guodian Capital Holding and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供存款服務	3,000.0 <sup>(1)</sup>	1,835.7
9 Guodian Capital Holdings 國電資本控股	Provision of credit services by Guodian Capital Holdings and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供信貸服務	130.0	9.1
10 Guodian Capital Holdings 國電資本控股	Provision of deposit services by Guodian Capital Holdings and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供其他金融服務	130.0	–
11 Changjiang Property & Casualty Insurance Co., Ltd ("Changjiang Insurance") 長江財產保險股份有限公司 (「長江保險」)	Provision of insurance services by Changjiang Insurance for the Group 由長江保險為本集團提供保險服務	10.0	2.5

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

Connected Party 關連方	Transaction Type 交易類型	Annual Cap for 2018 2018年 年度上限 (RMB million) (人民幣百萬元)	Annual Actual Transaction Amount for 2018 2018年年度 實際交易金額 (RMB million) (人民幣百萬元)
12 Guodian New Energy Technology Research Institute ("New Energy Technology Research Institute") 國電新能源技術研究院 (「新能源研究院」)	New Energy Technology Research Institute leases properties to the Group 由新能源研究院向本集團出租物業	23.0	8.8

Note:

(1) These numbers represent the maximum daily balance of the deposit placed with Guodian Capital Holdings by the Group.

**1. Provision of Products and Services by the Group for Guodian Group and its Subsidiaries (other than the Group)**

The Company and Guodian Group entered into a framework agreement on the mutual supply of products and services on 23 November 2011 ("Guodian Group Framework Agreement"), and such framework agreement was amended and supplemented by the first supplementary agreement dated 7 May 2012, the second supplementary agreement dated 28 August 2012, the third supplementary agreement dated 11 November 2013, the fourth supplementary agreement dated 22 August 2014 and the 2018 supplementary agreement dated 20 November 2017.

Material terms and conditions of the Guodian Framework Agreement are set out as follows:

The goods and services to be provided by the Group for Guodian Group and its subsidiaries (other than the Group) mainly include:

附註：

(1) 該等數字為本集團存於國電資本控股的每日最高存款餘額。

**1. 本集團向國電集團及其附屬公司(除本集團外)提供產品及服務**

本公司與國電集團於2011年11月23日訂立了互相供應產品及服務的框架協議(「國電集團框架協議」)，並經2012年5月7日訂立的第一次補充協議、2012年8月28日訂立的第二次補充協議、2013年11月11日訂立的第三次補充協議、2014年8月22日訂立的第四次補充協議及2017年11月20日訂立的2018年補充協議修訂及補充。

國電集團框架協議主要條款及條件載列如下：

本集團向國電集團及其附屬公司(除本集團外)提供的產品及服務主要包括：



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

- Services of environmental protection and energy conservation solutions: (i) environmental protection products (including, among others, ash removal, water treatment and denitrification catalyst); (ii) energy conservation products (including, among others, plasma-assisted coal combustion equipment); (iii) environmental protection services (including, among others, desulfurization concession service, denitrification concession service, desulfurization EPC service, denitrification EPC service, water treatment construction – operation – transfer service); and (iv) energy conservation services (including, among others, steam turbine flow passage improvement service and EMC); and
- Renewable energy equipment manufacturing and integrated solutions services segment: (i) WTGs and their parts and components; and (ii) wind power services including wind farm EPC services.

If the terms and conditions of similar products and services offered by an independent third party are the same as those offered by the Group, Guodian Group will give priority in sourcing the requisite products and services from the Group.

If the terms and conditions of similar products and services offered by an independent third party to Guodian Group and its subsidiaries (other than the Group) are no better than those offered by the Group, Guodian Group and its subsidiaries (other than the Group) will give priority in using the relevant products and services from the Group.

The Group and Guodian Group and its subsidiaries (other than the Group) will enter into separate agreements which shall set out the specific scope of products and services, terms and conditions of providing such products and services according to the principles laid down by the framework agreement.

The terms of Guodian Group Framework Agreement expired on 31 December 2018. Taking into account the context of the merger and reorganization of China Energy and Guodian Group, the Group concluded the Framework Agreement on the Purchase and Sale of Integrated Products and Services with China Energy/Guodian Group and its subsidiaries on 13 November 2018, with a term from 1 January 2019 to 31 December 2021. For details, please refer to the announcement of the Company dated 13 November 2018.

- 環保及節能解決方案服務分部：(i)環保產品(包括除塵、水處理及脫硝催化劑)；(ii)節能產品(包括等離子體點火穩燃設備)；(iii)環保服務(包括脫硫特許經營服務、脫硝特許經營服務、脫硫EPC服務、脫硝EPC服務及水處理建設－營運－轉讓服務)；及(iv)節能服務(包括汽輪機通流改造服務及合同能源管理)；及
- 可再生能源設備製造及集成解決方案服務分部：(i)風力發電機組及其零部件；及(ii)風電服務(包括風電廠EPC服務)。

倘獨立第三方提供類似產品和服務的條款及條件與本集團所提供者相同，則國電集團將優先向本集團採購所需產品及服務。

在獨立第三方給予國電集團及其附屬公司(除本集團外)的條款及條件不優於本集團就相同產品及服務所提供的條款及條件的情況下，國電集團及其附屬公司(除本集團外)將優先使用本集團提供的相關產品或服務。

本集團與國電集團及其附屬公司(除本集團外)將另行訂立協議，根據本框架協議所定的原則或正常商業條款載列產品、服務的指定範圍以及提供該等產品及服務的條款及條件。

國電集團框架協議有效期已於2018年12月31日屆滿。考慮到國家能源集團與國電集團合併重組的背景，本集團已與國家能源集團／國電集團及其附屬公司於2018年11月13日訂立《綜合產品和服務購銷框架協議》，年期自2019年1月1日起至2021年12月31日。有關詳情請見本公司日期為2018年11月13日之公告。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The price of products under the framework agreement will be based on the following pricing policy:

- (1) government-prescribed price (including any price prescribed by any relevant local government, if applicable);
- (2) where there is no government-prescribed price but there is a government-guidance price, then the government-guidance price;
- (3) where there is neither a government-prescribed price nor a government-guidance price, the market price, which is defined as the price at which the same type of products and/or services are provided by the independent third parties in the ordinary course of business; or
- (4) where none of the above is applicable or where it is not practical to apply the above pricing policies, then the price agreed between the relevant parties shall be based on arm's length negotiation and shall be the reasonable costs incurred in providing the products plus reasonable profits.

The above pricing mechanism is hereinafter referred to as the "**Applicable Standard Products Pricing Policy**".

The price of services under this agreement will be based on the following pricing policy:

- (1) the bidding price where the bidding process is required; or
- (2) where no bidding process is involved, the market price.

The above pricing mechanism is hereinafter referred to as the "**Applicable Standard Services Pricing Policy**".

Guodian Group is the controlling shareholder of the Company and Guodian Group together with its subsidiaries is connected persons of the Company under the Listing Rules.

框架協議項下的產品價格將按下列定價政策確定：

- (1) 政府定價(包括任何有關地方政府定價(如適用))；
- (2) 凡沒有政府定價，但有政府指導價的，執行政府指導價；
- (3) 沒有政府定價和政府指導價的，執行市場價，市場價定為獨立第三方於一般業務過程中提供的同類產品及／或服務的價格；或
- (4) 倘上述原則均不適用或倘運用上述定價政策不可行，則價格須由相關訂約方經公平協商議定且須為提供產品所產生的合理成本加上合理利潤。

上述定價機制於下文中稱作「**適用標準產品定價政策**」。

該協議項下的服務價格將按照下列定價政策確定：

- (1) 如需招標程序，則執行競標價；或
- (2) 如並無招標程序，則執行市場價。

上述定價機制於下文中稱作「**適用標準服務定價政策**」。

國電集團為本公司控股股東，根據上市規則，國電集團及其附屬公司屬於本公司的關連人士。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Guodian Group and its subsidiaries have always been the important customers and suppliers of the Group. As the Company cooperates with Guodian Group for energy production activities, it provides environmental protection and energy conservation services for the thermal power production facilities operated by Guodian Group and its subsidiaries, and also provides Guodian Group with the wind power products necessary for its renewable energy platform. The relationship between the parties is always mutually beneficial, fair and reasonable and in line with the interest of the Company and its Shareholders as a whole.

In consideration of the background of merger and reorganization of China Energy and Guodian Group, China Energy and its subsidiaries (especially the former Shenhua Group) are connected persons of the Company. The annual cap of this continuing connected transaction for 2018 was RMB29,000 million and the actual transaction amount during the reporting year has included the transaction amount of China Energy and its subsidiaries, being RMB7,509.0 million.

### **2. Provision of Products and Services by Guodian Group and its Subsidiaries (other than the Group) to the Group**

The Guodian Group Framework Agreement also provides the products and services provided by Guodian Group and its subsidiaries (other than the Group) for the Group.

Please refer to the relevant disclosure under “1. Provision of products and services by the Group to Guodian Group and its subsidiaries (other than the Group)” for material terms and conditions of the relevant framework agreement.

Goods and services provided by Guodian Group and its subsidiaries (other than the Group) to the Group include: desulfurization equipment, denitrification equipment and water supply, electricity supply, gas supply and consulting services.

As one of China's five largest power generation companies, Guodian Group can provide a broad market for the business development of the Company. At the same time, Guodian Group provides support and guarantee for the research and development, demonstration and promotion of new technologies, new products and new business models of the Company.

國電集團及其附屬公司一直為本集團的重要客戶及供應商。本公司因與國電集團合作進行能源生產活動，向國電集團及其附屬公司旗下經營的火電生產設施提供環保及節能服務，以及為國電集團可再生能源平台提供風力產品。雙方的關係為一直互惠互利，屬公平合理並符合本公司及股東的整體利益。

考慮到國家能源集團與國電集團合併重組的背景，國家能源集團及其附屬公司(尤其是原神華集團)屬於本公司的關連人士。此項持續關連交易的2018年年度上限為人民幣29,000百萬元，而本報告年度內的實際交易金額已包含與國家能源集團及其附屬公司的交易金額，為人民幣7,509.0百萬元。

### **2. 國電集團及其附屬公司(除本集團外)向本集團提供產品及服務**

國電集團框架協議同時規定了國電集團及其附屬公司(除本集團外)向本集團提供產品及服務。

該框架協議的主要條款及條件，請參閱上文「1.本集團向國電集團及其附屬公司(除本集團外)提供產品及服務」項下的有關披露。

國電集團及其附屬公司(除本集團外)向本集團提供的產品及服務包括：脫硫設備、脫硝設備及供水、供電、供煤氣及諮詢服務等。

國電集團作為中國五大發電公司之一，能夠為本公司的業務發展提供廣闊市場。同時，國電集團為本公司研發、新技術的示範和推廣、新產品和新業務模式也提供了支持和保障。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The annual cap of this continuing connected transaction for 2018 was RMB1,000.0 million and the actual transaction amount during the reporting year has included the transaction amount of China Energy and its subsidiaries, being RMB313.3 million.

### 3. *Provision of Products and Services by the Group for United Power and its Subsidiaries*

The Company entered into a framework agreement with United Power for provision of products and services for United Power and its subsidiaries by the Group on 23 November 2011, was amended and supplemented by the first supplemental agreement dated 11 November 2013 and the second supplemental agreement dated 4 February 2016 (“**United Power Framework Agreement**”).

Pursuant to this agreement, the products and services to be provided for United Power and its subsidiaries by the Group include parts and components of WTGs.

Material terms and conditions of the United Power Framework Agreement are set out as follows:

Subsidiaries of both parties will enter into separate agreements which shall set out the specific terms and conditions for the provision of such products and services according to the principles laid down by the framework agreement. The products and services to be provided under the agreement will be based on the Applicable Standard Products Pricing Policy and Applicable Standard Services Pricing Policy.

The agreement is for a term of three years ending on 31 December 2019. Either party may terminate such agreement upon giving the other party not less than three months’ written notice.

The Company owns 70%, while Longyuan Power owns 30%, of the equity interest in United Power. As Guodian Group, the Company’s controlling shareholder, directly and indirectly owns 58.44% of equity interest in Longyuan Power, United Power is, therefore, an associate of Guodian Group. Pursuant to Chapter 14A of the Listing Rules, United Power and its subsidiaries are the connected persons of the Company. As United Power and its subsidiaries are the connected persons of the Company, the results of the transactions between United Power and its subsidiaries and the Company will be eliminated in consolidated financial statements.

此項持續關連交易的2018年年度上限為人民幣1,000.0百萬元，而本報告年度內的實際交易金額已包含與國家能源集團及其附屬公司的交易金額，為人民幣313.3百萬元。

### 3. *本集團向聯合動力及其附屬公司提供產品及服務*

本公司於2011年11月23日與聯合動力訂立由本集團向聯合動力及其附屬公司供應產品及服務的框架協議，經2013年11月11日訂立的第一次補充協議及2016年2月4日訂立的第二次補充協議修訂及補充(“**聯合動力框架協議**”)。

根據該協議，本集團向聯合動力及其附屬公司供應的產品及服務，包括風力發電機組的零件及組件。

聯合動力框架協議的主要條款及條件載列如下：

雙方的附屬公司將根據該框架協議所定的原則訂立獨立協議，當中將載有提供產品及服務的條款及條件。該協議項下提供的產品及服務價格將分別根據適用標準產品定價政策和適用標準服務定價政策確定。

該協議為期三年，於2019年12月31日屆滿。任何一方可在不少於三個月之前向另一方發出書面通知終止該協議。

本公司擁有聯合動力70%的股權，而龍源電力擁有聯合動力30%的股權。由於國電集團為本公司的控股股東，直接及間接持有龍源電力58.44%的股權，因此聯合動力為國電集團的聯繫人。根據上市規則第14A章，聯合動力及其附屬公司為本公司的關連人士。由於聯合動力及其附屬公司為本公司的關連人士，故本公司與聯合動力及其附屬公司的交易結果將在合併財務報表層面抵銷。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

United Power and its subsidiaries have always been the main subsidiaries and important customers of the Group (except United Power and its subsidiaries). The Group supplies parts and components of wind turbines to United Power, which in turn sells the wind turbine generator units equipped with these components. The Group has always benefited from the cooperation between United Power and its subsidiaries. The relationship between the Group and United Power has always been mutually beneficial.

The annual cap of this continuing connected transaction for 2018 was RMB900.0 million and the actual transaction amount was RMB357.1 million.

#### **4. Provision of Products and Services by United Power and its Subsidiaries for the Group**

After the United Power Framework Agreement was amended and supplemented by the second supplementary agreement dated 4 February 2016, new categories of the continuing connected transactions for the provision of products and services by United Power and its subsidiaries to the Group have been added.

For the material terms and conditions of such framework agreement, please refer to the relevant disclosure under “3. The Group provides United Power and its subsidiaries with products and services” above.

The products and services provided for the Group by United Power and its subsidiaries include parts and components of wind turbines and operating services.

The Group is in need of the products and services, including parts and components of wind turbines, and operating services provided by United Power and its subsidiaries. The Group will be benefited from cooperation between United Power and its subsidiaries. The relationship between the Group and United Power has always been mutually beneficial.

The annual cap of this continuing connected transaction for 2018 was RMB500.0 million, as the relevant project has not commenced yet, so there was no actual transaction amount during this reporting year.

聯合動力及其附屬公司一直為本集團(聯合動力及其附屬公司除外)的主要附屬公司及重要客戶。本集團向聯合動力供應風力發電機組的零件及組件，而聯合動力繼而出售已裝置此等零件及組件的風力發電機組。本集團一直受惠於與聯合動力及其附屬公司的合作，本集團與聯合動力的關係一直為互惠互利。

此項持續關連交易的2018年年度上限為人民幣900.0百萬元，而本報告年度內的實際交易金額為人民幣357.1百萬元。

#### **4. 聯合動力及其附屬公司向本集團提供產品及服務**

聯合動力框架協議經2016年2月4日訂立的第二次補充協議修訂及補充後，增加了由聯合動力及其附屬公司向本集團提供產品及服務的持續關連交易新類別。

有關該框架協議的主要條款及條件，請參閱上文「3.本集團向聯合動力及其附屬公司提供產品及服務」項下的有關披露。

由聯合動力及其附屬公司向本集團提供的產品及服務包括風力發電機組的零件及組件以及營運服務等。

本集團對聯合動力及其附屬公司所提供的產品及服務，包括風力發電機組的零件及組件及營運服務有需求。本集團將受惠於與聯合動力及其附屬公司的合作，本集團與聯合動力的關係一直為互惠互利。

此項持續關連交易的2018年年度上限為人民幣500.0百萬元，由於相關項目尚未開展，本報告年度內無實際交易金額。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### 5. *Property Lease by the Group to United Power and its Subsidiaries*

The Company entered into a property lease framework agreement ("**Lease Agreement**") with United Power on 23 November 2011, amended and supplemented by the supplemental agreement dated 11 November 2013 and the second supplemental agreement dated 4 February 2016.

Material terms and conditions of the Lease Agreement are set out as follows:

The Company agreed to lease land and buildings to United Power and its subsidiaries as offices, production facilities, workshops and staff quarters;

United Power and its subsidiaries are not allowed to sub-lease or transfer such properties to another party without prior written consent from the Company;

The Lease Agreement shall expire on 31 December 2019 subject to the compliance with the requirements of the Listing Rules by the Company, the agreement is renewable upon mutual agreement of the parties;

During the term of the leases for the properties, each party to each lease will bear their own taxes in accordance with the applicable laws and regulations;

United Power has guaranteed that it and its subsidiaries will pay the rents specified for each of the properties in a timely manner and that United Power and its subsidiaries shall use the properties in accordance with the leases terms and will not cause or allow damage to the value of the properties by others;

The rights and obligations of the parties under the leasing agreement are not transferable; and

The rent for each of the leases has been determined for the three year period with reference to similar properties in locations as specified in each of the leases and (where applicable) will be adjusted in accordance with the terms of the lease by mutual agreement or by the appointment of an independent valuator acceptable to both parties. However, any such increment in rent has to be reasonable and not higher than the rent that would otherwise be payable by an independent third party paying market rent for similar properties.

### 5. *由本集團向聯合動力及其附屬公司出租物業*

本公司與聯合動力於2011年11月23日訂立物業租賃框架協議(「**物業租賃協議**」)，經2013年11月11日訂立的補充協議及2016年2月4日訂立的第二次補充協議修訂及補充。

物業租賃協議的主要條款及條件載列如下：

本公司同意將土地及樓宇租給聯合動力及其附屬公司用作辦公室、生產設施、車間及員工宿舍之用；

聯合動力及其附屬公司在未取得本公司的事先書面批准的情況下，不得分租或轉讓該物業予其他人士；

物業租賃協議有效期至2019年12月31日；在本公司遵守上市規則規定的前提下，協議可通過雙方協商續期；

於物業租賃期內，訂約雙方將根據適用法律及法規承擔各自的稅項；

聯合動力保證，聯合動力及其附屬公司將及時支付各項物業的指定租金，並根據租約使用物業，且不會亦不容許他人損害物業價值；

物業租賃協議雙方的權利及責任不得轉讓；及

每份租約的租金乃經參考各租約指定地點的同類物業後按三年期限釐定，並(如適用)將通過雙方磋商或委任雙方認可的獨立估價師根據租約條款作出調整。然而，租金的任何增幅必須合理，不得高於獨立第三方就同類物業支付的市場租金。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

The Lease Agreement improves the Company's utilization of the properties and minimizes any unnecessary relocation cost for the Group as a whole. The second supplementary lease agreement of United Power has been beneficial to both the Company and its subsidiaries and has been fair and reasonable in the interest of the Company and its Shareholders as a whole.

The annual cap of this continuing connected transaction for 2018 was RMB30.0 million and the actual transaction amount was RMB21.9 million.

#### 6. *Provision of Products and Services by the Group to Longyuan Technology and its Subsidiaries*

The Company entered into the Framework Agreement ("**Longyuan Technology Framework Agreement**") on the mutual supply of products and services with Longyuan Technology on 23 November 2011, amended and supplemented by the supplemental agreement dated 31 July 2012, second supplemental agreement dated 11 November 2013, third supplemental agreement dated 22 August 2014, fourth supplemental agreement dated 4 February 2016 and fifth supplementary agreement dated 29 May 2018.

Material terms and conditions of the Longyuan Technology Framework Agreement are set out as follows:

The products and services to be provided to Longyuan Technology and its subsidiaries by the Group include distributed control system (DCS) and accessories, and on-site assembling and test.

If the conditions of similar products and services and the fees payable thereof offered by an independent third party are not better than those offered by one of the parties, the other party will give priority in sourcing the requisite products and services from the first party.

The Group and Longyuan Technology and its subsidiaries will enter into separate agreements which shall set out the specific scope of products and services in accordance with the terms and conditions for the provision of such products according to the principles laid down by the agreement.

物業租賃協議在整體上有助本公司更加有效使用物業，並為本集團儘量降低任何不必要的置換成本。聯合動力第二份補充租賃協議一直對本公司及聯合動力及其附屬公司有利，屬公平合理並符合本公司及股東的整體利益。

此項持續關連交易的2018年年度上限為人民幣30.0百萬元，而本報告年度內的實際交易金額為人民幣21.9百萬元。

#### 6. *由本集團向龍源技術及其附屬公司提供產品及服務*

2011年11月23日，本公司與龍源技術就互相提供產品及服務訂立的框架協議(「**龍源技術框架協議**」)，經於2012年7月31日訂立的補充協議、2013年11月11日訂立的第二次補充協議及2014年8月22日訂立的第三次補充協議、2016年2月4日訂立的第四次補充協議及2018年5月29日訂立的第五次補充協議修訂及補充。

龍源技術框架協議主要條款及條件載列如下：

本集團向龍源技術及其附屬公司提供的產品和服務包括：DCS分散控制系統及相關備件、現場DCS系統的組裝及調試服務等。

倘獨立第三方提供類似產品及服務的條件及就此收取的費用並不比其中一方所提供者優惠，則另一方將優先向對方採購所需產品及服務。

本集團與龍源技術及其附屬公司將訂立獨立協議，當中將載有服務的具體範圍、產品以及根據該協議所定的原則提供該等產品的條款及條件。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

Longyuan Technology Framework Agreement will expire on 31 December 2019. Either party may terminate the framework agreement upon giving the other party not less than three months' written notice.

The price of products under this agreement will be based on the Applicable Standard Products Pricing Policy; the price of the services under this agreement will be based on the Applicable Standard Services Pricing Policy.

The Company directly holds 23.25% of the issued share capital of Longyuan Technology. The Company is the main shareholder of Longyuan Technology. As of date of this Report, Hero Asia (BVI) Company Limited, a wholly owned subsidiary of Longyuan Power, owns approximately 18.75% of equity interest in Longyuan Technology. Given that Longyuan Power is a subsidiary of Guodian Group, Longyuan Technology and its subsidiaries are connected persons of the Company under Chapter 14A of the Listing Rules. Since Longyuan Technology and its subsidiaries are the connected persons of the Company accordingly, the results of the transactions between Longyuan Technology and its subsidiaries and the Group will be eliminated in consolidated financial statements.

Longyuan Technology needs the DCS scattered control systems, the site assembly and commissioning, and other products and services provided by the Group; and the Group has always been benefiting from the cooperation with Longyuan Technology. The annual cap of this continuing connected transaction for 2018 was RMB50.0 million and the actual transaction amount was RMB4.2 million.

#### **7. Provision of Products and Services by Longyuan Technology and its Subsidiaries for the Group**

The Longyuan Technical Framework Agreement has also set forth the provision of products and services by Longyuan Technology and its subsidiaries for the Group.

For the material terms and conditions of the framework agreement are set out above, please refer to the relevant disclosures under "6. Provision of products and services by the Group to Longyuan Technology and its subsidiaries".

The products and services provided for the Group by Longyuan Technology and its subsidiaries include plasma ignition equipment and other products and services for environmental protection and energy conservation, software development, operation and maintenance, market services.

龍源技術框架協議有效期於2019年12月31日屆滿。任何一方可在不少於三個月之前向另一方發出書面通知終止龍源技術框架協議。

該協議項下的產品價格將根據適用標準產品定價政策確定；該協議項下的服務價格將根據適用標準服務定價政策確定。

本公司直接持有龍源技術已發行股份的23.25%，本公司為龍源技術的主要股東。於本報告日，雄亞(維爾京)有限公司是龍源電力的一間全資附屬公司，擁有龍源技術約18.75%股權。鑒於龍源電力是國電集團的附屬公司，根據上市規則第14A章，龍源技術及其附屬公司為本公司的關連人士。由於龍源技術及其附屬公司為本公司的關連人士，故本集團與龍源技術及其附屬公司的交易結果將在合併財務報表層面抵銷。

龍源技術需要本集團提供的DCS分散控制系統及其現場組態及調試等產品及服務，本集團一直受惠於與龍源技術的合作。此項持續關連交易的2018年年度上限為人民幣50.0百萬元，而實際交易金額為人民幣4.2百萬元。

#### **7. 由龍源技術及其附屬公司向本集團提供產品及服務**

龍源技術框架協議同時規定了由龍源技術及其附屬公司向本集團提供產品及服務。

該框架協議的主要條款及條件，請參閱上文「6. 由本集團向龍源技術及其附屬公司提供產品及服務」項下的有關披露。

龍源技術及其附屬公司為本集團提供的產品及服務包括：等離子體點火設備等環保節能產品和服務、軟件開發及運維、市場服務等。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

Longyuan Technology has been an important supplier of products and services for the Group. The Group has always been benefiting from cooperation with Longyuan Technology and believed that the provision of stable products and services for the Group by Longyuan Technology is essential to the Group's business.

The annual cap of this continuing connected transaction for 2018 was RMB125.0 million and the actual transaction amount was RMB92.3 million.

#### 8. **Provision of Deposit Services by Guodian Capital Holdings for the Group**

The Company entered into a finance service framework agreement ("**Financial Service Framework Agreement**") with Guodian Capital Holdings for the provision of financial services by Guodian Capital Holdings for the Group on 9 November 2017.

Material terms and conditions of the Financial Service Framework Agreement are set out as follows:

The services provided by Guodian Capital Holdings and its subsidiaries for the Group are deposit services, including but not limited to agreement deposit, notice deposit and term deposit.

Under the Financial Service Framework Agreement, Guodian Capital Holdings has promised that the terms of financial services provided for the Company will not be less favorable than those offered to other members of the Guodian Group, or the terms of comparable services provided by commercial banks for the Company.

The Company and its subsidiaries shall utilize the financial services of Guodian Capital Holdings on a voluntary and non-compulsory basis and are not obliged to engage Guodian Capital Holdings for any particular service.

Guodian Capital Holdings and its subsidiaries may, from time to time, enter into independent and separate financial service agreements with the Company and its subsidiaries for the provision of specific financial services by it to the Company and its subsidiaries, subject to the terms of the Financial Service Framework Agreement.

龍源技術一直為本集團重要的產品及服務供應商。本集團一直受惠於與龍源技術的合作，並認為龍源技術為本集團提供穩定的產品及服務，對本集團業務至關重要。

此項持續關連交易的2018年年度上限為人民幣125.0百萬元，而實際交易金額為人民幣92.3百萬元。

#### 8. **由國電資本控股向本集團提供存款服務**

本公司於2017年11月9日就國電資本控股向本集團提供金融服務事宜與國電資本控股簽訂金融服務框架協議(「**金融服務框架協議**」)。

該金融服務框架協議的主要條款及條件如下：

國電資本控股及其附屬公司向本集團提供的服務包括存款服務，包括但不限於協定存款、通知存款及定期存款。

根據該金融服務框架協議，國電資本控股承諾，國電資本控股向本公司提供金融服務的條款不遜於國電資本控股向國電集團旗下其他成員提供金融服務的條款、或商業銀行向本公司提供可比服務的條款。

本集團按自願而非強制性基準使用國電資本控股提供的服務，且並無責任就任何特定服務而委聘國電資本控股。

根據該金融服務框架協議載明的條款，國電資本控股及其附屬公司可不時就其向本公司及其附屬公司提供具體金融服務的事宜，與本公司及其附屬公司簽訂獨立個別金融服務協議。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The interest rate for the deposit services provided by Guodian Capital Holdings and its subsidiaries according to such agreement shall not be lower than either: (i) the interest rates offered to other members under Guodian Group by Guodian Capital Holdings for the same category of deposits and (ii) the interest rates offered to the Company and its subsidiaries by any domestic commercial bank for the same category of deposits.

The term of the Financial Service Framework Agreement is from 1 January 2018 and to expire on 31 December 2020.

According to the Hong Kong listing rules, Guodian Group is the controlling shareholder of the Company and therefore also a related party of the Company. Guodian Capital Holdings and its subsidiaries are the subsidiaries of Guodian Group, and therefore Guodian Capital Holdings and its subsidiaries are the connected persons of the Company.

Guodian Capital Holdings is a professional subsidiary authorized by Guodian Group to integrate financial resources, invest in financial equity and manage financial assets. Its operation must comply with all the applicable laws and regulations, requirements and guidelines designated by China Banking Regulatory Commission and the People's Bank of China. It behaves well in risk monitoring and management. The deposit placed in Guodian Capital Holdings is mainly to respond to business needs and some of the Group's customers also use the deposit services provided by Guodian Capital Holdings. This practice can facilitate settlement and timely collection; and at the same time, Guodian Capital Holdings can provide the Group with the commercial terms no less favorable than those provided by other China's commercial banks. The cooperation between the Group and Guodian Capital Holdings and its subsidiaries may reduce financing costs, increase interest incomes on deposits, reduce settlement costs, and benefit risk monitoring.

In 2018, the upper limit of the daily deposit balance placed by the Group in Guodian Capital Holdings and its subsidiaries (including any interest payable on deposits) was RMB3,000.0 million, and the actual maximum daily deposit balance for the reporting year was RMB1,835.7 million.

國電資本控股及其附屬公司根據該協議提供的存款服務的利率不得低於下述任何一項：(i)國電資本控股就同類存款向國電集團旗下其他成員提供的利率；以及(ii)國內其他商業銀行就同類存款向本公司及其附屬公司提供的利率。

金融服務框架協議的有效期自2018年1月1日起至2020年12月31日。

根據上市規則定義，國電集團為本公司控股股東，因此也是本公司的關連人士。國電資本控股及其附屬公司為國電集團附屬公司，因此國電資本控股及其附屬公司也是本公司的關連人士。

國電資本控股是國電集團授權進行金融資源整合、金融股權投資及金融資產管理的專業附屬公司，其經營必須遵守中國銀監會及人民銀行指定的所有相關法律、規定、要求及指引，風險監控管理方面表現良好。將存款放置在國電資本控股，主要是應對業務需要，本集團的一些客戶也使用國電資本控股提供的存款服務，這種做法可方便結算，及時收款；同時國電資本控股能為本集團提供不遜於其他中國商業銀行的良好的商業條款。本集團、國電資本控股及其附屬公司之間的合作或會減少融資成本，增加存款利息收入，減低結算成本，並有助監控風險。

2018年度本集團存置於國電資本控股及其附屬公司的每日存款餘額上限(包括存款中任何應付利息)為人民幣3,000.0百萬元，而報告年度內的實際最高每日存款餘額為人民幣1,835.7百萬元。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### 9. *Provision of Credit Services by Guodian Capital Holdings and its Subsidiaries for the Group*

The Financial Service Framework Agreement also sets forth the provision of credit services for the Group by Guodian Capital Holdings and its subsidiaries, including but not limited to, fixed assets loan, project working capital loan, working capital loan, temporary working capital loan, opening of notes, acceptance and discounting, letter of guarantee and factoring of accounts receivable, etc..

For the material terms and conditions of the framework agreement are set out above, please refer to the relevant disclosures under "8. Provision of Deposit Services by Guodian Capital Holdings for the Group".

The interest rate of the loan services provided by Guodian Capital Holdings and its subsidiaries according to such agreement shall not be higher than any of the following: (i) the base rate published uniformly by the People's Bank of China for the same category of loans; (ii) the interest rate offered to other members under Guodian Group by Guodian Capital Holdings for the same category of loans; and (iii) the interest rate offered to the Company and its subsidiaries by any commercial bank for the same category of loans. In the case of service charges, they (i) must be in accordance with the standard interest rate promulgated from time to time by the People's Bank of China or China Banking Regulatory Commission (if applicable); or (ii) shall not be higher or shall be equal to the interest or service charges required by the commercial banks or other financial institutions for the provision of similar services; or (iii) shall not be higher than the interest or service charges charged by Guodian Capital Holdings for providing similar services for other companies of the Group.

The annual cap of this continuing connected transaction for 2018 was RMB130.0 million and the actual transaction amount was RMB9.1 million.

### 9. *由國電資本控股及其附屬公司向本集團提供信貸服務*

金融服務框架協議同時規定了由國電資本控股及其附屬公司向本集團提供信貸服務，包括但不限於固定資產貸款、項目週轉貸款、流動資金貸款、臨時流動資金週轉貸款、票據開立、承兌及貼現、保函和應收賬款保理等。

該框架協議的主要條款及條件，請參閱上文「8.由國電資本控股向本集團提供存款服務」項下的有關披露。

國電資本控股及其附屬公司根據該協議提供的貸款服務的利率不得高於下述任何一項：(i)較中國人民銀行統一頒佈的基準貸款利率；(ii)國電資本控股就同類貸款向國電集團其他成員公司提供的利率；以及(iii)商業銀行就同類貸款向本公司及其附屬公司提供的利率。如涉及服務費用，其收費標準(i)須符合人民銀行或中國銀行業監督管理委員會不時公佈的標準利率(如適用)；或(ii)不得高於或須相等於商業銀行或其他金融機構提供類似服務所收取的利息或服務費用；或(iii)不得高於國電資本控股就向國電集團旗下其他成員公司提供類似服務所收取的利息或服務費用。

此項持續關連交易的2018年度上限為人民幣130.0百萬元，而報告年度內的實際交易金額為人民幣9.1百萬元。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### 10. Provision of Other Financial Services by Guodian Capital Holdings and its Subsidiaries for the Group

The Financial Service Framework Agreement also sets forth other financial services to be provided for the Group by Guodian Capital Holdings and its subsidiaries, including, but not limited to, intra-group transfer and settlement services, assistance in the receipt and payment of transactions, insurance and insurance brokerage, transaction of entrusted loan and entrusted investment, finance lease (direct lease, after-sale lease) and business factoring, financial advisory and training services.

For the material terms and conditions of the framework agreement are set out above, please refer to the relevant disclosures under “8. Provision of Deposit Services by Guodian Capital Holdings for the Group”.

The service charges for the other financial services provided by Guodian Capital Holdings and its subsidiaries according to such agreement (i) must be in accordance with the standard interest rate promulgated from time to time by the People's Bank of China or China Banking Regulatory Commission (if applicable); (ii) shall not be higher or shall be equal to the interest or service charges required by the commercial banks or other financial institutions for the provision of similar services; and (iii) shall not be higher than the interest or service charges charged by Guodian Capital Holdings for providing similar services for other companies of the Group.

The annual cap of this continuing connected transaction for 2018 was RMB130.0 million, there was no actual transaction amount during this reporting year.

### 11. Provision of Insurance Services by Changjiang Insurance for the Group

On 28 December 2017, the Company entered into an insurance framework agreement (“**Insurance Service Framework Agreement**”) with Changjiang Insurance. Pursuant to the framework agreement, Changjiang Insurance and its subsidiaries agreed to provide insurance services for the Group covering property all-risk insurance, machinery damage insurance and public liability insurance for a term of three years from 1 January 2018 to 31 December 2020.

### 10. 由國電資本控股及其附屬公司向本集團提供其他金融服務

金融服務框架協議同時規定了由國電資本控股及其附屬公司向本集團提供其他金融服務，包括但不限於集團內轉賬及結算服務、協助實現交易款項的收付、保險及保險經紀業務、辦理委託貸款及委託投資、融資租賃(直接租賃、售後回租)及商業保理、金融諮詢及培訓服務等。

該框架協議的主要條款及條件，請參閱上文「8.由國電資本控股向本集團提供存款服務」項下的有關披露。

國電資本控股及其附屬公司根據該協議提供的其他金融服務，其服務費用(i)須符合中國人民銀行或中國銀行業監督管理委員會(如適用)不時公佈的標準利率；(ii)不得高於或須等同於商業銀行或其他金融機構提供類似服務所收取的利率或服務費用；以及(iii)不得高於國電資本控股就向國電集團旗下其他成員公司提供類似服務所收取的利息或服務費用。

此項持續關連交易的2018年度上限為人民幣130.0百萬元，而報告年度內無實際交易金額。

### 11. 由長江保險為本集團提供保險服務

於2017年12月28日，本公司與長江保險訂立保險服務框架協議(「**保險服務框架協議**」)。根據該框架協議，長江保險及其附屬公司同意向本集團提供包括財產一切保險、機器損壞保險、公眾責任保險等保險服務，自2018年1月1日起至2020年12月31日止，為期三年。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The service charges for the services under such agreement: (1) shall be within the term of the agreement and observe the valid charge standards issued by China Insurance Regulatory Commission for the same type of insurance services (if applicable); or (2) under the same conditions, shall not be more than or shall be equal to the same level of operating expenses of other domestic institutions; or (3) under the same conditions, shall not be higher than the interest or service charges required by Changjiang Insurance from other members of Guodian Group for the same category of insurance services.

The members of the Group may, from time to time and as necessary, enter into individual implementation agreements with Changjiang Insurance in respect of specific transactions to be undertaken under the Insurance Service Framework Agreement.

As defined under the Listing Rules, Guodian Group, the holding shareholder of the Company, directly and indirectly holds 34% of Changjiang Insurance; therefore, Changjiang Insurance is the connected person of the Company and the Insurance Service Framework Agreement and the transactions thereunder shall constitute the continuous connected transactions of the Company.

Changjiang Insurance is a professional service organization. The directors believe that Changjiang Insurance and its subsidiaries can provide the Group with high-quality, high-efficiency and comprehensive insurance services in many aspects, such as underwriting, insurance policy preparation, claim investigation and so on.

The annual cap of this continuing connected transaction for 2018 was RMB10.0 million and the actual transaction amount was RMB2.5 million.

### 12. *New Energy Technology Research Institute Leases Properties to the Group*

On 28 December 2017, the Company entered into a property lease framework agreement (“**Property Lease Framework Agreement**”) for 2018 with New Energy Research Institute. Pursuant to Property Lease Framework Agreement, New Energy Research Institute agreed to lease certain premises to the Company and its subsidiaries for a term of one year commencing from 1 January 2018 and ending on 31 December 2018.

保險服務框架協議項下服務收費標準應：(1)在保險服務框架協議有效期內，遵守中國保險監督管理委員會就同種類保險服務頒佈的有效收費標準(如適用)；或(2)同等條件下，不高於(或等於)國內其他機構同等業務費用水平；或(3)同等條件下，不高於長江保險就提供同種類保險服務向國電集團其他成員收取的利息或服務費。

本集團成員公司可不時及於有需要時，就保險服務框架協議項下擬進行的各項特定交易，與長江保險訂立個別的實施協議。

根據上市規則定義，本公司控股股東國電集團直接及間接持有長江保險34%股權，故長江保險為本公司的關連人士，保險服務框架協議及其項下交易構成本公司的持續關連交易。

長江保險為專業的服務機構，董事認為長江保險及其附屬公司能向本集團從承保出單、保單繕制、理賠查勘等多方面提供優質高效全方位的保險服務。

此項持續關連交易的2018年年度上限為人民幣10.0百萬元，而本報告年度內的實際交易金額為人民幣2.5百萬元。

### 12. *由新能源研究院向本集團出租物業*

於2017年12月28日，本公司及各附屬公司與新能源研究院訂立2018年物業租賃框架協議(「**物業租賃框架協議**」)。根據物業租賃框架協議，新能源研究院同意向本公司及其附屬公司出租若干物業，自2018年1月1日起計至2018年12月31日止，為期一年。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Rent will not exceed RMB3.6 per square meter per day (excluding property management fees and water and electricity tariffs) on basis of the floor area of the property. Rents may be adjusted by mutual agreement or by appointing an independent valuer accepted by both parties. However, the adjustment must be reasonable and not higher than the market rent otherwise payable by an independent third party in respect of a similar property and the amount of rent charged by an independent third party in respect of a similar property. Rents will be determined according to the condition of each property by referring to the fair and reasonable market price and the rent of comparable properties in similar locations. The annual cap is calculated after taking into account the Group's demand for the leased properties for New Energy Research Institute and the past data.

According to the Listing Rules, Guodian Group is the controlling shareholder of the Company and therefore a related party of the Company. New Energy Research Institute is wholly-owned by Guodian Group and, therefore, a related party of the Company. In accordance with Chapter 14A of the Listing Rules, the transaction under the property lease framework agreement constitutes the continuing connected transaction of the Company.

The transaction provides a number of subsidiaries of the Company with stable and necessary office properties and enables them to carry out their business in the properties of the New Energy Research Institute. The property lease framework agreement was entered into after fair negotiation and is in favor of the Company and its related subsidiaries.

During the reporting year, the annual cap of this connected transaction for 2018 amounted to RMB23.0 million, and the actual transaction amount was RMB8.8 million.

On 28 December 2018, the Company entered into a property lease framework agreement for 2019 with New Energy Research Institute. Pursuant to this agreement, New Energy Research Institute agreed to lease certain premises to the Company and its subsidiaries for a term of one year commencing from 1 January 2019 and ending on 31 December 2019. For details, see the announcement of the Company dated 28 December 2018.

租金將按物業建築面積計算，不得超過每天每平方米人民幣3.6元(不包括物業管理費及水電費)。租金可在雙方同意下或委聘獲雙方接納的獨立估值師予以調整。然而，有關調整須屬合理，且不得高於獨立第三方以其他方式就類似物業應付的市場租金及獨立第三方就類似物業收取的租金金額。租金將按各物業的狀況經參考公平合理的市價以及於類似地點的可資比較物業的租金後釐定。年度上限乃經考慮本集團對自新能源研究院租賃物業之需求及過往數據後計算得出。

根據上市規則定義，國電集團為本公司控股股東，故為本公司關連人士。新能源研究院由國電集團全資擁有，因此為本公司關連人士。根據上市規則第14A章，物業租賃框架協議項下進行的交易構成本公司之持續關連交易。

該交易為本公司若干附屬公司提供穩定及所需的辦公室物業，並讓彼等能於新能源研究院之物業內進行其業務。物業租賃框架協議乃經公平磋商後訂立，且對本公司及其相關附屬公司有利。

本報告年度內，此項持續關連交易的2018年年度上限為人民幣23.0百萬元，而實際交易金額為人民幣8.8百萬元。

於2018年12月28日，本公司與新能源研究院訂立2019年物業租賃框架協議。根據該協議，新能源研究院同意向本公司及其附屬公司出租若干物業，自2019年1月1日起計至2019年12月31日止，為期一年。有關詳情請見本公司日期為2018年12月28日之公告。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### REVIEW OF INDEPENDENT NON-EXECUTIVE DIRECTORS

The independent non-executive Directors of the Company have reviewed each of the abovementioned continuing connected transactions and confirmed that such transactions were:

- (1) made in the ordinary and usual course of business of the Group;
- (2) on normal commercial terms or better, or, if there are no comparable transactions to determine whether they are on normal commercial terms or better, from the perspective of the Group, on terms of such transactions no less favorable than the terms available to or from an independent third party; and
- (3) in accordance with relevant agreements governing the relevant transactions on terms that are fair and reasonable and in the interests of the Shareholders as a whole.

### LETTER FROM AUDITORS

Pursuant to rule 14A.56 of the Listing Rules, the Company's auditor was engaged by the Board of the Directors of the Company to report on the Group's continuing connected transactions in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information" and with reference to Practice Note 740 "Auditor's Letter on Continuing Connected Transactions under the Listing Rules" issued by the Hong Kong Institute of Certified Public Accountants. Based on the work performed, the auditor of the Company confirmed to the Board of Directors of the Company that the aforesaid continuing connected transactions:

- (1) have been approved by the Board of Directors of the Company;
- (2) involving the provision of goods and services by the Group were entered into in accordance with the pricing policies of the Group stipulated under the relevant agreements governing such transactions;
- (3) have been entered into in accordance with the relevant agreements governing such transactions; and
- (4) have not exceeded the relevant annual caps as disclosed in the relevant announcements of the Company.

### 獨立非執行董事審核確認情況

本公司獨立非執行董事已審閱上述各項持續關連交易，並確認該等交易：

- (1) 在本集團日常業務過程中訂立；
- (2) 按照一般商業條款或更佳條款進行，或如並無可供比較的交易釐定該等交易是否按一般商業條款或更佳條款進行，則對本集團而言，該等交易的條款不遜於獨立第三方可取得或提供的條款；及
- (3) 根據規管有關交易的相關協議進行，而條款公平合理，並符合本公司股東整體利益。

### 核數師函件

根據上市規則第14A.56條，本公司核數師已獲本公司董事會聘用，根據香港會計師公會頒佈之香港鑒證業務準則第3000號(經修訂)「非審核或審閱歷史財務資料之鑒證工作」及參照實務說明第740號「關於香港上市規則所述持續關連交易的核數師函件」就本集團的持續關連交易作出匯報。根據所執行的工作，本公司核數師向本公司董事會確認上述持續關連交易：

- (1) 已獲本公司董事會批准；
- (2) 涉及由本集團提供產品及服務的，乃按照規管有關交易的協議規定的本集團的定價政策而進行；
- (3) 已根據規管有關交易的協議條款進行；及
- (4) 並無超逾本公司的相關公告中披露的有關年度上限。

## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The auditor has issued a letter containing its findings and conclusions in respect of the continuing connected transactions disclosed by the Group on pages 70 to 87 of this Annual Report in accordance with Article 14A.56 of the Listing Rules. A copy of the auditor's letter has been provided by the Company to the Stock Exchange of Hong Kong Limited.

Save as disclosed above, no related party transaction set out in the Notes to the Financial Statements falls into the category of connected transactions or continuing connected transactions under the Listing Rules.

### RELATED PARTY TRANSACTIONS

The related party transactions in 2018 disclosed in Note 40(a) to the Financial Statements in accordance with International Accounting Standard 24 "Related Party Disclosures" that also fall under the definitions of "connected transaction" or "continuing connected transaction" (as the case may be) in Chapter 14A of the Listing Rules have been disclosed in the section headed "Connected Transactions". Note 40(a) to the Financial Statements also includes related party transactions that do not fall under the definition of "connected transaction" or "continuing connected transaction" or are otherwise fully exempt from all disclosure requirements in accordance with Chapter 14A of the Listing Rules.

### TRUST DEPOSIT

On 31 December 2018, the Company and its subsidiaries have not placed any trust deposit at domestic or overseas financial institutions, and had no unrecovered time deposit which had passed their maturity dates.

### DONATION

During the year, the Company and its subsidiaries donated RMB79,000 (2017: RMB220,000).

### COMPLIANCE WITH NON-COMPETITION AGREEMENT

The Company entered into the non-competition agreement ("**Non-Competition Agreement**") with Guodian Group and Guodian Power respectively on 23 November 2011.

Pursuant to the agreement, Guodian Group and Guodian Power provided certain non-competition undertakings to the Company and granted the options and pre-emptive rights to acquire the retained business and any new business opportunities of Guodian Group or Guodian Power (as the case may be) to the Company. Pursuant to the agreement, the independent non-executive Directors of the Company are responsible for reviewing and considering whether to exercise such options and pre-emptive rights and are entitled, on behalf of the Company, to review the implementation of the undertakings under the agreement on an annual basis.

根據上市規則第14A.56條，核數師已就本年報第70頁至第87頁本集團所披露的持續關連交易出具列載其發現及結論的函件。本公司已向香港聯合交易所有限公司提供核數師函件之副本。

除上述披露外，沒有載列於財務報表附註的任何關聯方交易屬於上市規則下的關連交易或持續關連交易。

### 關聯方交易

於財務報表附註40(a)中根據國際會計準則第24號「關聯方披露」所披露的2018年度關聯方交易中，同時也歸入上市規則第14A章有關「關連交易」或「持續關連交易」的定義(視乎何情況而定)，已遵守上市規則第14A章的披露規定於「關連交易」章節中對該等交易進行了披露。財務報表附註40(a)也包括不歸入上市規則第14A章所定義的「關連交易」或「持續關連交易」或獲全面豁免所有披露規定的關聯方交易。

### 委託存款

於2018年12月31日，本公司及其附屬公司未有存放於中國境內外金融機構的任何委託存款，亦未出現定期存款到期而不能償付的情況。

### 捐款

年內，本公司及其附屬公司作出的捐款為人民幣79,000元(2017年：人民幣220,000元)。

### 《避免同業競爭協議》的遵守

於2011年11月23日，本公司已分別與國電集團及國電電力訂立《避免同業競爭協議》(「**避免同業競爭協議**」)。

根據該協議，國電集團及國電電力對本公司作出了若干不競爭承諾，並授予本公司收購國電集團及國電電力保留業務及任何新業務機會的選擇權及優先受讓權。根據該協議，本公司的獨立非執行董事負責審閱並考慮是否行使該等選擇權及優先受讓權，並有權代表本公司對該協議下承諾的執行情況進行年度審查。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

### 董事會報告(續)

Pursuant to the Merger Agreement entered into by China Energy and the Guodian Group on 5 February 2018, since the Completion Date, all assets, liabilities, business, personnel, contracts, qualifications and all the other rights and obligations of Guodian Group were inherited and undertaken by China Energy. China Energy received the “Anti-Monopoly Review Decision of Putting No Ban on Concentration of Undertakings” (Fan Long Duan Shen Cha Han [2018] No. 26) (《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)) issued by the Anti-monopoly Bureau of State Administration for Market Regulation on 27 August 2018. Currently, the conditions of completion have been fully satisfied, and change in registration of relevant shares is being handled. China Energy has obtained de facto controlling power of the Company. Therefore, the statement of implementation of the Non-Competition Agreement originally presented by Guodian Group for the year was presented by China Energy.

During the year, the independent non-executive Directors of the Company have reviewed the implementation of the Non-Competition Agreement and confirmed Guodian Group and Guodian Power have been in full compliance with the agreement and there was no breach by Guodian Group and Guodian Power.

### MAJOR CUSTOMERS AND SUPPLIERS

For the year ended 31 December 2018, the purchase from the Group's five largest suppliers in aggregate contributed 21.5% of the Group's total purchase for the year, among which, the total purchase from the largest supplier contributed 12.0% of the Group's total purchase for the year.

For the year ended 31 December 2018, the sales to the Group's five largest customers in aggregate contributed 18.8% of the Group's total sales for the year, among which, the sales to the largest customer contributed 5.1% of the Group's total sales for the year.

Guodian Group's subsidiaries as the Group's customers mainly include Guodian Power and Longyuan Power which are both the Group's connected persons. Save as disclosed above, during the year, so far as the Directors are aware, none of the Directors, associates of Directors or any Shareholder (who to the knowledge of the Directors owns more than 5% of the Company's issued share capital) had any interest in the Company's five largest suppliers or customers during the year.

### SIGNIFICANT CONTRACTS

Save as disclosed in the section headed “Connected Transactions” on page 70 of this annual report, neither the Company nor any of its subsidiaries has entered into any significant contract with the controlling shareholder or any of its subsidiaries other than the Group, and the Group did not enter into significant contracts with the controlling shareholder or any of its subsidiaries other than the Group in relation to the provision of services.

根據國家能源集團與國電集團於2018年2月5日簽署的《合併協議》，自交割日起，國電集團的全部資產、負債、業務、人員、合同、資質及其他一切權利與義務由國家能源集團承繼及承接。國家能源集團於2018年8月27日收到國家市場監督管理總局反壟斷局出具的《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)。目前，《合併協議》約定的交割條件已全部滿足，相關股份變更登記正在辦理中，國家能源集團已獲得本公司的實際控制權。因此，本年度原由國電集團出示的《避免同業競爭協議》的執行情況聲明由國家能源集團出示。

本年度內，本公司獨立非執行董事已就《避免同業競爭協議》的執行情況進行了審閱，並確認國電集團及國電電力已充分遵守該協議，並無任何違約情形。

### 主要客戶及供貨商

截至2018年12月31日止年度，本集團五大供貨商的購買額共佔本集團本年度購買總額的21.5%，其中最大供貨商的購買總額佔本集團本年度購買總額的12.0%。

截至2018年12月31日止年度，本集團向五大客戶作出的銷售共佔本集團本年度銷售總額的18.8%，其中向最大客戶作出的銷售佔本集團本年度銷售總額的5.1%。

作為本集團客戶的國電集團附屬公司主要包括國電電力和龍源電力，均為本集團的關連人士。除上文披露外，於本年度內，就董事所知，概無董事、董事的聯繫人或本公司任何股東(據董事所知擁有本公司已發行股本5%以上的權益)於本年度內在本公司五大供貨商或客戶中擁有任何權益。

### 重大合約

除於本年報第70頁的「關連交易」一節中披露之外，本公司或其任何一家附屬公司概無和控股股東或其任何一家除本集團之外的附屬公司簽訂重大合約，且本集團並不存在與控股股東或其任何一家除本集團之外的附屬公司之間提供服務的重大合約。

# REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

## 董事會報告(續)

### INTERESTS OF THE CONTROLLING SHAREHOLDER IN SIGNIFICANT CONTRACTS

Details of significant contracts entered into between the Company and the controlling shareholder or its subsidiaries are disclosed in the section headed "Connected Transactions" on page 70 of this annual report.

### ISSUED DEBENTURES

The Company completed the placement of the first tranche of the Company's targeted debt financing instruments of 2018 on 13 November 2018. The total issuance amount is RMB1.0 billion for a term of three years. For details, please refer to the announcement of the Company dated 14 November 2018.

### RETIREMENT AND EMPLOYEES BENEFIT SCHEME

Details of the Group's retirement and employees benefit scheme are set out in Note 7(a) to the Financial Statements.

### COMPLIANCE WITH THE CODE ON CORPORATE GOVERNANCE PRACTICES

In 2018, the Company has complied with relevant code provisions as set out in the Code on Corporate Governance Practices in Appendix 14 to the Listing Rules. Please refer to the Corporate Governance Report of this Annual Report for details.

### PUBLIC FLOAT

Based on information publicly available to the Company and so far as the Directors are aware, not less than 21.6% of the issued share capital of the Company was held by the public as of the date of this Annual Report, which was in compliance with the requirements under the Listing Rules.

### MATERIAL LITIGATION AND ARBITRATION

On 24 July 2017, a subsidiary of the Group, whose operation has discontinued, was prosecuted by a supplier, and was required to pay the remaining RMB114.4 million and overdue interest according to the sales contract. According to the first instance judgment received on 29 November 2018, the Company lost the lawsuit. Based on the accounting standards, the Company provided an estimated liability of approximately RMB136.4 million for this case in 2017, and provided an overdue interest of RMB7.3 million for the year 2018. Relevant amounts were paid at the end of 2018 and at the beginning of 2019, respectively. Therefore, the Company believes that the results of the judgment will not have a significant adverse impact on the Company's financial situation and operating performance.

Save as disclosed above, for the year ended 31 December 2018, the Company has not involved in any material litigation or arbitration.

### 控股股東於重要合約的權益

本公司與控股股東或其附屬公司之間所訂的重要合約詳情已披露於本年報第70頁的「關連交易」一節。

### 已發行的債權證

本公司於2018年11月13日完成配售本公司2018年第一期定向債務融資工具，總發行金額為人民幣10.0億元，期限為三年，詳見本公司日期為2018年11月14日之公告。

### 退休及僱員福利計劃

本集團退休及僱員福利計劃詳情載於財務報表附註7(a)。

### 遵守企業管治常規守則

2018年，本公司已遵守上市規則附錄14所載企業管治常規守則內的相關守則條文。詳情請參閱本年報的企業管治報告。

### 公眾持股量

根據本公司可公開獲得的資料，就董事所知，於本報告日期，公眾人士持有本公司已發行股本不少於21.6%，符合上市規則的規定。

### 重大訴訟及仲裁

2017年7月24日，本集團已終止經營的一家附屬公司遭某供貨商起訴，要求根據銷售合同支付剩餘貨款人民幣114.4百萬元及若干逾期利息。本公司已於2018年11月29日收到了法院判決書，判決本公司敗訴。基於會計準則要求，本公司已對該案在2017年度計提預計負債約人民幣136.4百萬元，在2018年度計提逾期利息約人民幣7.3百萬元，相關款項已分別於2018年末及2019年初支付。因而，本公司認為，判決之結果將不會對本公司的財務狀況及經營業績構成重大不利影響。

除上述披露外，截至2018年12月31日止年度，本公司並無涉及任何重大訴訟或仲裁。



## REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

### AUDIT COMMITTEE

According to the Listing Rules, the Group has established an audit committee (“**Audit Committee**”), the responsibilities of which including providing suggestions to the appointment, re-appointment and dismissal of external independent auditors, and monitoring their works. The Audit Committee comprises Mr. YEUNG Chi Tat (independent non-executive Director), Mr. SHEN Xiaoliu (independent non-executive Director) and Mr. ZHANG Wenjian (non-executive Director). The 2018 annual results of the Group and the Financial Statements as of and for the year ended 31 December 2018, which have been prepared in accordance with the International Financial Reporting Standards, have been reviewed by the Audit Committee of the Company.

### AUDITORS

KPMG and ShineWing Certified Public Accountants (Special General Partnership) (“**ShineWing**”) were appointed as the Company’s international and PRC auditors, respectively, for the year ended 31 December 2018. The financial statements for the year ended 31 December 2018 of the Company have been prepared in accordance with the International Financial Reporting Standards, and have been audited by KPMG. KPMG has been appointed by the Company since the date of its listing.

By order of the Board of Directors  
**Guodian Technology & Environment Group Company Limited**  
*Chairman of the Board*  
**Mr. CHEN Dongqing**

Beijing, China, 29 March 2019

### 審計委員會

本集團已根據上市規則的規定成立審計委員會(「**審計委員會**」)，職責包括就外聘獨立核數師的委任、重新委任及罷免向董事會提出建議，並監督他們的工作。審計委員會成員為楊志達先生(獨立非執行董事)、申曉留先生(獨立非執行董事)及張文建先生(非執行董事)。本公司的審計委員會已審閱本集團2018年之年度業績，及按《國際財務報告準則》編製的於2018年12月31日及截至該日止年度的財務報表。

### 核數師

本公司已分別委任畢馬威會計師事務所和信永中和會計師事務所(特殊普通合伙)(「**信永中和**」)為截至2018年12月31日止年度的國際和中國核數師。畢馬威會計師事務所已審核本公司按《國際財務報告準則》編製的截至2018年12月31日止年度的財務報表。畢馬威會計師事務所自本公司上市之日起獲本公司委任。

承董事會命  
**國電科技環保集團股份有限公司**  
*董事長*  
**陳冬青先生**

中國·北京·2019年3月29日

# REPORT OF THE BOARD OF SUPERVISORS

## 監事會報告

In 2018, to protect the interests of the Shareholders and the Company, and in compliance with the applicable laws and regulations and the AOA, the Board of Supervisors effectively exercised its supervision authority over the meeting-convening and decision-making procedures of the Board of Directors. During this reporting year, the main responsibilities of the Board of Supervisors are as follows:

### 1. MEETINGS OF THE BOARD OF SUPERVISORS

Two meetings of the Board of Supervisors were convened in 2018:

- (1) The 2018 first meeting of the third session of the Board of Supervisors was convened on 29 March 2018. The meeting considered and approved the proposals on the 2017 annual report (draft), the 2017 annual performance report (draft) and the 2017 profit distribution plan and the supervisor's report.
- (2) The 2018 second meeting of the third session of the Board of Supervisors was convened on 23 August 2018. The meeting considered and approved the proposal on 2018 interim report (draft) and interim results announcement (draft), 2018 interim financial statement and 2018 interim profit distribution proposal.

### 2. WORK UNDERTAKEN BY THE BOARD OF SUPERVISORS

In 2018, the Board of Supervisors mainly undertook the following work: During the reporting year, the Board of Supervisors duly reviewed the Company's operation and development plan and proposed reasonable suggestions and advice to the Board of Directors. To safeguard the interests of the Shareholders, the Board of Supervisors actively and effectively performed its supervision duties over significant decisions and detailed implementations by the Company's senior management to ensure to conform to relevant laws and regulations and the AOA.

2018年，監事會為維護股東權益和公司利益，依照有關法律法規和《公司章程》的規定，對董事會的召開和決策過程有效行使其監管權。於本年度內，監事會的主要工作情況如下：

### 1. 監事會會議召開情況

2018年監事會共召開兩次會議：

- (1) 2018年3月29日，召開第三屆監事會2018年第一次會議，審議通過了關於2017年報(審議稿)及2017年度業績公告(審議稿)、2017年度利潤分配方案及監事會報告的議案。
- (2) 2018年8月23日，召開第三屆監事會2018年第二次會議，審議通過了關於2018年度中期報告(審議稿)及中期業績公告(審議稿)、2018年度中期財務報表及2018年中期利潤分配方案的議案。

### 2. 監事會工作開展情況

2018年度，監事會主要開展以下工作：在本報告年度內，監事會對本公司的經營及發展計劃進行充分審查，並向董事會提出合理的建議和意見。監事會積極且有效地履行監管職責，對本公司高級管理人員的重大決策及決策的具體實施情況實施監督，確保其符合國家法律法規以及《公司章程》的規定，維護股東利益。



## REPORT OF THE BOARD OF SUPERVISORS (CONTINUED)

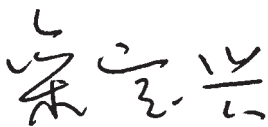
### 監事會報告(續)

The Board of Supervisors duly reviewed and approved the Report of the Board of Directors, audited the financial report and the profit distribution plan which were to be presented at the 2018 annual general meeting, and thought that the members of the Board of Directors, general manager and other senior management of the Company strictly complied with the principles of integrity, performed their duties diligently, exercised their powers in the best interests of the Company and discharged their responsibilities in accordance with the AOA. Meanwhile, the Company's operations have been further standardized and its internal control system has been improved. The Company's connected transactions were in the interests of the Shareholders as a whole and were on fair and reasonable terms. The Board of Supervisors has not discovered any Director or Senior Management that had abused their power or any of their actions were prejudicial to the interests of the Company or Shareholders, or violated the applicable laws and regulations or the AOA.

The Board of Supervisors is satisfied with the financial position and operational results of the Company in 2018. The Board of Supervisors is confident in the prospects of the Group.

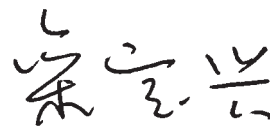
監事會認真審閱並批准董事會報告，並審閱擬提呈予2018年度股東週年大會的經審核的財務報告以及利潤分配方案，認為本公司董事會成員、總經理及其他高級管理人員，嚴格遵守誠信原則，工作克勤盡職，以本公司最佳利益為出發點行使職權，能夠按照《公司章程》履行其各項職責。同時，公司的運作更為規範化，內部控制系統也相應改善。本公司關連交易均本著公平、合理的原則，從本公司股東整體利益出發。監事會並無發現公司任何董事或者高級管理人員有濫用職權、損害本公司及公司股東合法利益以及違反有關法律、法規及《公司章程》規定的行為。

監事會對2018年度公司的財務狀況以及業績狀況表示認可，對本集團未來的發展前景充滿信心。



By Order of the Board of Supervisors  
**Guodian Technology & Environment Group Company Limited**  
*Chairman of the Board of Supervisors*  
**Mr. LUAN Baoxing**

Beijing, China, 29 March 2019



承監事會命  
**國電科技環保集團股份有限公司**  
*監事會主席*  
**樂寶興先生**

中國·北京·2019年3月29日



# CORPORATE GOVERNANCE REPORT

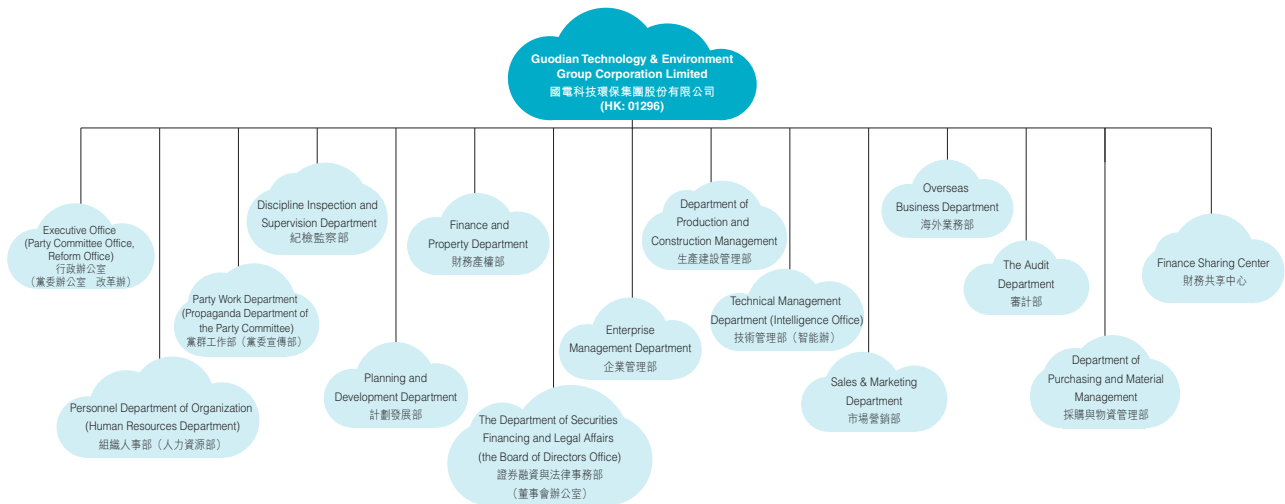
## 企業管治報告

The Board of Directors hereby presents to the Shareholders the corporate governance report for the year ended 31 December 2018 (“**Reporting Period**”).

本公司董事會現向股東提呈截至2018年12月31日止年度(「**報告期間**」)的企業管治報告。

The corporate governance framework of the Company is set out as follows:

本公司的企業管治框架如下：



## CORPORATE GOVERNANCE PRACTICES

Since its establishment, the Company has been committed to improving its corporate governance, which is considered essential to the creation of value for the Shareholders. The Company has established a modern corporate governance structure, which comprises a number of independently-operated and effectively-balanced bodies, including general meeting, the Board of Directors, the Board of Supervisors and the senior management, by referring to the Code on Corporate Governance Practices (“**Code**”) in Appendix 14 to the Listing Rules. The Company has also adopted the Code as its own corporate governance practice. In 2018, the Company strictly complied with the principles and provisions of the Code, and in some circumstances, adopted the best practices recommended by the Code.

The Company is dedicated to maintaining a high level of corporate governance. The Board of Directors has adopted various corporate policies and standards for application of proper governance principles in our usual business operations. In the course of our usual business operations, we comply with the applicable laws, rules and regulations of different countries and regions as part of our vigorous efforts to ensure a healthy and safe working environment for our employees, devote our utmost endeavor to safeguarding the interests of shareholders as a whole and place key focus on the sustainable development of the Company. In the Reporting Period, the Company adopted the principles under the Code and complied with all the code provisions thereunder.

## 企業管治常規

自成立以來，本公司始終致力於提升企業管治水平，視企業管治為實現為股東創造價值不可或缺的一部分。本公司參照上市規則附錄14所載《企業管治守則》(「**守則**」)，建立了由股東大會、董事會、監事會及高級管理層等獨立運作、有效制衡的現代公司治理架構。本公司亦採納《守則》作為本公司的企業管治常規。2018年度，本公司嚴格遵守《守則》所載的原則及條文，並在特定情形下採取《守則》建議的最佳常規。

本公司致力維持高水平之企業管治。本公司董事會已採納多項企業政策及準則，以於我們日常活動中應用良好之管治原則。在我們的日常營運中，我們遵守適用國家及地區之法律、規則及規例，致力確保員工擁有健康及安全之工作環境，並竭力保障股東之整體利益，把重點放在本公司的可持續發展上。於報告期間，本公司已採用守則之原則並遵守所有守則條文。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

The corporate governance framework of the Company is set out as follows:

#### 1. Board of Directors

The Board of Directors exercises its powers and functions in accordance with the provisions as set out in the AOA. In the best interests of the Company and the Shareholders, the Board of Directors reports to the general meetings, implements the resolutions passed thereon and is accountable to the general meetings.

##### 1.1 Composition of the Board of Directors

As of the date of the Annual Report, the Board of Directors had consisted of 11 Directors, including 3 executive Directors, 4 non-executive Directors and 4 independent non-executive Directors.

The biographical details of the Directors as of the date of the Annual Report are set out in the section headed "Directors, Supervisors and Senior Management" of the Annual Report. There are no relationships (including financial, business, family or other material or relevant relationships) among members of the Board of Directors. The structure of the Board of Directors is well balanced with each Director owning sound knowledge, experience and expertise on the business operations and development of the Group. All Directors are well aware of their joint and several responsibilities to the Shareholders.

Since the listing of the Company, the Board of Directors has been in compliance with the requirements of the Listing Rules regarding the appointment of at least three independent non-executive Directors. The Board of Directors has also been in compliance with Article 3.10A of the Listing Rules to appoint independent non-executive Directors representing at least one-third of the Board of Directors. Furthermore, the qualifications of all 4 independent non-executive Directors of the Company are in full compliance with the requirements under Article 3.10(1) and (2) of the Listing Rules. In addition, the Company has received annual confirmations from all independent non-executive Directors as to their respective independence in accordance with Article 3.13 of the Listing Rules. Therefore, the Company considers all independent non-executive Directors to be in compliance with the independence requirements as set out in the Listing Rules.

本公司所採用的企業管治常規概述如下：

#### 1. 董事會

董事會按照《公司章程》的規定行使其權力及職責，以本公司及其股東的最大利益為原則，向股東大會報告工作，執行股東大會的決議，對股東大會負責。

##### 1.1 董事會的組成

截至本年報發佈日期止，董事會由11名董事組成，其中包括3名執行董事，4名非執行董事及4名獨立非執行董事。

董事於本年度報告日期的簡歷詳情載於本年報的「董事、監事及高級管理人員」一節。董事會各成員之間不存在任何關係(包括財務、業務、家族或其他重大或相關關係)。董事會結構平衡，每名董事均具備與本集團業務運營及發展有關的豐富知識、經驗及才能。所有董事深知其共同及個別對股東所負之責任。

自本公司上市以來，董事會一直符合上市規則有關委任至少三名獨立非執行董事的要求，且符合上市規則第3.10A條的規定，即所委任的獨立非執行董事必須佔董事會成員人數至少三分之一。本公司目前4名獨立非執行董事的資格完全符合上市規則第3.10(1)及(2)條的規定。此外，本公司已收到每名獨立非執行董事根據上市規則第3.13條就其各自的獨立性出具的年度確認書。因此，本公司認為所有獨立非執行董事均具備上市規則要求的獨立性。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The Board of Directors' functions and responsibilities include: convening general meetings; reporting its work to the general meeting; implementing resolutions approved at general meetings; deciding on the Company's business plans and investment plans; formulating the Company's annual financial budget and final accounts; formulating the Company's profit distribution plans and proposals for the increase in or reduction of the registered capital; and exercising other powers, functions and responsibilities as set out in the AOA. The Company has entered into a service contract or letter of appointment with each Director.

The Company firmly believes that the increasing diversity at the Board of Directors level is one of the essential elements in attaining the Company's strategic objectives and maintaining sustainable development; therefore, the Company has formulated the Board Member Diversity Policy. While determining the composition of the Board of Directors, the Company shall consider the diversity of the Board of Directors from various perspectives, including but not limited to gender, age, cultural and educational background, professional experience, skill, knowledge and service tenure. The final decisions are made based on the value of candidates and contributions they can bring to the Board of Directors. The appointment of the members of the Board of Directors shall be orientated by the need of the skill and experience of the Board of Directors for its overall normal operation, and based on the principle of selecting talented people, while fully considering the above-mentioned goals and requirements for diversity. The Nomination Committee will discuss any amendment to the Board Member Diversity Policy when necessary and propose such amendments to the Board of Directors pending its approval.

Certain information concerning the incumbent Directors of the Company is set out in the section headed "Directors, Supervisors and Senior Management" of this Annual Report. The current term of all the Directors of the Company will expire on 7 August 2020.

本公司董事會的職能及職責包括：召集股東大會；於股東大會上報告董事會的工作；執行股東大會通過的決議；決定本公司業務計劃及投資計劃；制定本公司年度預算及決算；制定本公司利潤分配方案及關於註冊資本增減的議案；以及行使《公司章程》所賦予的其他權力、職能及職責。本公司與每一位董事訂立了服務合約或委任函。

本公司堅信董事會層面日益多元化是支持其達到戰略目標及維持可持續發展的關鍵因素之一，因此本公司制定了《董事會成員多元化政策》，確定本公司在設定董事會成員構成時，應從多個方面考慮董事會成員多元化情況，包括但不限於性別、年齡、文化及教育背景、專業經驗、技能、知識及服務任期。最終將按人選的價值及可為董事會作出的貢獻而作決定。董事會成員的委任以董事會整體良好運作所需的技能和經驗為本，以選用有才能的人士為原則，同時充分考慮上述董事會成員多元化的目標和要求。提名委員會也將於有必要時討論任何修訂，再將有關修訂提呈董事會供其批准。

有關本公司現任董事的若干資料載於本年報的「董事、監事及高級管理人員」一節。本公司所有董事的本屆任期將於2020年8月7日屆滿。

# CORPORATE GOVERNANCE REPORT (CONTINUED)

## 企業管治報告(續)

### 1.2 Director's Continuous Training and Development

In compliance with the requirement of the Rule A.6.5 of the Code and to ensure that the Directors' contribution to the Board of Directors remains informed and relevant, during the reporting year, the Company arranged and funded suitable training for all the Directors, for example, holding special training sessions covering topics including to explore the continuous obligation subject to the notifiable transactions under Chapter 14 of the Listing Rules, connected transactions under Chapter 14A of the Listing Rules and the issuer's continuing obligations under Chapter 13 of the Listing Rules.

Besides the training provided by the Company, the Directors have also developed their professional skills through various ways including attending different forums, seminars and public lectures.

As of 31 December 2018, all the Directors had participated in continuous professional development to develop and refresh their knowledge and skills as required by Article A.6.5 of the Code, in order to ensure that the Directors' contribution to the Board of Directors remains informed and relevant. According to the record of the Board of Directors, the summary of the training received by the Directors for the year ended 31 December 2018 is as follows:

### 1.2 董事的持續培訓及發展

遵照《守則》第A.6.5條的規定，並為確保董事在具備全面信息及切合所需的情況下對董事會作出貢獻，在報告年度裡，本公司為所有董事安排了合適的培訓並提供有關經費，例如舉辦特別的培訓會議，就上市規則第14章規定的須予公佈的交易、上市規則第14A章規定的關連交易以及發行人在上市規則第13章下持續責任進行探討。

除接受本公司提供的培訓外，董事還通過各種途徑積極提高其專業技能，包括參加各類論壇、研討會以及公開講座。

截至2018年12月31日止，本公司的所有董事均已按照《守則》第A.6.5條的要求參與持續專業發展，發展並更新其知識及技能，以確保其繼續在具備全面諮詢及切合所需的情況下對董事會作出貢獻。根據董事會記錄，截至2018年12月31日止年度董事接受培訓的概要如下：

Name 姓名	Types of Continuous Professional Development Programmes 持續專業發展計劃類別
<b>Executive Directors</b> <b>執行董事</b>	
Mr. CHEN Dongqing 陳冬青先生	A, B
Mr. ZHANG Jun 張軍先生	A, B
Mr. TANG Chaoxiong 唐超雄先生	A, B
<b>Non-executive Directors</b> <b>非執行董事</b>	
Mr. WANG Zhongqu 王忠渠先生	A, B
Mr. ZHANG Wenjian 張文建先生	A, B
Mr. YAN Andrew Y. 閻焱先生	A

# CORPORATE GOVERNANCE REPORT (CONTINUED)

## 企業管治報告(續)

Name 姓名	Types of Continuous Professional Development Programmes 持續專業發展計劃類別
<b>Independent Non-executive Directors</b> 獨立非執行董事	
Mr. SHEN Xiaoliu 申曉留先生	A, B
Mr. QU Jiuhui 曲久輝先生	A, B
Mr. XIE Qiuye 謝秋野先生	A, B
Mr. YEUNG Chi Tat 楊志達先生	A, B

A: Read the latest materials for seminars and updates in relation to the Listing Rules and other regulatory requirements

B: Attending the briefing and/or seminars

A: 閱讀有關上市規則及其他適用監管規定最新修訂的研討會材料與更新資料

B: 出席簡介會及/或研討會

### 1.3 Board Meetings

Pursuant to the AOA, the Board of Directors is required to hold at least four Board meetings each year, which shall be convened by the chairman of the Board of Directors. A notice of at least 14 days shall be given for the regular Board meeting. The notice must state the time, venue and means by which the Board meeting will be convened.

Except for the Board of Directors' consideration of matters in relation to connected transactions as set forth in the AOA, the Board meeting should be convened with the present parties of a majority of Directors. A Director may attend the Board meeting in person, or appoint another Director in writing as his/her proxy to attend the meeting. The secretary to the Board of Directors is responsible for preparing and keeping the minutes of the Board meetings and ensuring that such records are available for inspection by any Director.

### 1.3 董事會會議

根據《公司章程》的規定，董事會每年至少召開四次會議，董事會會議由董事長召集。定期董事會會議應於召開前至少14天發出通知，通知須列明會議召開的時間、地點以及方式。

除《公司章程》所規定董事會審議關連交易事項的情況外，董事會會議應由大多數董事出席方可舉行。董事可以親自參加董事會會議，亦可以書面委託其他董事作為其受委代表為出席董事會會議。本公司董事會秘書負責編製和保管董事會會議記錄，並確保董事能夠查閱該等記錄。

## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

In 2018, the Board of Directors convened a total of 11 Board meetings. Among them, three required the avoidance of three related Directors (namely, Mr. WANG Zhongqu, Mr. ZHANG Wenjian and Mr. GU Yuchun). And the Board of Directors convened 2 general meetings in total. As of 31 December 2018, the Company had 11 directors whose attendance at the Board meetings and the general meetings is as follows:

於2018年度，董事會共舉行了十一次董事會會議，其中有三次董事會會議關連董事(即王忠渠先生、張文建先生及顧玉春先生)需迴避表決。此外，董事會共召集了兩次股東大會。於2018年12月31日，本公司共有11位董事，其出席董事會會議及股東大會情況如下：

The Third Session of the Board of Directors 第三屆董事會					
Name	Position in the Company	Number of Board Meetings Attended/Convened 出席/舉行董事會會議次數	Attendance Rate%	Number of General Meetings Attended/Convened*	Attendance Rate%
姓名	本公司職位		出席率%	出席/舉行股東大會會議次數*	出席率%
Mr. CHEN Dongqing 陳冬青先生	Executive Director and Chairman of the Board 執行董事兼董事長	11/11	100	2/2	100
Mr. ZHANG Jun 張軍先生	Executive Director 執行董事	11/11	100	2/2	100
Mr. TANG Chaoxiong 唐超雄先生	Executive Director 執行董事	11/11	100	2/2	100
Mr. WANG Zhongqu 王忠渠先生	Non-executive Director 非執行董事	8/11	73	1/2	50
Mr. ZHANG Wenjian 張文建先生	Non-executive Director 非執行董事	8/11	73	1/2	50
Mr. GU Yuchun 顧玉春先生	Non-executive Director 非執行董事	8/11	73	1/2	50
Mr. YAN Andrew Y. 閻焱先生	Non-executive Director 非執行董事	11/11	100	0/2	0
Mr. SHEN Xiaoliu 申曉留先生	Independent Non-executive Director 獨立非執行董事	11/11	100	2/2	100
Mr. QU Jiu-hui 曲久輝先生	Independent Non-executive Director 獨立非執行董事	11/11	100	1/2	50
Mr. XIE Qiuye 謝秋野先生	Independent Non-executive Director 獨立非執行董事	11/11	100	1/2	50
Mr. Yeung Chi Tat 楊志達先生	Independent Non-executive Director 獨立非執行董事	11/11	100	2/2	100

\* The non-executive directors and independent non-executive directors who were unable to attend the general meeting(s) had been informed of the contents of the general meetings through electronic communication or teleconference.

\* 未能現場或電子通訊方式出席股東大會的非執行董事及獨立非執行董事均知悉股東大會內容。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 1.4 Powers Exercised by the Board and the Management

The Company performs the following corporate governance duties:

- (a) To formulate and review the corporate governance policies and practices of the Company and make recommendations to the Board of Directors;
- (b) To review and monitor the training and continuing professional development of directors, supervisors and senior management;
- (c) To review and monitor the Company's policies and practices in compliance with legal and regulatory requirements;
- (d) To formulate, review and monitor the details of the work of directors, supervisors and employees, etc.; and
- (e) To review the compliance of the Code and disclosure in corporate governance reports.

The powers and duties of the Board and the management have been clearly defined in the AOA so as to ensure that adequate check-and-balance is in place for the purpose of maintaining effective corporate governance and internal control.

The Board is responsible for making decisions on the Company's business and investment plans, determining the establishment of the Company's internal management structure, issuing the Company's essential administration regulations, resolving and approving other material business and administrative matters of the Company and supervising the performance of the management.

Led by the President (and also executive Director), the management of the Company is responsible for implementing the resolutions passed by the Board and managing the Company's day-to-day operations.

### 1.4 由董事會和管理層行使的權力

本公司履行以下企業管治職責：

- (a) 制定及檢討本公司的企業管治政策及常規，並向董事會提出建議；
- (b) 檢討及監察董事、監事及高級管理人員的培訓及持續專業發展；
- (c) 檢討及監察本公司在遵守法律及監管規定方面的政策及常規；
- (d) 制定、檢討及監察董事、監事及僱員的工作細則等；及
- (e) 檢討本公司遵守守則的情況及在企業管治報告內的披露。

董事會和管理層的權力和職責已在《公司章程》中進行了明確規定，以確保為保持有效的公司管治和內部控制提供充分的平衡和制約機制。

董事會負責決定本公司的經營計劃和投資方案，決定本公司內部管理機構的設置，頒佈本公司必要的管理制度，對本公司的其他重大業務和行政事項做出決議並對管理層的履職進行監督。

本公司管理層在總經理(同時亦為執行董事)的領導下，負責執行董事會批准的各項決議，並管理本公司的日常經營。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

#### 1.5 Chairman and General Manager

The posts of the chairman of the Board and the president of the Company (i.e. chief executive officer pursuant to the applicable Listing Rules) are separated and convened by different persons in order to ensure the independence of their respective responsibilities, and the balance of power and authority between them. Mr. CHEN Dongqing acts as the chairman of the Board and Mr. ZHANG Jun acts as the general manager. The Rules of Procedures of the Board Meeting and the Working Rules of the General Manager, as considered and approved by the Board, clearly define the division of duties between the chairman of the Board and the general manager.

Mr. CHEN Dongqing, the Chairman of the Board, is responsible for leading the Board in determining the overall development strategies of the Company and ensuring that the Board effectively performs its duties and discusses significant and appropriate matters in a timely manner, ensuring that the Company establishes effective corporate governance practices and procedures and the Board acts in the best interest of the Company and the Shareholders. Mr. ZHANG Jun, the General Manager of the Company, is mainly responsible for the Company's day-to-day operations, including implementing the Board's resolutions and making day-to-day decisions.

#### 1.6 Appointment and Re-election of Directors

Pursuant to the AOA, the Directors, including the non-executive Directors, shall be elected at the general meetings with a term of office for no more than three years and may be re-elected and re-appointed.

The Company has established a set of procedures for appointing new Directors. The nomination of new Directors shall first be considered by the Nomination Committee, whose recommendations will then be presented to the Board for consideration. All newly nominated Directors are subject to election and approval at general meetings.

In compliance with the applicable laws and regulations, and the AOA, each of the executive Directors of the Company entered into a service contract with the Company on 8 August 2017, which is preliminarily for a term of three years commencing from 8 August 2017. Each of the non-executive Directors and independent non-executive Directors entered into a letter of appointment with the Company on 8 August 2017, for a term of three years, with a clause of one-year automatic renewal.

#### 1.5 董事長及總經理

本公司董事長和總經理(即相關上市規則條文下之行政總裁)職務分別由不同人士擔任，以確保各自職責的獨立性以及權力和授權的分佈平衡。董事長由陳冬青先生擔任，總經理由張軍先生擔任。董事會審議通過的《董事會議事規則》和《總經理工作細則》，分別對董事長和總經理的職責分工進行了明確清楚的界定。

董事長陳冬青先生負責領導董事會確定本公司的整體發展戰略，確保董事會有效履行其職責，並及時就所有重要的適当事項進行討論，確保本公司得以制定有效的企業管治常規及程序，並確保董事會行事符合本公司及全體股東的最佳利益。總經理張軍先生主要負責本公司的日常運營，包括實施董事會決議及進行日常決策等。

#### 1.6 委任及重選董事

根據《公司章程》的規定，董事(包括非執行董事)由股東大會選舉產生，每屆任期不得超過三年，可連選連任。

本公司已就新董事的委任建立了一套有效的程序。新董事的提名事宜先由提名委員會商議，然後再向董事會提交以供審議，並由股東大會選舉通過。

根據相關法律法規及《公司章程》的規定，本公司各執行董事已於2017年8月8日與本公司訂立了服務合約，各服務協議自2017年8月8日起初步為期三年。而各非執行董事及獨立非執行董事亦已於2017年8月8日與本公司訂立了委任函，為期三年，委任函包含自動延期一年的條款。



# CORPORATE GOVERNANCE REPORT (CONTINUED)

## 企業管治報告(續)

### 1.7 Directors' Remuneration

The Remuneration and Appraisal Committee makes recommendations in relation to the Directors' remuneration by taking into consideration factors such as educational background, work experience, etc.. The Board determines the Directors' remuneration by considering the Directors' experiences, work performances, positions and market conditions after the approval of the general meeting.

## 2. Board Committees

There are four Board committees ("Committees"), namely, the Audit Committee, the Remuneration and Appraisal Committee, the Nomination Committee and the Strategic Committee.

On 8 August 2017, the chairmen and members of the third session of Board committees were appointed on the first Board meeting of the third session of the Board for 2017.

### 2.1 Audit Committee

The Audit Committee consists of three Directors: Mr. YANG Zhida (independent non-executive Director), Mr. SHEN Xiaoliu (independent non-executive Director) and Mr. ZHANG Wenjian (independent non-executive Director). Mr. YANG Zhida serves as the chairman of the Audit Committee. The primary responsibilities of the Audit Committee are to review and supervise the Company's financial reporting procedures, including:

- Making proposals in respect of the appointment, re-appointment or change of the external auditors to the Board, approving the remuneration and terms of engagement of external auditors, and handling any issues related to the resignation or dismissal of external auditors;
- Evaluating and examining the independence and objectivity of the external auditors and the effectiveness of the auditing procedures in accordance with the relevant standards;
- Monitoring completeness, accuracy and impartiality of the financial statements of the Company and the Company's accounts, annual reports and interim reports and reviewing significant financial reporting opinions contained in them;
- Reviewing the Company's financial control, internal control and risk management systems; and

### 1.7 董事薪酬

董事薪酬根據專業背景及工作經驗等因素，由薪酬與考核委員會提出建議，經股東大會批准由董事會根據董事經驗、工作表現、職務及市場確定。

## 2. 董事會轄下委員會

董事會下設四個委員會(「委員會」)，包括審計委員會、薪酬與考核委員會、提名委員會和戰略委員會。

2017年8月8日，第三屆董事會2017年第一次會議決議委任第三屆董事會專門委員會主席及成員。

### 2.1 審計委員會

審計委員會由三名董事組成，他們分別是：楊志達先生(獨立非執行董事)、申曉留先生(獨立非執行董事)及張文建先生(非執行董事)。楊志達先生為審計委員會主席。審計委員會的主要職責為審計及監督公司的財務申報程序，包括：

- 就董事會外聘核數師的任命、重新任命或變更提出議案，審批外聘核數師的薪酬與僱傭條款，並處理與外聘核數師辭職或解僱相關的任何問題；
- 根據相關標準評估及審查外聘核數師的獨立性及客觀性和審計程序的有效性；
- 監察本公司財務報表、本公司賬目、年度報告和中期報告的完整性、準確性和公正性，並審查其中重要的財務報告意見；
- 審查公司的財務控制、內部控制和風險管理系統；及



## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

- Taking necessary measures to ensure that employees have a channel to raise concerns in an anonymous manner about any possible improprieties in financial reporting, internal control or other matters.

During the Reporting Period, the Audit Committee convened four meetings in total, with details as follows:

- On 22 March 2018, the first meeting of the Audit Committee of the third session of the Board in 2018 was convened, whereby (1) the proposal regarding the Company's 2017 announcement of the annual results (draft); and (2) the proposal regarding the 2017 annual report of the company (draft) were considered and approved.
- On 26 April 2018, the second meeting of the Audit Committee of the third session of the Board in 2018 was convened, whereby the proposal regarding the Company's reappointment of foreign auditors for 2018 were considered and approved.
- On 20 August 2018, the third meeting of the Audit Committee of the third session of the Board in 2018 was convened, whereby (1) the proposal regarding the 2018 interim report of the Company (draft); and (2) the proposal regarding the 2018 interim results announcement of the Company (draft) were considered and approved.
- On 7 November 2018, the fourth meeting of the Audit Committee of the third session of the Board in 2018 was convened, whereby the proposal regarding the Company's reappointment of domestic auditors for 2018 was considered and approved.

All the members of the Audit Committee attended the above meetings.

- 採取必要措施，確保員工能夠以匿名的方式對財務報告、內部控制或其他事項中的任何不當行為提出質疑。

在報告期間，審計委員會共召開了四次會議，每次會議的詳細情況如下：

- 於2018年3月22日召開了第三屆董事會審計委員會2018年第一次會議，審議並通過(1)關於本公司2017年度業績公告(審議稿)的議案；及(2)關於本公司2017年報(審議稿)的議案。
- 於2018年4月26日召開了第三屆董事會審計委員會2018年第二次會議，審議並通過了關於本公司擬續聘2018年度境外審計機構的議案。
- 於2018年8月20日召開了第三屆董事會審計委員會2018年第三次會議，審議並通過(1)關於本公司2018年中期報告(審議稿)的議案；及(2)關於本公司2018年中期業績公告(審議稿)的議案。
- 於2018年11月7日召開了第三屆董事會審計委員會2018年第四次會議，審議並通過關於聘任本公司2018年度境內審計機構的議案。

審計委員會全體委員均出席了上述會議。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 2.2 Remuneration and Appraisal Committee

The Remuneration and Appraisal Committee consists of three Directors: Mr. QU Jiuhui (independent non-executive Director), Mr. XIE Qiuye (independent non-executive Director) and Mr. WANG Zhongqu (independent non-executive Director). Mr. QU Jiuhui is the chairman of the Remuneration and Approval Committee of the Company. The primary responsibilities of the Remuneration and Appraisal Committee are to formulate the standards concerning the assessment of the directors and the senior management, assess their performance and determine and review the remuneration policies and plans concerning the directors and the senior management, including:

- Discussing the assessment standards, performance evaluation procedures and remuneration and rewards and punishments of Directors and senior management and submitting the same to the Board of Directors for approval;
- Assessing the duty performance of Directors and senior management of the Company and conducting performance evaluation for them;
- Supervising the implementation of the Company's remuneration system; and
- Obtaining the authorization granted by the Board of Directors to consider and determine the specific remuneration package of all the executive Directors and senior management, including non-pecuniary benefits, pension rights and amounts of compensation (including compensation arising from loss or termination of office or appointment) and make recommendations to the Board of Directors on the remuneration of non-executive Directors. The factors to be considered by the Remuneration and Appraisal Committee include the remuneration paid by companies of same kinds, the time devoted by the Directors and the duties of the Directors, the terms of employment of other positions in the Company and whether the remuneration should be determined by performance.

### 2.2 薪酬與考核委員會

薪酬與考核委員會由三名董事組成，他們分別是：曲久輝先生(獨立非執行董事)、謝秋野先生(獨立非執行董事)及王忠渠先生(非執行董事)。曲久輝先生為本公司薪酬與考核委員會主席。薪酬與考核委員會的主要職責為制定評估董事及高級管理人員的標準及對彼等的表現進行評估；釐定、審閱董事及高級管理層相關的薪酬政策及計劃，其中包括：

- 研究董事與高級管理人員考核的標準、績效評價程序和薪酬及獎懲辦法，提交董事會批准；
- 評審公司董事和高級管理人員的履職情況並對其進行績效考核評價；
- 對公司薪酬制度執行情況進行監督；及
- 獲得董事會授權，考量確定全體執行董事及高級管理人員的特定薪酬待遇，包括非金錢利益、退休金權利及賠償金額(包括喪失或終止職務或委任的賠償)，並就非執行董事的薪酬向董事會提出建議。薪酬與考核委員會應考慮的因素包括同類公司支付的薪酬、董事須付出的時間及董事職責、公司內其他職位的僱用條件及是否應該按表現釐定薪酬等。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

During the Reporting Period, the Remuneration and Appraisal Committee convened one meeting in total, with details as follows:

- On 26 March 2018, the first meeting of the Remuneration and Appraisal Committee of the third session of the Board in 2018 was convened, whereby the proposal regarding the remuneration of the Company's directors, supervisors and senior management for 2018 was considered and approved.

All the members of the Remuneration and Appraisal Committee attended the above meeting.

### 2.3 Nomination Committee

The Nomination Committee of the Company consists of three Directors: Mr. XIE Qiuye (independent non-executive Director), Mr. QU Jihui (independent non-executive Director) and Mr. TANG Chaoxiu (independent executive Director). Mr. XIE Qiuye serves as the chairman of the Nomination Committee. The primary responsibilities of the Company's Nomination Committee are to formulate the procedures and standards for nominating candidates as Directors and senior management, and conduct preliminary review of the qualifications and other credentials of the candidates for Directors and senior management. In addition, according to the Board Member Diversity Policy ("**Policy**"), the Nomination Committee is responsible of supervising execution of the Policy. The appointment of the members of the Board of Directors shall be orientated by the need of skill and experience of the Board of Directors for its overall normal operation, and based on the principle of selecting talented people, while fully considering the above-mentioned goals and requirements for diversity. The Nomination Committee will also discuss any possible amendments and propose the amendments to the Board for its review and approval, so as to ensure the effectiveness. The Nomination Committee is of the opinion that the composition of the Board during the Reporting Period conformed to the requirements of the Policy.

During the Reporting Period, the Nomination Committee convened one meeting in total, with details as follows:

- On 20 August 2018, the first meeting of the Nomination Committee of the third session of the Board in 2018 was convened, whereby the proposal regarding the change of the joint secretary and authorized representative of the Company was considered and approved.

All the members of the Nomination Committee attended the above meeting.

在報告期間，薪酬與考核委員會共召開了一次會議，會議的詳細情況如下：

- 於2018年3月26日召開了第三屆董事會薪酬與考核委員會2018年第一次會議，審議並通過了公司董事、監事及高級管理人員2018年度薪酬的議案。

薪酬與考核委員會全體委員均出席了上述會議。

### 2.3 提名委員會

本公司的提名委員會由三名董事組成，他們分別是：謝秋野先生(獨立非執行董事)、曲久輝先生(獨立非執行董事)及唐超雄先生(執行董事)。謝秋野先生為提名委員會主席。本公司提名委員會的主要職責為制定董事及高級管理人員人選的提名程序及標準、對董事及高級管理人員人選的資格及其他資歷進行初步審閱。此外，根據《董事會成員多元化政策》(「**該政策**」)，提名委員會負責監察該政策的執行。董事會成員的委任以董事會整體良好運作所需的技能和經驗為本，以選用有才能的人士為原則，同時充分考慮上述董事會成員多元化的目標和要求。提名委員會亦會討論任何需要做出的修訂並提呈予董事會供其審批，以確保行之有效。提名委員會認為於報告期內的董事會成員組成符合該政策的要求。

在報告期間，提名委員會共召開了一次會議，會議的詳細情況如下：

- 於2018年8月20日召開第三屆董事會提名委員會2018年第一次會議，審議並通過關於變更聯席公司秘書及授權代表的議案。

提名委員會全體委員均出席了上述會議。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 2.4 Strategic Committee

The Company's Strategic Committee consists of five Directors: Mr. CHEN Dongqing (executive Director and chairman), Mr. SHEN Xiaoliu (independent non-executive Director), Mr. GU Yuchun (non-executive Director), Mr. YAN Andrew Y. (non-executive Director) and Mr. ZHANG Jun (executive Director and President). Mr. CHEN Dongqing serves as the chairman of the Strategic Committee. The primary responsibilities of the Strategic Committee are to formulate the Company's overall development plans and investment decision-making procedures, and promote the Company's legal construction, including:

- Reviewing the Company's long-term development strategies;
- Reviewing the Company's strategic plans and implementation reports;
- Reviewing significant capital expenditure, investment and financing projects subject to the approval of the Board;
- Authorizing the management meeting of the Company to formulate specific plans, negotiate and implement relevant review and approval procedures, execute contracts and relevant documents, and handle relevant procedures for the above matters; and
- Studying the overall plan of rule-of-law construction, bringing forward suggestions thereof, and monitoring the implementation thereof.

During the Reporting Period, the Strategic Committee convened one meeting in total, with details as follows:

- On 29 September 2018, the first meeting of the Strategic Committee of the third session of the Board in 2018 was convened, whereby the proposal regarding the revision of the working rules of the Strategic Committee of the Board.

All the members of the Strategic Committee attended the above meeting.

### 2.4 戰略委員會

本公司的戰略委員會由五名董事組成，他們分別是：陳冬青先生(執行董事兼董事長)、申曉留先生(獨立非執行董事)、顧玉春先生(非執行董事)、閻焱先生(非執行董事)和張軍先生(執行董事兼總經理)。陳冬青先生為戰略委員會主席。戰略委員會的主要職責為制定本公司的整體發展計劃及投資決策程序、推進公司法治建設，包括：

- 審閱本公司的長遠發展戰略；
- 審閱本公司的戰略規劃及實施報告；
- 審閱須董事會批准的重大資本支出、投資及融資項目；
- 授權本公司辦公會對上述各項制定具體方案、協商並實施相關審批程序、簽署合約及相關文件、辦理相關手續等；及
- 對本公司法治建設總體規劃進行研究並提出建議，並對其實施進行監控。

在報告期間，戰略委員會共召開了一次會議，會議的詳細情況如下：

- 於2018年9月29日召開第三屆董事會戰略委員會2018年第一次會議，會議審議並通過關於修訂董事會戰略委員會工作細則的議案。

戰略委員會全體委員均出席了上述會議。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

#### 3. Director's Responsibility for the Financial Statements

The Board acknowledges its responsibility for preparing the Financial Statements of the Group for the year ended 31 December 2018.

The Board is responsible for presenting a clear and understandable assessment report in respect of the financial statements for 2018 and other issues required to be disclosed pursuant to the Listing Rules and other monitoring regulations. The management has provided such explanations and information to the Board as necessary to enable the Board to make an informed assessment of the financial information and position of the Group.

There are no material uncertainties relating to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern.

In addition, appropriate insurance coverage for Directors' liabilities has been arranged against potential legal proceedings to be taken against the Directors.

#### 4. Compliance with the Model Code for Securities Transactions

The Company has adopted the Model Code for Securities Transactions by Directors of Listed Issuers ("**Model Code**") set out in Appendix 10 to the Listing Rules as the code of conduct and rules governing dealings by all Directors and Supervisors in the securities of the Company. After specific inquiries, all Directors and Supervisors of the Company have confirmed that, as of 31 December 2018, they had strictly complied with the required standards set out in the Model Code for the Reporting Period.

To ensure the compliance with relevant requirements under the Listing Rules and protect the Shareholders' interests, the Board will examine the corporate governance practices and the operations of the Company from time to time.

#### 3. 董事對財務報表承擔的責任

董事會已確認其承擔編製本集團截至2018年12月31日止年度財務報表的責任。

董事會負責就2018年度的財務報表以及根據上市規則和其他監管條文規定需要進行披露的其他事宜制定一份清晰易懂的評估報告。管理層已經向董事會提交了必要的解釋和數據，確保董事會能夠就財務信息和集團的地位作出有根據的評估。

本公司並無面臨可能對本公司持續經營業務之能力產生重大疑慮的事件或情況。

另外，董事可能面對的法律訴訟方面，本公司已為其可能招致的責任作出適當的投保安排。

#### 4. 遵守證券交易標準守則

本公司已採納上市規則附錄10所載上市公司董事進行證券交易的標準守則(「**標準守則**」)，作為所有董事及監事進行本公司證券交易的行為守則。根據對本公司董事及監事的專門查詢後，所有董事及監事均確認：截至2018年12月31日止年度，各董事及監事均已嚴格遵守標準守則所訂之標準。

董事會將不時檢查本公司的企業管治、常規及運作，以確保符合上市規則有關規定並保障股東的利益。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 5. Risk Management and Internal Control

The Company places prime importance to risk management and internal control. An internal control system has been established to protect the Shareholders' and the Company's interests.

The Board is responsible for the internal control and risk management systems of the Company and its subsidiaries, reviewing and approving significant policies and reviewing the effectiveness of the internal control and risk management systems. Such system is designed to mitigate the inherent risks faced by the Group in its business to an acceptable level, rather than eliminate all risks. Therefore, this system only provides reasonable, not absolute, assurance against major false statements or financial losses in financial data.

#### **Internal Control**

The Company has set up a set of internal control rules, including "Rules and Procedures of the General Meeting", "Rules and Procedures of the Board Meeting", "Rules and Procedures of the Supervisor Meeting", "Terms of References for the Strategic Committee of the Board", "Terms of References for the Audit Committee of the Board", "Terms of References for the Nomination Committee of the Board", "Terms of References for the Remuneration and Appraisal Committee of the Board", "Provisions on Information Disclosure", "Administrative Measures on Connected Transactions", "Administrative Measures on Comprehensive Risk" and "Internal Control Principle Policy".

The Company has also established the Finance and Property Department, the Enterprise Management Department, the Audit Department and the Disciplinary Inspection Supervision Department and has sufficient personnel in each department in charge of financial operations, risk management, internal auditing, anti-corruption, etc.. Besides, the Company has provided regular training to the Group's employees whose duties relate to finance, risk management and internal auditing so as to ensure that they are well qualified and experienced.

Every department of the Company will be able to submit data to the Board of Directors smoothly. The General Manager is the most senior point of contact for each department of the Company who has the duty to effectively report to the Board in relation to the operations of each department, and to coordinate and mobilize the demands of each department to promote reasonable decision-making among the Company. The Audit Committee is responsible for reviewing the financial control, internal control and risk management systems of the Company; discussing the internal control system with the management to ensure that the management has fulfilled its duties to establish an effective internal control system; taking the initiatives or appointed by the Board of Directors to conduct researches on important findings of and the management's responses on internal control matters.

### 5. 風險管理及內部控制

本公司高度重視風險管理及內部控制工作，已建立了一套內部控制體系，以保障股東利益和本公司利益。

董事會對本公司及其附屬公司的內部監控及風險管理系統負有責任，審閱及批准重大政策以及檢討內部監控及風險管理系統的有效性。該等系統旨在緩解本集團在業務中面臨的內在風險至可接受的程度，而非消除所有風險。因此，該等系統僅對可防範財務資料中的重大失實陳述或財務損失提供合理而非絕對保證。

#### **內部控制**

本公司建立了一套內部控制規程，包括《股東大會議事規則》、《董事會議事規則》、《監事會議事規則》、《董事會戰略委員會工作細則》、《董事會審計委員會工作細則》、《董事會提名委員會工作細則》、《董事會薪酬與考核委員會工作細則》、《信息披露事務管理規定》、《關連交易管理辦法》、《全面風險管理辦法》及《內部控制基本制度》。

本公司已設立了財務產權部、企業管理部、審計部和紀檢監察部，並為各個部門配備了充足的人員，負責財務運作、風險管理、內部審計、反腐敗等具體工作。此外，本公司亦定期為本集團內部負責財務、風險管理、內部審計的員工提供培訓，確保其擁有足夠的資質和經驗。

本公司每個部門都能將需要呈交董事會的數據順暢呈交。總經理作為與本公司各部門的最高對接口，有責任將各部門的運作有效地呈報董事會，並配合及調動各部門的需求，推動本公司內部的合理決策。審計委員會負責審查公司的財務控制、內部控制及風險管理制度；與管理層討論內部控制系統，確保管理層已履行職責確立有效的內部控制系統；主動或應董事會的委派，就有關內部控制事宜的重要調查結果及管理層的回應進行研究。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

The Group communicated in a timely manner on the identified flaws of significant internal control and carefully assessed the potential risks. As a supervisor, the department put forward corrective actions, and obtained the approval from the leadership prior to its implementation. The leadership and the audit department monitored its implementation to ensure monitoring flaws resolved in time and properly.

#### **Risk Management**

**System construction:** At present, the Group's comprehensive risk management system pilot construction has completed "three bases, two handbooks, one report, one standard" (that is, risk information database, risk case database, risk index database, risk operation handbook and internal control handbook, internal control evaluation standard and internal control evaluation report), initially realizing the standardization and systematization of risk management and internal control.

**Architectural construction:** The Group's overall risk management system has extended laterally to every department horizontally and vertically to every affiliate. The Board of Directors is the highest decision-making organization in respect of overall risk management. The director of each department is responsible for organizing and carrying out daily work in respect of comprehensive risk management. The Company has set up a leadership group for the construction of risk management system led by the president and composed members of the heads of departments, and also established an overall risk management leadership group at every specific unit, clearly defining the management responsibilities at all levels.

#### **Work implementation**

This year, from the aspects of optimizing the total risk management system, enhancing the working mechanism, strengthening monitoring and early warning, etc., the Company continued to strengthen the mechanism construction, organize annual risk assessment, quarterly risk analysis, and monthly risk monitoring, intensify major risk management and special risk prevention, conscientiously consolidate the results of risk management, keep driving the organic integration of risk management and business management, gradually improve the risk management capabilities, and strengthen the Company's consistent enhancement of operation and management.

本集團及時就所識別的重大內部監控瑕疵進行溝通，並審慎評估潛在風險。身為監控責任人的部門提出糾正措施，並於實施前獲得領導層批准。領導層及審計部監察實施情況，確保及時妥善解決監控瑕疵。

#### **風險管理**

**制度建設：**目前本集團的全面風險管理體系試點建設已完成了「三庫、兩冊、一報告、一標準」(即風險信息庫、風險案例庫、風險指標庫、風險操作手冊和內部控制手冊、內控評價標準及內部控制評價報告)的編製，初步實現風險管理和內部控制的標準化與體系化。

**體系建設：**本集團的全面風險管理體系橫向到部門，縱向到各附屬公司。公司董事會是全面風險管理的最高決策機構，各部門主任負責組織開展全面風險管理日常工作，成立了以總經理為組長、各部門負責人為成員的風險管理體系建設領導小組；同時在附屬公司成立以總經理為組長的全面風險管理領導小組，明確各級管理職責。

#### **工作實施**

本年度從優化全面風險管理體系、健全完善工作機制、加強監控預警等方面，不斷加強機制建設，組織開展年度風險評估、季度風險分析、月度風險監控，強化重大風險治理和專項風險防範，認真鞏固風險管理工作成果、持續推動風險管理與業務管理的有機融合，風險管理能力逐漸提高，助力公司經營管理水平持續提升。



## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

In order to enhance the risk management consciousness of all the staff and promote the conscientiousness and initiative of all staff to participate in risk management, the Group also fostered the risk management culture of participation of all the staff and created good atmosphere of risk management by enhancing risk management knowledge training and multi-channel and multi-media publicity.

In 2018, the Group took three subsidiaries as pilots, and carried out the evaluation of internal control by the way of independent implementation. The evaluation covered financial management, operation monitoring, compliance monitoring, risk management and other major aspects. And in January 2019, the 2018 overall internal control self-evaluation of the Group was completed, and no major weak points or major errors were found in respect of internal control of the Company. The Company holds a meeting every year to discuss risk management and internal monitoring systems to ensure that management has fulfilled its responsibilities to establish an effective system. The Board believes that the current monitoring system of the Company is effective and adequate and considers that the resources, qualifications and experiences of the staff of the Company's accounting and financial reporting functions, its training programs and budgets thereof are adequate. The Board will continue to monitor the risk management and internal control systems in the following year.

### **Inside Information Management**

In order to promote fairness, transparency, accountability and responsibility, which are the core principles of good corporate governance, the Group notifies the Stock Exchange and discloses to Shareholders and other holders of its listed securities the Group's inside information in a timely manner pursuant to the Listing Rules and Part XIVA of the Securities and Futures Ordinance ("SFO").

In order to monitor and regulate potential insider trading activities and ensure the confidentiality of inside information, the Company has established a set of Management Rules on Inside Information of Guodian Technology & Environment Group Corporation Limited in accordance with the Company Law of the PRC, SFO, Listing Rules and other applicable laws and regulations and the requirements of the AOA. The management of the registration of inside information shall be the responsibility of the Board of Directors; the secretary of the Board of Directors shall organize the implementation of the registration of inside information; the Department of Securities Financing and Legal Affairs (the office of the Board of Directors) shall be responsible for the judgment and disclosure of inside information and improve the management over the registration management of insiders of inside information; and all the departments and subsidiaries shall report matters that may involve inside information to the Department of Securities Financing and Legal Affairs. Once the inside information involves disclosure requirements and has the conditions for disclosure, an announcement will be issued in a timely manner according to the applicable information disclosure procedures and the obligation to disclose information will be fulfilled.

為增強全員風險管理意識，提升全員參與風險管理的自覺性、主動性，本集團還通過加大風險管理知識培訓和多渠道、多媒體宣貫，營造風險管理的良好氛圍，培育全員參與的風險管理文化。

2018年本集團通過自主實施的方式，以三家附屬公司為樣本開展內部控制評價工作，評價範圍涵蓋財務監控、運作監控、合規監控及風險管理等各項重大方面。並於2019年1月完成了2018年集團整體內部控制自評價工作，未發現本公司內部控制存在任何重大弱項，或出現任何重大失誤。本公司每年召開一次會議討論風險管理及內部監控系統，確保管理層已履行職責建立有效的系統。董事會認為本公司目前的內部監控體系是有效及足夠的，並認為本公司在會計及財務匯報職能方面的資源、員工的資歷和經驗以及員工培訓計劃及有關預算方面是足夠的。董事會於來年會持續監控本集團的風險管理及內部監控系統。

### **內幕信息管理**

為推行良好公司管治的核心原則，即公正、透明、問責及負責，本集團會適時根據上市規則及《證券及期貨條例》第XIVA部向聯交所、股東及其上市證券的其他持有人披露本集團的內幕信息。

為監管和規範潛在內幕交易行為，確保內幕信息保密工作，本公司根據《中華人民共和國公司法》、《證券及期貨條例》、上市規則等有關法律法規及《公司章程》的規定，制定《國電科技環保集團股份有限公司內幕信息管理辦法》。內幕信息的登記管理工作由董事會負責，董事會秘書組織實施，由董事會的日常辦事機構證券融資與法律事務部（董事會辦公室）負責內幕信息的判斷及披露工作，完善內幕信息知情人的登記管理，由各部門及附屬公司向證券融資與法律事務部報送可能涉及內幕信息的事項。一旦內幕信息觸及披露要求、具備披露條件時，將按照信息披露程序及時發佈公告，履行信息披露義務。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

#### 6. Insider Trading Management

In order to monitor and regulate potential insider trading activities and ensure the confidentiality of inside information, the Company has established a set of Management Rules on Inside Information of Guodian Technology & Environment Group Corporation Limited in accordance with the Company Law of the PRC, SFO, the Listing Rules and other relevant laws and regulations and the AOA.

#### 7. Auditors and Remuneration

KPMG & ShineWing were appointed as auditors for the financial statements prepared in accordance with the International Financial Reporting Standards and Accounting Standards for Business Enterprises of PRC for the Reporting Period, respectively. For the Reporting Period, the fees payable to KPMG and ShineWing for audit services were RMB7.00 million and RMB2.56 million, respectively. For the Reporting Period, the fee payable to KPMG for non-auditing services related to the review of the Company's interim financial report was RMB3.50 million. ShineWing did not provide any non-auditing services for the year ended 31 December 2018.

KPMG, as the Company's external auditor, has the responsibilities for the financial statements, which are set out on Pages 181 to 183 of this Annual Report.

#### 8. Communications with Shareholders

The Company highly appreciates Shareholders' opinions and advice, actively organizes various investor related activities to maintain communication with the Shareholders and responds to reasonable requests of Shareholders in time.

#### 6. 內幕交易管理

為監控規範潛在的內幕交易活動，確保內幕消息的保密性，本公司已根據《中華人民共和國公司法》、《證券及期貨條例》、上市規則及其他相關法律法規和《公司章程》，確立了一套《國電科技環保集團股份有限公司內幕信息管理辦法》。

#### 7. 核數師及其酬金

畢馬威會計師事務所和信永中和分別獲委任為審計於報告期間按照國際財務報告準則和中國企業會計準則編製的財務報表的核數師。於報告期間，就畢馬威會計師事務所及信永中和提供的審計服務應付的費用分別為人民幣7,000千元和人民幣2,560千元。於報告期間，應向畢馬威會計師事務所支付的與審閱本公司中期財務報告相關的非審計服務費為人民幣3,500千元。截至2018年12月31日止年度，信永中和並未提供任何非審計服務。

畢馬威會計師事務所作為本公司外聘核數師對財務報表的責任，載於本年報第181至第183頁。

#### 8. 與股東的溝通

本公司高度重視股東的意見和建議，積極開展各類與投資者相關的活動與股東保持溝通，及時滿足各股東的合理需求。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 8.1 Convening Extraordinary General Meetings by Shareholders

According to the AOA, two or more Shareholders holding more than 10% of the shares carrying the right to vote at the meeting sought to be held may sign one or more counterpart requisitions requiring the Board to convene an extraordinary general meeting and stating the objectives of the meeting. The Board shall, in accordance with the applicable laws and regulations and the AOA, furnish a written reply stating its agreement or disagreement to convene the extraordinary general meeting within ten days upon receipt of such requisition. If the Board agrees to convene the extraordinary general meeting, a notice for convening the meeting shall be issued within five days upon adoption of the resolution by the Board.

If the Board does not agree to convene the extraordinary general meeting, or if it fails to give its feedback in writing within ten days upon receipt of such requisition, the Shareholders individually or jointly holding an aggregate of more than 10% of the shares carrying the right to vote at the meeting sought to be held shall be entitled to propose to the Board of Supervisors to convene an extraordinary general meeting, and shall submit its proposal in writing to the Board of Supervisors. If the Board of Supervisors agrees to convene the extraordinary general meeting, a notice for convening such meeting shall be issued within five days upon receipt of such requisition.

If the Board of Supervisors fails to issue a notice for such meeting within the prescribed period, the Board of Supervisors shall be deemed not to convene and preside at the meeting, and the Shareholders individually or jointly holding an aggregate of more than 10% of the shares of the Company for more than 90 consecutive days may convene and preside at the meeting at their own discretion.

If the Board does not issue a notice of meeting within 30 days upon receipt of the aforesaid written requisition, the requisitioning Shareholders themselves may convene such a meeting according to procedures as similar as possible to that in which general meetings are to be convened by the Board within four months from the date of receipt of the requisition by the Board.

### 8.1 股東召開臨時股東大會

根據《公司章程》，合計持有在該擬舉行的會議上有表決權的股份10%以上的兩個或兩個以上的股東，可以簽署一份或數份同樣格式內容的書面要求，提請董事會召集臨時股東大會，並闡明會議的議題。董事會應當根據法律法規和《公司章程》的規定，在收到請求後十日內提出同意或不同意召開臨時股東大會的書面反饋意見。若董事會同意召開臨時股東大會，應當在作出董事會決議後五日內發出召開會議的通知。

若董事會不同意召開臨時股東大會，或者在收到請求後十日內未作出書面反饋，單獨或者合計持有在該擬舉行的會議上有表決權的股份10%以上的股東有權向監事會提議召開臨時股東大會，並應當以書面形式向監事會提出請求。若監事會同意召開臨時股東大會，應在收到請求五日內發出召開會議的通知。

若監事會未在規定期限內發出會議通知，視為監事會不召集和主持股東大會，連續九十日以上單獨或者合計持有本公司10%以上股份的股東可以自行召集和主持會議。

如果董事會在收到前述書面要求後三十日內沒有發出召集會議的通告，提出該要求的股東可以在董事會收到該要求後四個月內自行召集會議，召集的程序應當盡可能與董事會召集股東會議的程序相同。

### **8.2 Putting Forward Proposals at the General Meetings**

According to the AOA, when the Company convenes a general meeting, the Shareholders individually or jointly holding more than 3% of the shares of the Company shall have the right to file the proposal. The Shareholders holding more than 3% of the shares of the Company shall have the right to file the temporary proposal in writing, and the Company shall include matters in the proposal within the scope of duties and responsibilities of the general meetings on the agenda, if the criteria as specified in the AOA are met.

### **8.3 Investor Relations Activities**

The Group has received questions from visiting investors, analysts and press thoughtfully and considered and answered their related questions efficiently and accurately; the Group has paid close attention to the developing trends in the market, and always communicated with the public in a realistic, objective and compliant way.

#### *8.3.1 Results Roadshows*

On 29 March 2018, the Company organized the 2017 annual results roadshow in Hong Kong; on 24 August 2018, the Company organized the 2018 interim results roadshow in Hong Kong.

#### *8.3.2 Investors' Routine Visits*

During the Reporting Period, the Company received 18 groups of investors and analysts by way of one-to-one/group/telephone meetings, totaling 27 people.

### **8.2 在股東大會提出建議**

根據《公司章程》，公司召開股東大會，單獨或合計持有公司3%以上股份的股東有權向本公司提出提案。單獨或合計持有本公司3%以上股份的股東，有權以書面形式向本公司提出臨時提案，倘《公司章程》所列的要求均已滿足，則本公司應將該臨時提案中屬股東大會職責範圍內的事項列入會議日程。

### **8.3 投資者關係活動**

本集團週密安排、認真接待投資者、分析師、新聞媒體的來訪，高效、準確地回答相關問題；密切關注市場發展趨勢，始終以真實、客觀、合規的角度與公眾進行溝通。

#### *8.3.1 業績路演*

本公司於2018年3月29日在香港組織了2017年度業績路演；於2018年8月24日在香港組織了2018年中期業績路演。

#### *8.3.2 投資者日常來訪*

報告期內，本公司以一對一會議／小組會議／電話會議方式接待投資者、分析師18批次，共計27人。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 8.4 Putting Forward Enquiries to the Board

According to the AOA, all the Directors shall attend general meetings. The Shareholders may present enquiries to the Board of Directors at such general meetings. If the Shareholders need to contact the Board of Directors for enquiries, they are also welcomed to send enquiries directly to the Company, with contact details as follows:

Attn: The Department of Securities  
Financing and Legal Affairs  
(the Board of Directors Office)  
Address: Suite 1225, Building 1, Yard 16,  
W.4th Ring Middle Road,  
Haidian District, Beijing, PRC  
Postal Code: 100039  
Tel: 010-5765 7777  
Fax: 010-5765 9705  
Email: 1296board@chnenergy.com.cn

For the avoidance of doubt, the Shareholder(s) must deposit and send the original duly signed written enquiry or correspondence of any type to the above address, and provide his or her full name, contact details and proof of identification in order to give effect thereto.

### 8.5 Disseminating Information through the Internet

In order to promote good corporate governance and increase transparency, the Company has set up a website ([www.01296.hk](http://www.01296.hk)) as a channel to disseminate information. The Company implements procedures to vet information which is to be put on its website and also monitors its website to ensure that all published information is up-to-date and accurate.

### 8.6 Overseas Regulatory Announcement

As Longyuan Technology, a subsidiary of the Company, is a public company listed on the Shenzhen Stock Exchange, the Company has complied with the requirements regarding overseas regulatory announcements in accordance with Rule 13.10(B) of the Listing Rules.

Furthermore, as the corporate bonds of the Company are listed on the Shanghai Stock Exchange, the Company has complied with the requirements regarding overseas regulatory announcements in accordance with Rule 13.10(B) of the Listing Rules in this regard.

### 8.4 向董事會提出查詢

根據《公司章程》，全體董事都應當出席股東大會，股東可以在股東大會上向董事會提出查詢。如果股東因查詢而需聯繫董事會，他們也可以直接將查詢函發送給本公司，具體聯繫方式如下：

收件人：證券融資與法律事務部  
(董事會辦公室)  
地址：中國北京市海澱區西四環  
中路16號院1號樓1225室  
郵編：100039  
電話：010-5765 7777  
傳真：010-5765 9705  
電子郵件：1296board@chnenergy.com.cn

為免生疑，股東須將正式簽署的書面查詢原件或其他形式的信函送交或寄送至上述地址，並提供全名、聯繫方式詳情以及身份證明，方告生效。

### 8.5 互聯網信息發佈的管理工作

為提升企業管治水平和增加企業透明度，本公司設立網站([www.01296.hk](http://www.01296.hk))並使用互聯網作為發放資料的渠道，本公司執行政務審閱即將登載在其網站上的信息，同時監察其網站，以確保所有公佈的信息都是最新的並且是正確的。

### 8.6 海外監管公告

由於本公司的附屬公司龍源技術於深圳證券交易所上市，本公司已根據上市規則第13.10(B)條遵守海外監管公告的相關規定。

此外，由於本公司的公司債券在上海證券交易所上市，本公司已根據上市規則第13.10(B)條遵守海外監管公告的相關規定。



## CORPORATE GOVERNANCE REPORT (CONTINUED)

### 企業管治報告(續)

#### 9. Joint Company Secretaries

Mr. CAI Zhaowen is the secretary of the Board and the joint company secretary and also the major internal contact person of the Company. Please refer to the section headed “Directors, Supervisors and Senior Management – Company Secretary” for further information.

Mr. LEE Kwok Fai Kenneth is the joint company secretary of the Company. He is a director and head of corporate secretarial services of TMF Hong Kong Limited.

In 2018, Mr. CAI Zhaowen and Mr. LEE Kwok Fai Kenneth took no less than 15 hours of relevant professional training in compliance with Rule 3.29 of the Listing Rules.

#### 10. Amendments to the AOA

In 2018, there were no significant changes to the AOA of the Company.

#### 11. Connected Transaction Management

In order to strengthen the Company's management of connected transactions, the Company has established the “Management Rules on the Conduct of Connected Transactions of Guodian Technology & Environment Group Corporation Limited” and designated the Department of Securities Financing and Legal Affairs (Board Office) and Finance and Property Division for the management of connected transactions. In order to ensure that the Company's connected transactions are carried out in accordance with the relevant rules and regulations and that the aggregated transaction amounts do not exceed the annual caps, the Company has notified all the subsidiaries and departments regarding the applicable continuing connected transaction caps, allocated monitoring obligations to specific subsidiaries and departments and required such subsidiaries or departments to report to the senior management regarding the connected transactions. The Group has provided regular training to internal staff in relation to connected transactions from time to time, and has designated specialized personnel in an effort to ensure full compliance with the relevant Listing Rules.

#### 9. 聯席公司秘書

蔡兆文先生為本公司董事會秘書及聯席公司秘書，亦為本公司內部之主要聯絡人。請參閱名為「董事、監事和高級管理人員－公司秘書」的章節以獲得進一步信息。

李國輝先生為達盟香港有限公司董事兼公司秘書服務部主管，本公司之聯席公司秘書。

於2018年，蔡兆文先生及李國輝先生已遵守上市規則第3.29條之規定完成不少於15小時的相關專業培訓。

#### 10. 對《公司章程》的修改

於2018年，《公司章程》無重大變動。

#### 11. 關連交易管理

為強化本公司的關連交易管理，本公司已建立《國電科技環保集團股份有限公司關連交易管理辦法》，並指定證券融資與法律事務部(董事會辦公室)及財務產權部管理關連交易。為確保本公司關連交易乃根據適用條例和法規實施以及交易總額不超過年度上限，本公司已將適用持續關連交易上限通告所有附屬公司和部門，將監控職責具體到各個附屬公司和部門，並要求該等附屬公司和部門就關連交易報告高級管理層。本集團為內部職工提供不時培訓，並指定專人確保完全遵守相關上市規則。

## CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

### 12. Emoluments of Directors and Senior Management

Details of the emoluments of Directors for the Reporting Period are set out in Note 9 to the Financial Statements.

The emoluments of senior management (exclusive of Directors) for the Reporting Period are within the following bands:

<b>Emoluments Band (RMB)</b> 薪酬範圍(人民幣元)	<b>2018</b> <b>Number of</b> <b>Individuals</b> <b>2018年人數</b>	2017 Number of Individuals* 2017年人數*
<400,000	–	–
400,000–600,000	–	1
>600,000	<b>6</b>	<b>6</b>
Total 合計	<b>6</b>	<b>7</b>

\* including Mr Yang Dong who resigned on 21 February 2017.

### 12. 董事及高級管理人員薪酬

各董事於報告期的薪酬詳情載於財務報表附註9。

於報告期高級管理人員(除董事外)的薪酬範圍如下：

\* 包括於2017年2月21日辭任的楊東先生。

# SUMMARY OF HUMAN RESOURCES

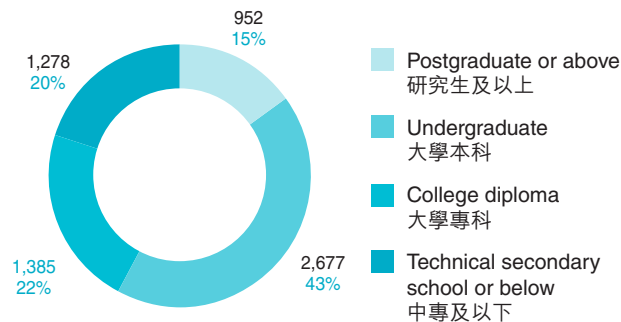
## 人力資源概況

As of 31 December 2018, the Group had a total of 6,292 staff, of which 4,496 or 71.5% were male while 1,796 or 28.5% were female. The staff structure is as follows:

於2018年12月31日，本集團共有員工6,292人，其中男性僱員4,496人，佔71.5%；女性僱員1,796人，佔28.5%。人員構成情況如下：

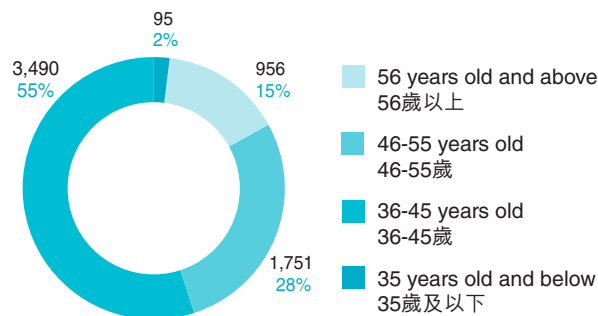
**Table 1: Analysis of the Group's Staff by Academic Qualification (The Number and Percentage of Staff)**

表一：本集團按學歷劃分的員工分析(人數及百分比)



**Table 2: Analysis of the Group's Staff by Age (The Number and Percentage of Staff)**

表二：本集團按年齡劃分的員工分析(人數及百分比)





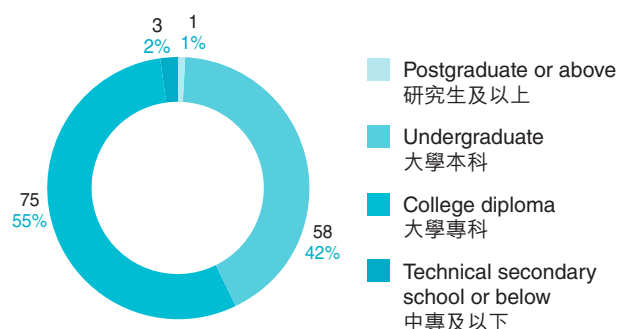
## SUMMARY OF HUMAN RESOURCES (CONTINUED) 人力資源概況(續)

As of 31 December 2018, the Company had a total of 137 staff. The staff structure is as follows:

於2018年12月31日，本公司共有員工137名。人員構成情況如下：

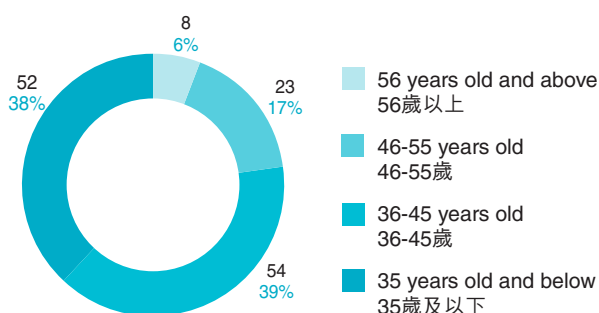
**Table 3: Analysis of the Company's Staff by Academic Qualification (The Number and Percentage of Staff)**

表三：本公司按學歷劃分的員工分析(人數及百分比)



**Table 4: Analysis of the Company's Staff by Age (The Number and Percentage of Staff)**

表四：本公司按年齡劃分的員工分析(人數及百分比)



### EMPLOYEE REMUNERATION SYSTEM AND PERFORMANCE EVALUATION

### 員工薪酬制度和績效考核

The Company has implemented the *Interim Measures Governing Remuneration of the HQ*, the *Measures Governing Remuneration Payment of the HQ*, the *Interim Measures Governing the Department Performance Evaluation of the HQ* and the *Interim Measures Governing the Staff Performance Evaluation of the HQ*. The remuneration management of the Company adheres to four principles, namely: the principle of focusing on value creation and more work and more gain, the principle of fairness, justice and reasonable gap, the principle of tripartite linkage among enterprise performance, department performance and individual performance and the principle of paying equal attention to process and result and continuous improvement of performance. Every subsidiary or branch has established its own management measures according to the above principles and according to the regulations and rules of the HQ, and then filed the same with the Group.

本公司施行《本部薪酬管理暫行辦法》、《本部薪酬支付管理辦法》、《本部部門績效考核管理暫行辦法》及《本部員工績效考核管理暫行辦法》。本公司薪酬管理堅持四大原則，即：突出價值創造、多勞多得導向原則；突出公平、公正、合理拉開差距原則；突出企業、部門、個人績效三方聯動原則；過程與結果並重、績效持續改進原則。各子分公司依據上述原則，參照本部規定制定各公司相應管理辦法並報本集團備案。



## SUMMARY OF HUMAN RESOURCES (CONTINUED)

### 人力資源概況(續)

In 2018, the Company continued to implement the internal income distribution mode based on the post value and performance contribution, and formed the post performance salary mechanism of hierarchical classification and diversification. The remuneration of the staff consists of three parts: basic salary, performance salary and reward salary. The performance salary is determined according to the Company's performance and performance evaluation. The reward salary is determined according to the completion of the Company's annual key work.

### STAFF TRAINING

In 2018, the focus of the Group's staff training was to gradually improve the various levels of internal training staff. The Group actively selected and hired outstanding leaders, management personnel, professional and technical leaders, chief engineers and advanced model figures as trainers, formed a team of internal training teachers with full professional coverage at all levels, and set up the mechanism for the admission, exit, quality improvement and assessment and evaluation for internal trainers so as to make internal trainers become the main force of instruction and guidance. At present, the Company has 80 internal trainers covering four professional categories, namely, scientific and technological R&D, engineering management, integrated management and Party construction, and has drawn up a year-round training teaching plan to create high-quality internal training courses. Secondly, the Group innovated the construction of the "Innovation • Sharing" salon internal training brand. The Group created four salon blocks, namely, high-end lecture, internal trainer lecture, seminar and special training. The inner trainers and chief engineers of Guodian Technology and Environment provided instructions on a regular basis. These salon activities were rich in contents and covered multiple themes such as professional technical lecture, staff mental health, learning sharing, etc.. In 2018, in total, 25 salon activities were performed, having trained 5,269 persons or 20,595 person-times with training rate up to 83%. Under the concept of "Innovation, Sharing, Promotion", the Group built the internal training "Innovation • Sharing" salon, organized and held seminars on corporate strategy, R&D system, marketing system construction, etc. so that the influence of the salon brand gradually increased.

The work thought for the next step of the Group is to provide training for the 7 categories of talent under the "Rainbow" Plan by stages, by batches and by levels around the strategic target and central task of the enterprise. The Group will customize the design of the study map, cultivate internal quality courses, and customize a course system from multiple dimensions such as professional skill, career development, comprehensive quality promotion, etc.. The Group will innovate training methods and use hybrid training methods to realize the transformation from "training" to "learning". The Group will implement closed-loop training management, strengthen the application of results, establish talent training files, promote and appoint outstanding talent experiencing the required training and assessed excellent in order to ensure the talents can bring what they have learnt into full play.

2018年本公司繼續落實以崗位價值和績效貢獻為主的內部收入分配方式，形成分層分類多元化的崗位績效工資機制。本集團員工薪酬由基本工資、績效工資和獎勵工資三部份組成，績效工資依據公司業績及績效考核情況確定，獎勵工資依據公司年度重點工作完成情況確定。

### 員工培訓

2018年本集團員工培訓工作重點一是逐步健全各層級企業內訓師隊伍。積極選聘優秀領導人員、經營管理人員、專業技術帶頭人、首席師、先進模範人物擔任培訓師，形成專業全覆蓋、層級全覆蓋的內訓師資隊伍，建立內訓師準入退出、素質提升、考核評價機制，使內訓師成為企業從事教育培訓授課講解輔導的主要力量。目前公司內訓師已累計達到80人，涵蓋科技研發、工程管理、綜合管理及黨建四個專業類別，並已制定全年內訓授課計劃，打造金品內訓課程。二是創新「創•享」沙龍品牌建設。打造高端講堂、內訓師講堂、主題研討、專題培訓等四個沙龍模塊，由科環內訓師、首席師定期授課，沙龍活動內容豐富，涵蓋專業技術講座、員工心理健康、讀書會分享等多個主題。2018年全年完成25期沙龍活動，全年培訓5,269人，20,595人次，培訓率達83%。以「創新、分享、提高」為理念，建立內訓陣地「創•享」沙龍，組織召開企業戰略、研發體系、營銷體系建設等專題研討會，內訓沙龍品牌影響力逐步呈顯。

本集團下一步工作思路是圍繞企業戰略目標和中心任務對「彩虹」計劃7類人才進行分期分批、分層分培訓。定制設計學習地圖，培育內部精品課程，以專業技能、職業發展、綜合素質提升等多維度定制課程體系。創新培訓方式，運用混合式培訓方法，實現從「訓」到「學」的轉變。閉環培訓管理，加強結果應用，建立人才培訓檔案，對培訓考核優秀的人才進行提拔任用，確保人才學有所用。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

## 環境、社會及管治報告

### 1. ABOUT THIS REPORT

This Report is the third annual Environmental, Social and Governance (hereinafter the “ESG”) report issued by the Group. This Report focuses on the Group’s environment, society and governance policies, as well as specific management measures taken during the reporting period, aiming at strengthening communication and connection between and with the Group’s internal and external stakeholders.

The Group’s Board of Directors bears full responsibility for the Group’s ESG strategy and reporting, and is responsible for assessing and identifying the Group’s risks related to ESG and ensuring that the Group has established proper and effective ESG risk management as well as the internal control system. The Board of Directors and all directors hereby guarantee that there are no false records, misleading statements or major omissions in the contents of this Report and that they are severally and jointly liable for the authenticity, accuracy and completeness of the contents hereof.

#### 1.1 Basic Information of the Report

##### ***Subject Scope of the Report***

Guodian Technology & Environment Group Corporation Limited and its subsidiaries.

##### ***Time Range of the Report***

The Group’s Environmental, Social and Governance Report is an annual report, with the reporting period from January 1, 2018 to December 31, 2018, where some of the statements and data are appropriately traced back to the previous years.

##### ***Preparation Basis***

The contents of this Report have been prepared in accordance with the requirements of the Environmental, Social and Governance Reporting Instructions (the “ESG Reporting Instructions”) in Appendix 27 of the Exchange Listing Rules.

##### ***Access to the Report***

This Report is published on the annual financial report of the Group. You may download the Chinese and English versions of this Report on the website disclosed by the Exchange or the website of the Group: <http://www.khjt.com.cn/>. This Report is published in both Chinese and English. In case of ambiguity between these two versions, the Chinese version shall prevail.

Terms used but not defined in this Report have the same meaning as those defined in the Annual Report.

### 1 關於本報告

本報告為本集團第三次發佈的年度環境、社會及管治(「ESG」)報告。本報告主要介紹本集團在環境、社會及管治方面的管理政策以及在報告期間採取的具體管理措施，旨在加強與本集團內外部利益相關方之間的溝通與聯繫。

本集團董事會對本集團的ESG策略及匯報承擔全部責任，負責評估及釐定本集團有關ESG的風險，並確保本集團設立合適及有效的ESG風險管理及內部監控系統。董事會及全體董事保證本報告內容不存在任何虛假記載、誤導性陳述或重大遺漏，並對其內容的真實性、準確性和完整性承擔個別及連帶責任。

#### 1.1 報告基本信息

##### ***報告主體範圍***

國電科技環保集團股份有限公司及其附屬公司。

##### ***報告時間範圍***

本集團《環境、社會及管治報告》為年度報告，報告期間為2018年1月1日至2018年12月31日，部分表述及數據適當追溯以前年份。

##### ***編製依據***

本報告的內容是參照交易所上市規則附錄二十七《環境、社會及管治報告指引》(「ESG報告指引」)的要求而編製的。

##### ***報告獲取***

本報告登載在本集團財務年報中，您可以在交易所披露網站或本集團的網站<http://www.khjt.com.cn/>下載查閱本報告的中英文版本。本報告以中英文兩種文字出版，在對兩種文本理解發生歧義時，請以中文文本為準。

本報告所使用但未定義的詞彙與本年度報告所界定者具有相同含義。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

#### 1.2 ESG Management Vision

At present, China is in the decisive period of establishing an all-around well-off society and in the critical stage of deepening the reforms in an all-round way. As one of the countries with the fastest economic growth and the best development prospects in the world, China's economic development has maintained an ever increasing momentum in the long term. The state's strict regulation and control of coal power development has provided opportunities for the development of new energy-saving and green low-carbon environmental protection industries, and also brought new challenges and opportunities to the transformation of Guodian Tech. Guodian Tech will closely focus on the energy structural adjustment and electric power technological reform and under the guidance of the five major development philosophies, i.e. "Innovative, Coordinated, Green, Open, Sharing" issued at the Fifth Plenary Session of the 18th CPC Central Committee, insist on the industrial development direction of safer, cleaner, more efficient and sustainable energy utilization, and make contributions to the construction of Beautiful China, Ecological China and Green China.

Over the years, Guodian Tech has committed to developing and promoting environmental protection and energy conservation solutions and renewable energy technologies while focusing on the breakthrough of a range of key core technologies, forming a strategic emerging industry cluster with comparative advantages, enhancing its capability to fulfill its corporate social responsibility and promoting clean electricity production, ending up a pioneering company in environmental protection, energy conservation and renewable energy in China's electric power sector.

Looking forward to the future, Guodian Tech will continue to unswervingly follow the market rules and mechanisms to promote the five core business segments including energy conservation, environmental protection, new energy equipment manufacturing and services, green power plant general contracting, and electronic-informationization-based power system, and drive the transition of the enterprise from healthy development to sustainable development. Guodian Tech will strive to become the world's leading provider of environmental protection and energy conservation solutions, as well as products and services in renewable energy equipment and solutions. And repay our shareholders and the society with excellent business performance!

#### 1.2 ESG管理願景

當前，我國正處於全面建成小康社會的決勝期和全面深化改革攻堅期，作為世界上經濟增長最快、發展前景最好的國家之一，我國經濟發展長期向好的基本面沒有改變。國家對煤電發展進行的嚴格調控，為新型節能和綠色低碳環保產業的發展提供了機會，也為國電科環轉型帶來了新的挑戰和機遇。國電科環將緊緊圍繞能源結構調整和電力科技變革，按照黨的十八屆五中全會提出的「創新、協調、綠色、開放、共享」五大發展理念為引領，堅持能源利用更加安全、清潔、高效、可持續的產業發展方向，為建設美麗中國、生態中國、綠色中國貢獻力量。

多年來，國電科環致力於環保節能與可再生能源技術的開發和推廣，著眼於突破一批關鍵核心技術，形成了具有比較優勢的戰略性新興產業集群，提高了履行企業社會責任的能力和電力行業清潔生產水平，成為中國電力行業中享有盛譽的環保節能和可再生能源領域的先進企業。

展望未來，國電科環將繼續堅定不移地按照市場化規律和機制，做優做強節能、環保、新能源裝備製造與服務、綠色電站總承包、電力電子信息化等五大核心業務板塊，推動企業由健康發展向可持續發展轉變。國電科環將力爭成為全球領先的環保與節能解決方案及可再生能源設備與解決方案領域的產品和服務提供商。並以優異的經營業績回報股東，回報社會！

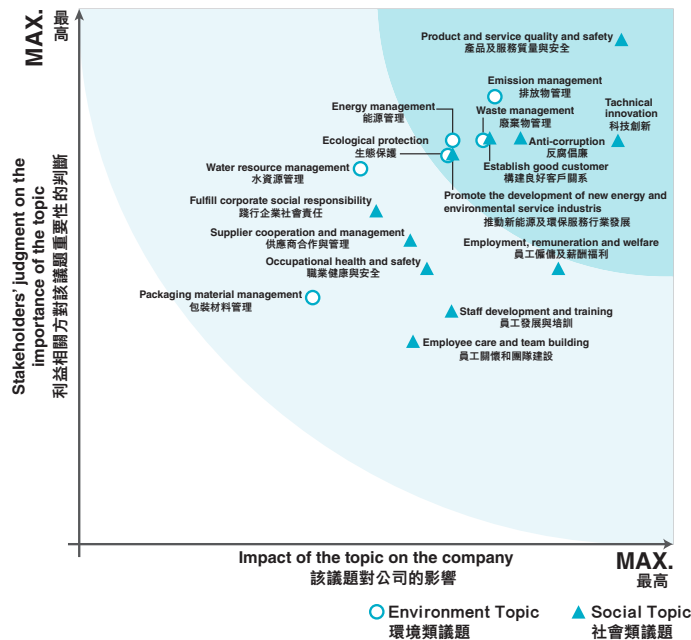
# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

## 1.3 Substantive Analysis of the Topics

With regard to the process of substantive analysis, the company will, according to the Exchange ESG Reporting Instructions and with reference to the Global Reporting Initiative (the “GRI”), collect and record the main stakeholders’ concerned topics and the importance of each topic through questionnaires, interviews, etc., conduct importance analysis and sort the items, identify the company’s substantive (important) environmental, social, and governance topics and disclose them in the report, as shown below.

## 1.3 議題實質性分析

公司根據交易所ESG報告指引要求，參考全球報告倡議組織(「GRI」)有關實質性分析的流程，通過調查問卷、訪談等形式，收集並記錄公司主要利益相關方關注的議題及對各議題重要性評估結果，並進行重要性分析和排序，確定公司在環境、社會及管治方面的實質性(重要)議題，並在報告中進行披露，如下圖所示。



## 2 PRACTICING THE CONCEPT OF GREEN DEVELOPMENT

## 2 踐行綠色發展理念

### 2.1 Make use of industry advantages and promote clean development

### 2.1 發揚行業優勢促進清潔發展

Since its establishment in 2004, the Group has always attached great importance to business operation and the sustainable development of society and environment, and made use of the company’s advantages of technology and environmental protection, and actively put the corporate vision of Green Technology, Green World into practice.

自2004年成立以來，本集團一直重視企業經營和社會、環境的可持續發展，利用科技環保企業的優勢，積極踐行綠色科技、全球共享的企業願景。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The Group, focusing on the main businesses of power generation and coal and adhering to the industrial development direction of efficient and clean use of energy, has formed two major core business segments, i.e., environmental protection and energy conservation solutions, renewable energy production and services. Its business system has positive effects on the environment and has made outstanding contributions to the development of green energy.

The Group is currently China's largest energy-saving environmental protection service provider of conventional coal-fired power plants and a leading manufacturer of renewable energy system services and equipment, and continues to boost the industry with leading technologies. Since 2012, the Group has successively been listed into Global TOP 500 New Energy Enterprises for seven years. In its rapid developing process, the Group has cultivated a series of well-known brands such as Longyuan Environmental, Longyuan Technology, United Power and Guodian Zhishen, etc.

本集團圍繞發電和煤炭主業，堅持能源高效、清潔利用的產業發展方向，形成了環保與節能解決方案、可再生能源製造及服務兩大核心業務板塊，業務體系對環境產生積極影響，為發展綠色能源做出了傑出貢獻。

本集團是目前中國最大的常規燃煤電廠節能環保服務商和領先的可再生能源系統服務及設備製造商，並以領先的技術水平不斷推動行業發展。從2012年至今，本集團連續七年榮獲全球新能源企業500強。本集團在快速發展中培育了龍源環保、龍源技術、聯合動力和國電智深等一批知名品牌。

Segment 板塊	Main Business 主要業務	Industrial Position 行業地位	Representing Enterprises 代表企業	
Protection and Energy Conservation Solutions 環保與節能解決方案	Environmental Protection 環保	Flue gas treatment, water treatment, noise control, sludge treatment etc. for coal-fired power plants 燃煤電廠煙氣治理、水治理、噪聲治理、污泥治理等	Leading enterprise in the thermal power plant environmental protection industry 火電廠環保產業龍頭企業	Longyuan Environmental Longyuan Technology (Low-nitrogen combustion business) Lucency 龍源環保 龍源技術(低氮燃燒業務) 朗聯明
	Energy conservation solutions 節能解決方案	Boiler energy conservation, steam turbine energy conservation, excess heat and residual pressure utilization, cold end energy conservation, etc. 鍋爐節能、汽輪機節能、餘熱餘壓利用、冷端節能等	Outstanding achievements 成績斐然	Longyuan Energy Conservation Longyuan Technology (Plasma ignition business) 龍源節能 龍源技術(等離子點火業務)
	Power station EPC 電站EPC	General contract of power stations, technical service of energy conservation for power plants, etc. 電站總承包、發電廠節能技術服務等	Domestic first-class level in terms of the engineering construction of generator sets of the same type 國內同類型機組工程建設一流水平	Longyuan Engineering 龍源工程
	Electronic-informatization-based power generation 電力電子信息化	Power plant DCS, informatization management system 電廠DCS、信息化管理系統等	First-rate in China 國內一流	Guodian Zhishen Huadian Tianren 國電智深 華電天仁

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

Segment 板塊	Main Business 主要業務		Industrial Position 行業地位	Representing Enterprises 代表企業
Renewable energy equipment manufacturing and service 可再生能源製造及服務	WTG products and services	Complete machine technology of WTG, variable pitch technology and converter technology, covering the entire industrial chain of wind power equipment design and manufacturing	World-leading wind power overall solution supplier, industry-leading customized operation and maintenance service provider	United Power Longyuan Electrical Huadian Tianren Chifeng Wind Power
	風機產品及服務	風電整機技術、變漿技術和 變流器技術，覆蓋風電設 備設計製造整條產業鏈	全球領先的風電整體解決方 案提供商、行業領先的定 制化運維服務商	聯合動力 龍源電氣 華電天仁 赤峰風電

### 2.1.1 Segment of Environmental Protection and Energy Conservation Solutions

#### Environmental Protection Business

Longyuan Environmental is one of the earliest domestic enterprises specializing in the thermal power plant flue gas treatment and electric power environmental protection, as well as the largest desulfurization and denitrification project service provider and franchised company in China. In 2018, Longyuan Environmental installed 26 units of wet flue gas desulfurization devices with a total installed capacity of 11,455 MW; 53 units of technically transformed wet flue gas desulfurization devices, involving installed capacity of 18,199 MW; installed 15 units of new flue gas denitrification devices, with a total installed capacity of 8,220 MW; 32 units of technically transformed flue gas denitrification devices, involving an installed capacity of 16,027 MW. In this year, Longyuan Environmental newly installed two 660 MW seawater desulfurization units in Indonesia; reaching up to 4 seawater desulfurization units totally built by us, involving an installed capacity of 1,520 MW.

As of December 31, 2018, Longyuan Environmental had put into operation a total of 239 million kW installed capacity of thermal power plants desulfurization units, as well as a total of 160 million kW installed capacity of denitrification units, ranking the first in the country for 13 consecutive years.

### 2.1.1 環保與節能解決方案板塊

#### 環保業務

龍源環保是國內最早專業從事火電廠煙氣治理和電力環保產業的企業之一，是中國最大的脫硫脫硝工程服務商和特許經營公司。2018年，龍源環保新建煙氣濕法脫硫裝置26台，裝機容量共11,455兆瓦；煙氣濕法脫硫裝置技術改造53台，涉及裝機容量18,199兆瓦；新建煙氣脫硝裝置15台，裝機容量共8,220兆瓦；煙氣脫硝裝置技術改造32台，涉及裝機容量16,027兆瓦。本年度，龍源環保在印度尼西亞新建一項2台660兆瓦海水脫硫機組；累計建成海水脫硫機組4台，涉及裝機容量1,520兆瓦。

截至2018年12月31日，龍源環保累計投運火電廠脫硫裝機容量2.39億千瓦，脫硝裝機容量1.60億千瓦，連續13年排名全國第一。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

As of December 31, 2018, a total installed capacity of 15,890 MW had been built by Longyuan Environmental's desulfurization franchise project, a total installed capacity of 19,450 MW for the company's desulfurization maintenance projects, and 11,100 MW installed capacity for the company's denitration franchising projects. Calculated with 5,247.50 hours of annual total utilization hours of the unit of thermal power desulfurization franchising project, a total of 408,500 tons of sulfur dioxide has been removed; calculated with 4,856.79 hours of annual total utilization hours of the unit of thermal power desulfurization franchising and maintenance project, a total of 1.28 million tons of sulfur dioxide has been removed; calculated with 4,984.10 hours of annual total utilization hours of the unit of thermal power denitration franchising project, 45,500 tons of nitrogen oxides has been removed.

In 2018, 13 boiler combustion nitrogen reduction devices were newly built by Longyuan Technology; totally 564 boilers were put into operation, with an installed capacity up to 165,000,000kW.

There were 23 sewage treatment plants (stations) operated by Lucency, involving the operation of sewage treatment, reclaimed water and water supply, and with the designed treatment capacity of 1,450,000 t/d. The water product of the sewage treatment plant was discharged after meeting the discharge and reuse standards stipulated in the applicable laws, regulations and standards such as the Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (GB18918-2002), The Reuse of Urban Recycling Water – Water Quality Standard for Urban Miscellaneous Water Consumption (GB/T19820-2002), etc., or was reused by the industrial enterprises such as power plant after further retexture. Through the water operation mode, as of December 31, 2018, the sewage treatment plant had treated 195,650,000 tons of sewage (including reclaimed water and supplied water), and reduced pollution discharge by 58,400 tons of chemical oxygen demand (COD).

In order to strengthen the dust control and elimination of power plants, build a dust-free operation benchmark power plant, and improve the control standards of coal dust, the company has implemented the closed transformation of the coal yard warehouse. Longyuan Engineering newly set up 17 coal yard close projects in 2018, covering an area of 636,600 square meters. The number of new coal yard close projects has added up to 21, with a total coverage of 754,300 square meters.

截至2018年12月31日，龍源環保所屬脫硫特許經營項目的總裝機容量為15,890兆瓦，脫硫運維項目的總裝機容量為19,450兆瓦，脫硝特許經營項目的總裝機容量為11,100兆瓦。按照企業火電脫硫特許經營項目機組全年利用小時數5,247.50小時計算，共脫除二氧化硫40.85萬噸；按照企業火電特許經營項目和運維維護項目機組全年利用小時數4,856.79小時計算，脫除二氧化硫128.00萬噸；按照企業火電脫硝特許經營項目機組全年利用小時數4,984.10小時，脫除氮氧化物4.55萬噸。

龍源技術2018年新建鍋爐燃燒降氮裝置13台爐，累計投運564台爐，累計裝機容量達1.65億千瓦。

朗新明運營的污水處理廠(站)有23座，涉及污水、中水、供水運營業務，處理設計能力145萬噸/天。污水處理廠的產品水在達到國家頒佈的《城鎮污水處理廠污染物排放標準(GB18918-2002)》、《城市污水再生利用城市雜用水水質(GB/T19820-2002)》等相關法律規範中要求的排放、回用標準後排放，或進一步再生處理後回用到電廠等工業企業。通過水務運營方式，截至2018年12月31日，污水處理廠處理污水(含中水、供水)19,565萬噸，化學需氧量(COD)累計減排5.84萬噸。

為加強電廠粉塵治理，打造無塵作業標杆電廠，提高煤粉塵治理標準，對煤場實施儲倉封閉改造。龍源工程2018年度新建煤場封閉項目數17個，其覆蓋面積達到63.66萬平方米。累計新建煤場封閉項目數量21個，共達到覆蓋面積75.43萬平方米。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

### *Business of Energy Conservation Solutions*

In terms of energy conservation, oil-saving ignition, etc., the Group has highlighted the key role of science and technology advancement in energy conservation and emission reduction and made full use of its advantages in industrial technology and management.

The business of Guodian Longyuan Energy Saving Technology Co., Ltd. (“**Longyuan Energy Saving**”) covers the design, manufacturing and field implementation of steam turbine proper, cold end, auxiliary machinery and heating technology, and has achieved a total of 79 patents. The main energy-saving technologies include the whole-plant comprehensive efficiency promotion and energy conservation optimization technical reconstruction taking into account flexibility, low-energy heat supply technology (winning the first prize of China Power Science and Technology Award, and got successfully implemented in 8 projects); the steam graded heating, power, heat and electricity co-generation energy-conservation technology (winning the first prize of National Electric Power Workers’ Technical Achievement Award by of China Electricity Council and got successfully implemented in 6 projects); the technology of revamping the through-flow for steam turbines of 300MW and below (nearly 70 turbine generator sets revamped); the technology of revamping nozzle groups and blade top steam seals of 660MW and below (nearly 200 turbine generator sets revamped); the design of long-distance and large-temperature-difference heating pipe network, etc.. 232 contract energy management projects were implemented, and the contracted energy project saved an average of about 196,000 tons of standard coal in the past three years. Longyuan Energy Saving signed 22 new contracts in 2018, and increased more than 400,000 tons of saving capacity of standard coal, which helps the company win the first place in the “China Top 100 Energy Service Companies of 2018” and the “2018 Energy Saving Service Industry Top Brand Enterprise”.

### *節能解決方案業務*

在節能、節油點火等節能業務中，本集團重視科技進步在節能減排中的關鍵作用，充分發揮產業技術和管理優勢。

國電龍源節能技術有限公司(「龍源節能」)業務涵蓋了汽輪機本體、冷端、輔機及供熱技術的設計、製造、現場實施領域，共擁有專利79項。主要節能技術包括，火力發電廠全廠兼顧靈活性綜合提效節能優化技術改造、低位能優質供暖技術(中國電力科學技術一等獎，成功實施了8個項目)、蒸汽分級加熱—功熱電聯產節能技術(中電聯全國電力職工技術成果一等獎，成功實施了6個項目)、300兆瓦及以下汽輪機通流改造技術(成功改造近70台機組)、660兆瓦及以下噴嘴組及葉頂汽封改造技術(成功改造近200台機組)、遠距離大溫差供熱管網設計等。實施的合同能源管理項目232項，合同能源項目近三年平均節約標準煤約19.6萬噸。龍源節能2018年新簽合同22項，新增節約標準煤40萬噸以上，榮獲「2018年度全國節能服務公司百強榜」第1名，榮獲「2018節能服務產業品牌企業」。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The oil-saving ignition products of Longyuan Technology fuel continue to maintain its leading position in the industry, and the company is the only one in the industry with overseas plasma ignition performance. Longyuan Technology continues to carry out small-scale plasma ignition system design optimization, and constantly reduces systematic costs and enhances product competitiveness. At the same time, the company is accelerating the strategy of going global and continues to expand the market space of fuel-saving ignition business in East Asia and Southeast Asia. At present, Longyuan Technology's plasma ignition technology has been successfully applied to 846 sets of devices, with an installed capacity of 370 million kW, taking up 90% of global market, with cumulative fuel savings of more than 10 million tons.

#### *Power Station EPC*

Longyuan Engineering is the power station EPC construction platform of the Group, which has 73 patents in the fields of biomass power generation, solar thermal power generation, cold-end optimization of thermal power units, waste heat utilization of thermal power plants, and high-sodium coal combustion, etc. It has the Power Engineering Construction General Contracting Grade II Qualification, Engineering Supervision Grade B Qualification, Bidding Agency Grade A Qualification, Engineering Consulting Grade C Qualification, and Technology and Product Import and Export Qualifications. It as a national high-tech enterprise has passed the Three Standards (quality, environment, occupational health and safety) In One Management System Certification and the Nuclear Industry Quality Management System Certification.

龍源技術節油點火產品依然持續保持行業領先地位，並且是行業內唯一擁有海外等離子體點火業績的企業。龍源技術持續進行小型化等離子體點火系統設計優化，不斷降低系統成本，提升產品競爭力。同時加快走出去戰略，持續拓展節油點火業務在東亞、東南亞等地的市場空間。目前，龍源技術的等離子點火技術已成功應用於846台設備，裝機容量達3.7億千瓦，全球市場佔有率超90%，累計節油超過千萬噸。

#### *電站EPC*

龍源工程是本集團電站EPC建設平台，擁有生物質發電、光熱發電、火電機組冷端優化、火電廠餘熱利用、高鈉煤燃燒等領域專利73項，具備電力工程施工總承包二級資質、工程監理乙級資質、招標代理甲級資質、工程諮詢丙級資質、技術和產品進出口資格，是國家高新技術企業，通過了三標(質量、環境、職業健康安全)一體管理體系認證和核工業質量管理體系認證。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.1.2 Segment of Renewable Energy Equipment Manufacturing and Services

#### WTG Products and Services

United Power has produced 404 wind turbines in the year (including 6 units of 1.5 MW wind turbines, 392 units of 2 MW wind turbines and 6 units of 3 MW wind turbines, totaling 811 MW), making significant contribution to the development of green renewable energy. United Power has accumulatively produced and sold 11,200 units of wind turbines, which was equal to 18,587 MW. Taking 2,000 hours as used annually, the carbon dioxide emissions of the company in the year were about 37,062,400 tons. The company's wind power equipment manufacturer's new installed capacity ranking in the world has jumped to No. sixth since 2015. The wind turbine quality control system of United Power has passed the integrated certification of China Classification Society, and the operational maintenance subsidiary of the company has passed the Global Consistency Standard – TUV Wind Power Service System Certification. The China Electricity Council announced that in 2017, a total of 62 wind farm applying United Power's fan products were awarded, accounting for 20% of all award-winning wind far.

The Group's branch Chifeng Wind Power is the Group's wind-light power generation and operation enterprise. In 2018, the company's wind and photovoltaic power generation totaled 277,055,600 kWh, equivalent to 233,800 tons of carbon dioxide emission reduction, 72.03 tons of sulfur dioxide, 69.26 tons of nitrogen oxides, and 16.62 tons of particulate matter<sup>1</sup>.

<sup>1</sup> Publicly available and up-to-date authoritative data: According to the Annual Development Report of the Chinese Electric Power Industry (2018) by CEC, in 2017, the power supply standard coal consumption of the thermal power plants of 6,000kW and above around China was 309g/kWh; and the emissions of carbon dioxide, particulate matter, sulfur dioxide and nitrogen oxides were 844g/kWh, 0.06g/kWh, 0.26g/kWh and 0.25g/kWh respectively.

### 2.1.2 可再生能源製造及服務板塊

#### 風機產品及服務業務

聯合動力全年生產風機404台(其中1.5兆瓦風機6台, 2兆瓦風機392台, 3兆瓦風機6台, 合計811兆瓦), 為發展綠色可再生能源做出了貢獻。聯合動力累計產銷風機1.12萬台, 合18,587兆瓦, 按年利用2,000小時考慮, 全年減排二氧化碳約3,706.24萬噸。風電設備製造商新增裝機容量排名從2015年開始躍居全球第六。風機質量管控體系通過了中國船級社一體化認證, 運維子公司通過全球一致性標準TUV風電服務體系認證。中電聯公佈2017年共有62個風電場應用聯合動力風機產品獲獎, 占全部獲獎風電場的20%。

本集團分公司赤峰風電是本集團風光發電運營企業, 2018年累計風力和光伏發電27,705.56萬千瓦時, 相當於減排二氧化碳23.38萬噸, 二氧化硫72.03噸, 氮氧化物69.26噸, 顆粒物16.62噸<sup>1</sup>。

<sup>1</sup> 可公開獲取的最新權威數據: 中電聯中國電力行業年度發展報告(2018), 2017年全國6,000千瓦及以上火電廠供電標準煤耗309克/千瓦時, 二氧化碳、顆粒物、二氧化硫和氮氧化物排放量分別為844、0.06、0.26和0.25克/千瓦時。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

#### 2.1.3 International Development

Based on the well-known brand effect, scientific project management and good quality reputation, the Group has steadily made inroads into the international market. The plasma ignition devices of the company have entered the markets of South Korea, Russia, Indonesia and Turkey, etc. The wind turbine equipment of the company has entered the markets of the United States and South Africa. The company's seawater desulphurization and desalination business have entered the markets of Sri Lanka, Philippines, and Cambodia, flue gas desulfurization business entered the Indonesian market, and environmentally friendly equipment entered the markets of Vietnam, Indonesia and Bangladesh. Its automatic control systems and engineering services have entered the markets of India, Indonesia and Africa.

#### 2.2 Reduce Resource Consumption Adhere to the Concept of Resource Saving

The earth provides the environment and resources for human beings to live on. However, the earth's resources are limited. It is the responsibility of the Group to reduce the use of non-renewable resources and make rational and efficient use of them, to build a conservation-oriented enterprise and promote sustainable development. The Group adheres to the concepts of green development, strictly implements China's environmental protection laws and regulations, adheres to the coordinated development between the Company's interest and energy conservation and environmental protection. With "Energy Conservation, Consumption Reduction, Emission Reduction, Efficiency Increase" as the goal, the Group strengthens the scientific management and scientific utilization of energy and constantly improves the energy utilization rate, so as to make the Group a conservation-oriented and technology-based enterprise.

#### 2.1.3 國際化發展

本集團憑藉著名的品牌效應、科學的項目管理及良好的質量信譽穩步邁向國際市場。等離子體點火裝置進入韓國、俄羅斯、印尼及土耳其等市場。風機設備進入美國及南非市場。海水脫硫、海水淡化進入斯里蘭卡、菲律賓、和柬埔寨市場，煙氣脫硫進入印尼市場，環保設備進入越南、印尼及孟加拉市場。自動化控制系統及工程服務進入印度、印尼及非洲市場。

#### 2.2 減少資源消耗奉行節約理念

地球為人類提供了賴以生存的環境和資源，然而地球資源是有限的，減少不可再生資源的使用和合理高效利用，建設節約型企業，促進可持續發展是本集團應盡的責任。本集團秉承綠色發展理念，嚴格遵照我國環境保護相關法律法規執行，堅持公司利益與節能環保協同發展，以「節能、降耗、減排、增效」為目標，加強能源的科學管理，科學利用，不斷提高能源利用率，使本集團成為節約型、科技型企業。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

As an advanced environmental protection service company, the Group, except for attaching great importance to energy conservation services in the Group's own business operation, also takes very seriously of resource saving in its production and operation processes, and strictly abides by the Environmental Protection Law of the People's Republic of China, the Water Law of the People's Republic of China, Energy Conservation Law of the People's Republic of China and other laws and regulations, requires all subsidiaries to use energy reasonably and effectively, to reduce costs, improve comprehensive benefits, and to formulate energy conservation management systems based on their own business characteristics. Under the call of the Group, United Power has formulated the "Energy Conservation and Consumption Reduction Management System", Chifeng Wind Power has formulated the "Resources and Energy Economical Use Management System", Longwei Company has formulated the "Energy Conservation and Consumption Reduction Management Regulations", Longyuan Technology has formulated the "Energy and Resource Control Procedure", which cover management measures including energy saving, fuel saving and water saving. In 2018, Huadian Tianren newly formulated the "Interim Measures for Budget Management", to strictly control the water, electricity, gasoline and diesel required in production and operation processes through strict budget management. The Group also implemented energy conservation and consumption reduction management in accordance with the requirements of Health, Safety, and Environment Three-in-one Management System (the "**HSE Management System**"). By virtue of rules and regulations, the Group effectively stimulated saving actions, restrained waste, and continuously optimized the external and internal environment for the construction of a conservation-oriented enterprise, thus forming a long-term mechanism for resource conservation and ensuring continuous deepening of the construction of a conservation-oriented enterprise.

本集團作為先進的環保服務企業，除了在經營業務中提供節能服務外，在本集團自身的生產運營過程中也非常重視節約資源，嚴格遵守《中華人民共和國環境保護法》、《中華人民共和國水法》、《中華人民共和國節約能源法》等法律法規，要求各附屬公司合理、有效地利用能源，降低成本，提高綜合效益，並結合自身業務特點制定節能管理制度。在本集團的號召下，聯合動力制定了《節能降耗管理制度》，赤峰風電制訂了《資源及能源節約使用管理制度》，龍威公司制定了《節能降耗管理規定》，龍源技術制定了《能資源控制程序》，內容涵蓋節電、節油、節水等管理措施。華電天仁2018年新制定了《預算管理暫行辦法》，通過嚴格管理預算的方式，對生產運行過程中所需要的水、電、汽油和柴油嚴格把控。本集團還根據健康Health、安全Safety、環境Environment三位一體管理體系（**HSE管理體系**）要求實施節能降耗管理。本集團通過制度有效地激勵節約，遏止浪費，不斷優化建設節約型企業的外部 and 內部環境，從而形成節約資源的長效機制，保證節約型企業建設工作持續深入開展。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.2.1 Energy Management

The Group's energy consumption in the production and operation processes mainly includes: electricity, gasoline, diesel and natural gas, etc. Power consumption mainly comes from the production processes of wind turbines, blades, desulfurization catalysts and other products; the debugging of large automation systems and other equipment; the running of project construction lighting system, motors and welding machines; the operation of the wind farm equipment and office power supply, etc. The gasoline consumption mainly comes from the use and maintenance of commercial vehicles and equipment inspection and repair vehicles. Diesel consumption mainly comes from the product transport vehicles for wind turbines, blades, desulfurization catalysts and so on, and from the running of power station diesel generators. Natural gas consumption mainly comes from the daily catering of the company dining hall.

### 2.2.1 能源管理

本集團在生產運營過程中消耗的能源主要包括：電、汽油、柴油和天然氣等。電耗主要來自於風機、葉片及脫硫催化劑等產品生產過程；大型自動化控制系統等設備調試；項目施工照明、電動機和電焊機運轉；風電場設備運行和辦公室用電等。汽油消耗主要來自於商務車和設備檢修車使用和維護。柴油消耗主要來自於風機、葉片及脫硫催化劑等產品運輸車輛和電場柴油發電機運轉。天然氣消耗主要來自於公司食堂日常餐飲使用。

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Total power consumption (kWh) 總耗電量(千瓦時)	1,740,389,855.43	1,605,840,620.94
Total office area power consumption (kWh) 辦公室總耗電量(千瓦時)	7,669,114.43	9,195,821.45
Total productive process power consumption (kWh) 生產過程耗電(千瓦時)	1,732,720,741.00	1,596,644,799.49
Power consumption per MW product (kWh/MW) 每兆瓦產品耗電強度(千瓦時/兆瓦)	310.83	350.88
Assembly workshop power consumption (kWh) 整裝車間耗電量(千瓦時)	312,690.00	569,646.03
Installed capacity (MW) 兆瓦裝機量(兆瓦)	1,006.00	1,623.50
Power consumption per blade (kWh) 單支葉片耗電量(千瓦時)	8,837.31 <sup>2</sup>	6,148.67
Blade workshop power consumption (kWh) 葉片車間耗電量(千瓦時)	8,059,623.00	9,192,261.85
Number of blades (pcs) 葉片支數(支)	912.00	1,495.00

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

<b>Performance Indicators</b> 績效指標	<b>Year 2018</b> 2018年度	Year 2017 2017年度
Gasoline consumption (ton) 汽油消耗量(噸)	<b>887.05</b>	740.71
Diesel consumption (ton) 柴油消耗量(噸)	<b>189.69</b>	256.84
Natural gas consumption (normal cubic meter) 天然氣消耗量(標準立方)	<b>431,379.00</b>	364,310.07
Heating power outsourced for the office building of HQ (GJ) 本部辦公室外購熱力量(千兆焦耳)	<b>4,532,396.28<sup>3</sup></b>	7,711.20 <sup>4</sup>
Comprehensive energy consumption (thousand kWh) 綜合能源消耗量(千個千瓦時)	<b>1,757,928.46</b>	–
Comprehensive energy consumption intensity (kWh/10,000 yuan of revenue) 綜合能源消耗強度(千瓦時/萬元營收)	<b>1,540.45</b>	–
Total greenhouse gas emissions (tons of CO <sub>2</sub> equivalent) 溫室氣體總排放量(噸二氧化碳當量)	<b>1,066,082.55</b>	984,388.94
Direct greenhouse gas emissions (tons of CO <sub>2</sub> equivalent) 直接溫室氣體排放量(噸二氧化碳當量)	<b>4,270.15</b>	3,891.08 <sup>5</sup>
Indirect greenhouse gas emissions (tons of CO <sub>2</sub> equivalent) 間接溫室氣體排放量(噸二氧化碳當量)	<b>1,061,812.40</b>	980,497.57 <sup>6</sup>
Greenhouse gas emission intensity (tons of CO <sub>2</sub> equivalent/10,000 yuan of revenue) 溫室氣體排放強度(噸二氧化碳當量/萬元營收)	<b>0.93</b>	0.84

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

- <sup>2</sup> In 2018, United Power replaced the heating equipment that burns natural gas in the blade workshop with electric heating equipment, therefore, the power consumption of the single blade increased.
- <sup>3</sup> The heat purchased for the production and administration of the company's headquarters building, Huadian Tianren, United Power and Longyuan Technology is included.
- <sup>4</sup> Only the heat purchased for the administration of the company's headquarters building is included here.
- <sup>5</sup> Basis of calculation: The gasoline, diesel and natural gas consumed by the Company
- <sup>6</sup> Basis of calculation: The total power consumption of the Group and the outsourced heat for the building of the Head Office of the Group

Each affiliate to the Group, in order to strictly implement the energy management system, has established a relevant responsible department to manage energy and developed its energy management plan according to the concrete conditions. Longwei Company has carried out daily energy consumption inspection according to energy conservation management regulations to eliminate "running-out, emitting, dripping, leaking" and other phenomena, handling problems when found in time; and has been posting energy-saving initiatives at various energy consumption sites, such as electric switches and printing equipment.

According to the requirements of "Energy/Resource Control Procedures", the general manager office is asked by Longyuan Technology to assign specific person to monthly deal with the counting and recording of the company's resource consumption, which then shall be reported to the Operation Management Department for statistical analysis; the company uses internal partition insulated centralized radiator heating method, which reduces the situations that the workshop space is too large for uniform heating, and that the workshop entirely uses electric heaters, which causes great electric energy consumption.

- <sup>2</sup> 2018年度，聯合動力將葉片車間燃燒天然氣的加熱設備更換成電力加熱設備，因此單支葉片耗電量有所增加。
- <sup>3</sup> 包含公司本部大樓、華電天仁、聯合動力、烟台龍源生產及辦公所購熱力。
- <sup>4</sup> 僅包含公司本部大樓辦公所購熱力。
- <sup>5</sup> 計算依據：根據公司消耗汽油，柴油，天然氣計算得出
- <sup>6</sup> 計算依據：根據公司總耗電量以及本部大樓外購熱力計算得出

為嚴格執行能源管理制度，各附屬公司均設立相關責任部門進行能源管理工作，並根據具體情況制定管理方案。龍威公司依據節能管理規定，做好日常能源消耗檢查，杜絕「跑、冒、滴、漏」等現象，發現問題及時處理；在各能源消耗點，如電開關、打印器材等張貼節能宣傳牌。

龍源技術依據《能／資源控制程序》要求，公司總經理部每月由專人負責，對公司資源消耗量進行統計和記錄，並報運營管理部進行統計分析；公司在車間採用內隔斷保暖集中暖氣片供暖方式，減少了之前因車間空間較大，無法進行統一供暖，車間內部全部使用電暖氣供暖方式，造成電能消耗較大的情況。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In order to rationally plan the company's vehicles and reduce the consumption of gasoline and diesel, some subsidiaries of the Group have formulated relevant management measures. Longwei Company has formulated the "Administrative Measures for Office Vehicles" to rationally arrange the use of vehicles, reduce the empty vehicle round-trips and repeatedly vehicle dispatching and other phenomena. Huadian Tianren strictly controls the use of vehicles, giving priorities to important and emergency situations, before using vehicles, the "Application Form for Vehicles" needs to be filled in advance and the expenses are controlled through the "one card for one car" method to ensure the reasonable use of the expenses.

In 2018, the power consumption per megawatt of the assembly shops of United Power decreased by 11.41% compared with 2017.

In order to reduce energy consumption, the company headquarters and the office areas of its affiliated companies have also adopted a series of management measures: Longyuan Technology has unified time switch for the company's air conditioners to ensure that the air conditioners are turned off after work; strengthened daily inspections to eliminate the phenomenon of day light; and replaced ordinary lighting with energy-saving lighting. During festivals, holidays and nights, the personnel on duty should turn off the lighting fittings in the building in time. In summer, the air conditioning temperature of the office should not be set at below 26 degrees Celsius to reduce energy consumption with sufficient cool supply as the prerequisite.

為了合理規劃公司用車及降低汽油和柴油的消耗，本集團部分附屬公司制定了相關管理辦法。龍威公司制定了《辦公車輛管理辦法》，合理安排車輛使用，減少空車往返，重複派車等現象。華電天仁嚴格控制車輛的使用情況，重要、緊急情況用車優先，用車需事先填寫《用車申請單》並採取專車專卡形式控制費用，確保了費用的合理使用。

2018年，聯合動力整裝車間每兆瓦產品的耗電強度較2017年下降了11.41%。

公司總部和附屬公司辦公區域為了減少能源消耗也採取了一系列管理措施：龍源技術對公司空調統一定時開關，確保下班時關閉空調；加強日常巡查，消除長明燈現象；將普通照明燈更換為節能燈具。在節假日和夜間，由值班人員及時關閉大樓內照明燈具；夏季在保證供冷的前提下，將辦公室空調溫度設定在不低於26攝氏度，以降低能耗。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.2.2 Water Resource Management

The water consumed by the Group and every affiliate thereto is mainly the production water for technological process, equipment cleaning, etc., domestic water for catering, toilets bathroom, etc., and water for lawns and fire control, etc. The Group has not identified significant risks of water shortages in terms of seeking suitable sources of water.

### 2.2.2 水資源管理

本集團及各附屬公司主要耗水產生在工藝及清洗設備等生產用水，餐飲、廁所及澡堂等生活用水及澆灌草坪和消防用水等。在求取適用水源方面，本集團尚未發現水資源短缺的重大風險。

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Total water consumption ( $m^3$ ) 總耗水量(立方米)	<b>28,879,789.01</b>	26,400,357.18
Industrial water consumption ( $m^3$ ) 工業耗水量(立方米)	<b>28,781,078.01</b>	26,258,165.62
Office area water consumption ( $m^3$ ) 辦公區耗水量(立方米)	<b>98,711.00</b>	142,191.56
Headquarter building water consumption ( $m^3$ ) 本部辦公樓耗水量(立方米)	<b>40,691.00</b>	39,809.00
Office area water consumption per capita ( $m^3/person$ ) 辦公區人均耗水量(立方米/人)	<b>20.35</b>	23.98
Number of employees ( <i>person</i> ) 員工人數(人)	<b>2,000.00</b>	1,660.00
Domestic sewage discharge ( $m^3$ ) <sup>7</sup> 生活污水排放量(立方米)	<b>67,345.70</b>	68,391.00

<sup>7</sup> As United Power and Longyuan Energy Conservation did not establish the domestic sewage discharge statistical process in the Reporting Period, the data do not include the above two enterprises.

<sup>7</sup> 由於聯合動力和龍源節能在報告期內未建立生活污水排放統計流程，因此，該數據不包含以上兩家企業。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

According to the requirements of the water resource management system of the Group, the Group Office is responsible for the water resource management of the Group and its duties are as follows: to implement the national laws and regulations on water resource management; to formulate the water resource management system of the Group; to implement responsibilities and supervise the implementation; to work out the water resource management plan and annual plan in conjunction with the relevant departments; to establish and improve water resource metering facilities, management account books; to promote water-saving measures; to promote the application of new water-saving technologies and new technological processes.

In terms of water conservation, the Group mainly takes the following measures: to raise employees' awareness of water conservation through training and publicity; to improve wastewater recycling rate; to strengthen routine maintenance and management of water equipment, repair damaged water supply facilities in time, and regularly check and replace water supply devices such as faucets and pipeline valves and flashing valves. The water flushing and cleaning water of the office building of the Group's headquarters are reclaimed water purchased from the park, which has saved municipal water resources.

In order to reduce the discharge of domestic sewage, a septic tank was built in the farm area of Chifeng Wind Power's Dayuying Wind Farm to discharge all domestic sewage into the septic tank. Therefore, there is no effluent domestic sewage in the farm area, which has reduced by 186 cubic meters of sewage discharge. The company also hired professionally qualified service providers to clean the septic tank every year.

根據公司水資源管理制度的要求，本集團辦公室負責本集團水資源管理工作，其職責包括：執行國家有關水資源管理的法律、法規，制定集團水資源管理制度，落實責任並監督執行；會同有關部門編製水資源管理規劃和年度計劃；建立和完善水資源計量設施、管理台帳，推行節水措施，推廣應用節水新技術及新工藝等。

在節約用水方面，本集團的主要措施包括：培訓及宣傳提高員工節約用水意識；提高廢水的回收利用率；加強用水設備的日常維護和管理，及時維修損壞的供水設施，定期檢查更換水龍頭、管道閥門及沖水閥等供水器具。本集團總部辦公樓廁所沖水和保潔用水均採購園區中水，節約了市政水資源。

赤峰風電大於營風電場為了減少生活污水的排放，在場區內修建了化糞池，將全部生活污水排放至化糞池，因此場區內並無外排生活污水，約減少了186立方米的污水排放。公司每年還會聘請具有專業資質的服務商對化糞池進行清污處理。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.2.3 Use of Packaging Materials

The packaging waste produced during the operation of the Group includes woven fabric, carton, plastic film, fixed steel supporting structure, wooden box, batten, ceramic fiber product and winding film, etc.

### 2.2.3 包裝物使用

本集團運營過程中產生的包裝廢棄物包括：編織物、紙箱、塑料薄膜、固定支撐鋼結構、木箱、木方、陶瓷纖維製品及纏繞膜等。

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Total weight of packaging materials (ton) 包裝物總重量(噸)	<b>503.80</b>	598.72
Plastic (ton) 塑料(噸)	<b>11.40</b>	19.23
Fabric (ton) 織物(噸)	<b>2.70</b>	2.66
Fixed steel supporting structure (ton) 固定支撐鋼結構(噸)	<b>3.00</b>	9.66
Wooden box (ton) 木箱(噸)	<b>463.38</b>	485.11
Carton (ton) 紙箱(噸)	<b>22.70</b>	81.76
Others (ton) 其他(噸)	<b>0.62</b>	0.30
Consumption intensity of packaging (kg/10,000 yuan of revenue) 耗用包裝物密度(千克/萬元營收)	<b>0.44</b>	—

Every affiliate to the Group, in respect of the management of packaging materials, has established relevant management rules and regulations. For example, United Power has developed the Regulations Governing Packaging Materials, Longyuan Electrical has developed the Regulations Governing the Use of Packages, etc., covering procurement management, goods warehousing acceptance, storage and keeping, material requisition and replacement of old production consumables with the new ones. A number of affiliates of the Group cooperated with packaging companies that are responsible for the management of packaging materials.

本集團各附屬公司針對包裝材料的管理，制定了相關管理制度，如聯合動力制定的《包裝材料管理制度》，龍源電氣制定的《包裝使用管理制度》等，內容包括採購管理、物品入庫驗收、倉庫保管、物料領用及生產耗材的以舊換新等制度。本集團多家附屬公司與包裝公司合作，並由包裝公司負責包裝材料的管理。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In order to save the use of packaging materials and reduce the amount of packaging waste generated, the Group's affiliates have adopted a series of management measures, which can be divided into procurement and use:

- In terms of procurement, the affiliates strictly follow the national and industrial regulations such as "Frame Wooden Box" (GB/T7284-1998), "Single and Double Corrugated Boxes for Transport Packages" (GB/T6543-2008), and purchase packaging materials that meet the requirements and are less harmful to the environment.
- In terms of the use of packaging materials, the company uses the original packaging for the packaging of some products whose volume has not changed, changes some models from independent packaging to integrated packaging, which reduces the amount of packaging materials; according to technical requirements, when formulating the packaging process for the packaging of the product, Longyuan Electrical has fully considered the environmental impact of the amount of packaging material used. Under the premise of meeting the requirements of packaging strength, the packaging size and materials of all products of Longyuan Electrical are used in the minimum amount. Through the optimization of the packaging process, the carton packaging sealing tape has been reduced from the original two layers to one layer, and the packing straps from the original five to four. At the same time, the company also picked out the recyclable packaging boxes for the delivery of spare parts, and returned some of the relatively intact packaging materials to the manufacturers for reuse.

為節約包裝材料的使用和減少包裝廢棄物的產生量，本集團各附屬公司採取了一系列管理措施，具體可分為採購和使用兩方面：

- 在採購方面，附屬公司嚴格按照《框架木箱》(GB/T7284-1998)、《運輸包裝用單瓦楞紙箱和雙瓦楞紙箱》(GB/T6543-2008)等國家、行業相關規定，採購符合要求且對環境危害小的包裝材料。
- 在包裝材料的使用方面，公司對於部分體積未發生改變的產品使用原包裝箱進行包裝，部分機型產品由獨立包裝改為一體式包裝，降低了包裝材料用量；根據技術要求，龍源電氣在對產品的包裝制定包裝工藝時，均充分考慮了包裝材料用量對環境的影響。在滿足包裝強度要求的前提下，龍源電氣所有產品的包裝尺寸、用料都採用了最小的用量。通過包裝工藝的優化，紙箱類包裝封口膠帶由原來的兩層減少為一層，打包帶由原來的5條減少為4條。同時公司還將可循環利用的包裝箱篩選出來，用於備件的發貨，將部分較完好的包裝材料，返還給廠家以重複利用等。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.3 Reduce Pollution Emissions, Implement Scientific Management

The Group strictly abode by the “Environmental Protection Law of the People’s Republic of China”, the “Law on the Prevention and Control of Environmental Pollution by Solid Wastes of the People’s Republic of China”, the “Air Pollution Prevention and Control Law of the People’s Republic of China”, guided by the 13th Five-Year Plan for Ecological Environment Protection and the 13th Five-Year Plan for Energy Conservation and Emission Reduction, the Group strove to reduce the impact of various kinds of waste on the environment, strictly regulated waste emission management, and reasonably carried out recycling and utilization and safe disposal of waste with the ultimate goal of reducing waste emission. In 2018, there were no environmental violations that had a significant impact on the Group.

#### 2.3.1 Hazardous Waste Management

The main hazardous waste produced in the production and operation of the Group includes waste lubricant, grease, hydraulic oil, organic solvent etc., and office generated waste toner, ink cartridge and scrapped office electronics, etc.

### 2.3 降低污染排放，施行科學管理

本集團嚴格遵守《中華人民共和國環境保護法》、《中華人民共和國固體廢物污染環境防治法》、《中華人民共和國大氣污染防治法》等法規，以國家《「十三五」生態環境保護規劃》及《「十三五」節能減排綜合工作方案》為指導，高度重視各類廢棄物對環境的影響，嚴格規範廢棄物的排放管理，以減少廢棄物排放為最終目標，合理開展廢物回收利用和安全處置工作，2018年，未發生對本集團有重大影響的環境違規事件。

#### 2.3.1 有害廢棄物管理

本集團在生產運營中產生的主要有害廢棄物包括：廢潤滑油、潤滑脂、液壓油、有機溶劑等及辦公產生的廢硒鼓、墨盒、報廢的辦公電子產品等。

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Total weight of hazardous waste (ton) 有害廢棄物產生總重量(噸)	75.10	19.73
Waste lubricant (ton) 廢潤滑油(噸)	8.14	0.30
Grease (ton) 潤滑脂(噸)	0.92	0.18
Hydraulic oil, etc. (ton) 液壓油等(噸)	5.41	0.75
HW06 organic solvent waste (ton) HW06有機溶劑廢物(噸)	4.81	8.53
HW13 organic resin waste (ton) HW13有機樹脂類廢物(噸)	4.85	7.18

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Other hazardous waste (ton) 其他有害廢棄物(噸)	50.97 <sup>8</sup>	2.79
Hazardous waste generation intensity (kg/10,000 yuan of revenue) 有害廢棄物產生強度(千克/萬元營收)	0.07	0.02

<sup>8</sup> Waste cutting fluid, HW12 waste paint thinner, paint slag, HW13 uncured one-component mold clamping glue, HW49 waste paint bucket, waste activated carbon filter cotton, waste chemical packaging, etc.

For hazardous wastes, the Group's affiliates has established relevant management systems and methods, and the relevant departments of each affiliate are responsible for the specific management of waste. In future, the Group will also strengthen the management of hazardous waste minimization.

<sup>8</sup> 廢切削液、HW12廢棄油漆稀釋劑、漆渣、HW13未固化單組份合模膠、HW49廢油漆桶、廢棄活性炭濾棉、廢化學品包裝物等

針對有害廢棄物，本集團各附屬公司建立相關的管理制度和辦法，並由各附屬公司相關部門負責廢棄物的具體管理。未來，本集團還將加強對有害廢棄物減量化管理。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The main hazardous wastes generated during the production and operation of Chifeng Wind Power are liquid wastes such as waste lubricating oil, grease and hydraulic oil, the company has developed the Environmental Management System for Waste Mineral Oil so as to strengthen its management. In order to reduce the generation of such waste, the company's subordinate wind farms control the production of waste oil by controlling the purchase and use of mineral oil from the source. The relevant departments report the mineral oil plan to the power station in charge according to the actual oil use situation, and confirm the purchase of mineral oil after the plan has been audited by the wind and photovoltaic power station and approved by the superior. After the mineral oil purchased has been delivered to the field, the quality inspection and storage will be carried out according to the requirements of the system, and the mineral oil will be put into the warehouse and the account will be released, the details of quarterly storage and account will be reported to the wind and photovoltaic power station. The use of mineral oil is required to establish an oil-using units account, the oil consumption of the units and the recovery of the waste oil should be recorded according to the facts, and the wind and photovoltaic power station should check and supervise the use and recycling. Chifeng Wind Power requires the use of mineral oil to prepare a special waste liquid collection container, to specially assign personnel to collect and store the waste liquid generated by the oil-using units in time and keep records, to prevent the waste liquid from being discharged into the water body or soil without being collected. The company has signed a disposal agreement for waste mineral oil with a qualified service provider. After the storage of the waste mineral oil reaches a certain amount, it will be submitted to the company for treatment after being approved by the company's leaders.

The main hazardous wastes generated by Longyuan Technology in the production process are waste emulsion, waste lubricating oil, waste toner cartridge and waste asbestos, etc., in order to effectively manage all kinds of hazardous waste, the company has established the hazardous waste storage and disposal management system, post responsibility system, safety operation procedures, management accounts, training systems and accident prevention measures and emergency plans, and so on. The company requires that all toxic and hazardous waste be kept separately by category, and the containers for storing waste clearly marked with the name of the waste. For the disposal of hazardous waste, the company will entrust a company with professional disposal qualifications to do the treatment.

赤峰風電生產運營過程中產生的主要有害廢棄物是廢潤滑油、潤滑脂及液壓油等液體廢棄物，為加強管理編製了《廢礦物油環保管理制度》。為了減少此類廢棄物的產生，公司下屬風電場採取從源頭控制礦物油的採購和使用的方式控制廢油的產生。相關部門根據實際用油情況，向所屬電場申報礦物油計劃，經風光電場審核、分管領導審批後，確認採購礦物油。所採購的礦物油到場後按體系要求進行質量檢定及入庫，並建立礦物油入庫、發放台帳，每季度將入庫、發放明細抄報風光電場。礦物油領用建立用油設備台帳，如實記錄設備的耗油情況和廢油的回收情況，風光電場對使用回收情況進行檢查、督導。赤峰風電要求使用礦物油需準備專用的廢液收集容器，明確專人及時對用油設備產生的廢液進行收集和貯存，並做好記錄，嚴防廢液不經收集隨意排入水體或土壤。公司與具有相關資質的服務商簽訂了廢礦物油的處置協議，在廢礦物油貯存達到一定量後，經公司領導審批確認後交由該公司處理。

龍源技術在生產過程中產生的主要有害廢棄物為廢乳化液、廢潤滑油、廢硒鼓和廢石棉等，為了對各類有害廢棄物進行有效的管理，公司制定了危險廢物貯存處置管理制度、崗位責任制度、安全操作規程、管理台帳、培訓制度和意外事故防範措施及應急預案等。公司要求所有有毒有害廢棄物均按類別分開保管，存儲廢棄物的容器均清晰標識出廢棄物的名稱信息。對於有害廢棄物的處理，公司移交由具有專業處置資質的公司處理。



# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

### 2.3.2 Non-hazardous Waste Management

The non-hazardous waste produced in the operation of the Group includes domestic waste, sludge produced in the production process of sewage treatment plants, steel scrap and iron chip produced by mechanical processing, packaging waste and industrial sewage pollutant from the production of catalysts.

### 2.3.2 無害廢棄物管理

本集團在運行過程中產生的無害廢棄物包括：生活垃圾、污水處理廠生產過程中產生的污泥、鋼材下腳料和機械加工產生的鐵屑、包裝廢棄物及催化劑生產的工業污水污染物。

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度
Total weight of non-hazardous waste (ton) 無害廢棄物產生總重量(噸)	<b>217,213.58</b>	212,001.93
Sludge from domestic sewage treatment plants (ton) 生活污水處理廠產生污泥(噸)	<b>217,000.00</b>	212,000.00
Industrial sewage pollutant COD (ton) 工業廢水污染物化學需氧量(噸)	<b>4.39</b>	1.79
Industrial sewage pollutant ammonia nitrogen (ton) 工業廢水污染物氨氮(噸)	<b>0.30</b>	0.14
Dust collected (tons) 收集粉塵(噸)	<b>3.12</b>	—
Scraps cut (tons) 切割邊角料(噸)	<b>47.15</b>	—
Domestic garbage (tons) 生活垃圾(噸)	<b>155.30</b>	—
Paper (tons) 紙張(噸)	<b>2.62</b>	—
Non-hazardous waste generation intensity (tons/10,000 yuan of revenue) 無害廢棄物產生強度(噸/萬元營收)	<b>0.19</b>	0.18

For the management of waste, Longyuan Electrical has developed the "Solid Waste Control Procedure" to regulate the disposal of solid waste. Longyuan Electrical divides the harmless waste generated in the operation process into two categories, the first is the recyclable and usable waste, including the cable waste generated by the converter wire harness cutting and the terminal crimping and processing processes, the waste packaging boxes in the production process and the waste paper generated during the office process; the second is the collection of non-usable waste, including office waste discarded during office work.

針對廢棄物的管理，龍源電氣制定了《固體廢棄物控制程序》，規範管理固體廢棄物的處置。龍源電氣將運營過程中產生無害廢棄物分為兩類，一類為可回收可利用類，包含變流器線束裁剪、端子壓接加工製作環節中產生的線纜廢料，各生產環節中產生的廢包裝盒以及辦公過程中產生的廢紙；二是可收集不可利用類，包括辦公過程中廢棄的辦公垃圾等。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

In 2018, Longyuan Electrical enabled a more reasonable and compact layout of electrical devices by optimizing the product structure design, which reduced the length of cables between device connections as well as cable usage. At the same time, the use of the same type of cable has been planned as a whole, and to use the type of cable whose length can produce the maximum amount of cables to be used, which reduced the amount of waste cables generated during the harness manufacturing process. The paper that is printed on one side has been reused, and those not re-usable are handed over to the general management department to contact the property company for unified disposal.

In future, the Group will further strengthen the management of solid waste, take measures to reduce the generation of waste from the root causes, and improve the recycling of wastes that can be recycled and reused, so as to reduce the number of waste and their impact on the environment as much as possible.

#### 2.3.3 Exhaust Gas Management

The Group will generate a small amount of waste gas during its operation, including: sulfur dioxide, nitrogen oxides and particulate matter, which is mainly from the gasoline and diesel burned by the company's official vehicles, burning of natural gas as well as emissions from part of the production processes.

Performance Indicators 績效指標	Year 2018 2018年度	Year 2017 2017年度 <sup>9</sup>
Sulfur dioxide emissions (ton) 二氧化硫排放量(噸)	0.39	0.02
Nitrogen oxides emissions (ton) 氮氧化物排放量(噸)	5.54 <sup>10</sup>	1.94
Particulate matters emissions (ton) 顆粒物排放量(噸)	2.61 <sup>10</sup>	5.36

<sup>9</sup> The number of kilometres of vehicles travel could not be calculated for the year. Therefore, the amount of emission arising from the travel of vehicles are not included.

<sup>10</sup> Not including emission arising from using joint motor vehicles

2018年，龍源電氣通過優化產品結構設計，使電氣器件佈局更加合理緊湊，減少器件連接之間線纜的長度，減少線纜用量。同時，對相同種類的線纜進行統籌規劃，使用單位線纜長度能夠生產最大用量的線纜數量，減少了線束製作過程中產生廢線纜的量。對單面打印的紙張進行回用，而不能再次利用的由綜合管理部聯繫物業公司進行統一處置。

未來本集團仍將進一步加強固體廢棄物的管理，從根源上採取措施減少廢棄物的產生，對於可回收再利用率低的廢棄物加大循環再利用率，以此來更大程度的減少廢棄物的數量及對環境造成的影響。

#### 2.3.3 廢氣管理

本集團在運營過程中會產生少量的廢氣，包括：二氧化硫、氮氧化物和顆粒物，這主要是來自於公司公務用車燃燒汽油和柴油、燃燒天然氣，以及部分生產過程中排放的廢氣。

<sup>9</sup> 本年度無法統計車輛行駛公里數，因此不包含有機動車行駛導致的廢氣的排放量

<sup>10</sup> 未包含聯合動力車輛使用導致的廢氣排放

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The Group generates very little waste gas during its operation which has limited impact on the environment. In 2018, in order to reduce the company's exhaust gas emissions, United Power replaced the heating equipment that burns natural gas into electric heating equipment and installed dust removal equipment in the blade semi-finished cutting and polishing workshop. As a result, the company's emissions of nitrogen oxides and particulate matter decreased in 2018, the nitrogen oxides dropped from 1.94 tons in 2017 to 0.36 tons, and particulate matter from 1.90 tons to 0.47 tons.

### *Longyuan Environmental Hainan Ledong Project*

According to the requirements of the National Energy Group, in line with the goal of "Turning Coal into Clean Energy", and to reflect the outstanding performance of various environmental protection devices of our coal-fired generating units, the Group launched the Demonstration Project of Environmental Synergetic Standard-Improving and Reconstruction of Ledong EPC 2×350 MW Units. This project is designed and modified according to the International Energy Agency's 2030 guidance target of keeping  $SO_2 \leq 10$  mg/standard cubic meter ("**mg/Nm<sup>3</sup>**"),  $NO_x \leq 10$  mg/Nm<sup>3</sup>, particulate matter  $\leq 1$  mg/Nm<sup>3</sup>, and eliminate the chimney "white smoke plume" under the conditions of atmospheric temperature at 15 °C and air relative humidity no more than 81% to create the cleanest and most environmentally friendly coal-fired power plant in China.

本集團在運營過程中所產生的廢氣非常少，對環境影響較小。聯合動力為了降低公司廢氣排放，2018年將燃燒天然氣的加熱設備更換成電力加熱設備，並在葉片半成品切割打磨型修車間安裝了除塵設備。因此，公司2018年氮氧化物和顆粒物的排放量均有所降低，從2017年的1.94噸降低至0.36噸，顆粒物從1.90噸降低至0.47噸。

### *龍源環保海南樂東項目*

根據國家能源集團要求，本著「煤炭也是清潔能源」的實施目標，體現燃煤發電機組各項環保裝置的卓越性能，本集團啟動了樂東EPC 2×350兆瓦機組環保協同提標改造示範工程。本工程按照國際能源署2030年指導目標 $SO_2 \leq 10$ 毫克/標準立方米（「**mg/Nm<sup>3</sup>**」）、 $NO_x \leq 10$  mg/Nm<sup>3</sup>、顆粒物 $\leq 1$  mg/Nm<sup>3</sup>的指標進行超前設計、改造，並在大氣溫度15 °C，空氣相對濕度不高於81%的情況下消除煙囪「白色煙羽」，打造國內最清潔環保燃煤電廠。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The project has a tight schedule, heavy construction tasks, and a compact overall layout, the construction operation is “extensive and involves a wide range of knowledge”, and the underground pipe network is complex; the operation of construction excavation, lifting and hoisting, aerial work, anti-corrosion operation and electric fire welding are all risky. Longyuan Environmental has optimized the construction design by studying the construction plan in detail, for instance, it adopted the 600-ton track overall removal and hoisting scheme, and used the 2,205 stainless steel material to replace the carbon steel material of the wet inlet flue and the low-temperature economizer outlet flue, which has reduced the order of working aloft and lowered the risk, reduced the risk of fire, and shortened the construction period. At the same time, Longyuan Environmental conducted daily tracking and statistical recording on the number of people engaged in on-site construction, machinery, materials, arrival of equipment, drawing progress and construction progress. The company's leaders would supervise and urge the resolution for those items with great deviation, and invite the leaders of the construction unit to supervise and coordinate on the spot.

Longyuan Environmental safely and efficiently completed the environmental transformation of the two units of the Ledong Project, with Unit 1 realizing the goal of shortening the shutdown time from the originally planned 55 days to 40 days, Unit 2 achieving excellent results of using 28 days to start up the unit and enable grid connection from shutdown. After being put into operation, the overall running of the unit is in good condition, and not only the emission targets of particulate matter, sulfur dioxide and nitrogen oxides less than  $1\text{mg}/\text{Nm}^3$ ,  $10\text{mg}/\text{Nm}^3$  and  $10\text{mg}/\text{Nm}^3$  respectively are realized, but also the target of chimney whiten smoke eliminating is achieved, meanwhile, the on-site appraisal has been passed by well-known domestic environmental protection experts.

該項目工期緊張，任務重，總體佈局緊湊，施工作業「點多面廣」，地下管網複雜；開挖施工、起重吊裝、高空作業、防腐作業、電火焊作業風險大。龍源環保通過詳細研究施工方案，優化施工設計，例如：採用600噸履帶整體拆除、吊裝方案，並用2,205不銹鋼材替換了濕除入口煙道、低溫省煤器出口煙道的碳鋼材料等方式，減少了部分高空作業的工序並降低了危險性，降低了火災風險，同時還縮短了工期。同時，龍源環保對於現場施工人數、機械、材料、設備到貨、圖紙進度及施工進度每天進行跟蹤統計。對偏差較大的由公司領導督促解決，適時邀請施工單位領導到現場督導協調。

龍源環保安全、高效完成了樂東項目兩台機組環保改造，實現了1號機組停機改造時間由最初計劃的55天縮短至40天的目標，2號機組實現了從停機到啟動並網僅用28天的優良成績。投運後機組整體效果良好，既實現了顆粒物、二氧化硫、氮氧化物排放濃度分別小於 $1\text{mg}/\text{Nm}^3$ 、 $10\text{mg}/\text{Nm}^3$ 、 $10\text{mg}/\text{Nm}^3$ 的排放指標，而且還實現了煙囪消白煙目標，同時還通過了國內知名環保專家的現場鑒定。

#### 2.4 Focus on Ecology and Pursue Sustainable Development

The Group integrates the environmental protection idea of harmonious symbiosis with nature into every stage of production and management and attaches great importance to the environmental protection management of wind farms in the operation process. The United Power Chaghanua Wind Farm is located in Daban Town, Baarin Right Banner, which is rich in wind resources. The power station is mainly equipped with seven 1,500 kW, six 2,000 kW and nine 3,000 kW capacity wind turbines, and a new 66 kV booster station has been built, which has a main transformer capacity of 50 MVA. During the construction period of the project, the company will pay attention to the impact of various types of emissions mentioned above on the local environment, and also keep a watchful eye on the impact of noise and soil erosion on the ecological environment. The company has taken effective preventive measures to avoid and reduce these adverse effects. The company has hired a professional third-party organization to conduct detailed environmental impact assessments for the project from the aspects of engineering analysis, environmental impact analysis, environmental protection measures, major pollutant generation and emissions, etc.

In addition to dust, wastewater discharge, and solid waste discharge, the company has monitored the noise impact and ecological maintenance or adopted relevant management measures therefor:

In terms of noise, after attenuation of the noise generated during the construction, the noise level of the construction machinery outside the range of 20 meters stays within the daytime noise limit specified in the Environmental Noise Emission Standard for Construction Site Boundary (GB12523-2011), and that outside 90 meters within night noise limit. The silent environmental protection target within 200 meters of the construction site and the noise impact characteristics of the project are both short-term and temporary, and the construction noise will end as the construction activity ends. The main noise source during the operation period of the power station is the noise generated by the operation of the booster station and the rotation of the wind turbines, which can reach the Class 1 Standard requirements of the "Environmental Noise Emission Standard for Industrial Enterprises Boundary" (GB12348-2008) after the effective control through the adoption of low-noise equipment, having less impact on the surrounding acoustic environment.

#### 2.4 關注生態健康推動持續發展

本集團將與自然和諧共生的環保理念融入到生產經營的各個階段，並十分重視風電場在運營過程中的環保管理。聯合動力查幹花風電場位於巴林右旗大板鎮，該地區風力資源豐富，電場中主要安裝7台1,500千瓦、6台2,000千瓦和9台3,000千瓦容量風力發電機組，並新建1座66千伏升壓站，主變容量為50兆伏安。在該項目在施工期間，公司除了會關注前文所述的各類排放物對周圍局部環境的影響，同時也非常關注噪聲、水土流失等對生態環境影響。公司採取了有效的防治措施，以避免並減少這些不利影響。公司聘請了專業的第三方機構，為該項目從工程分析、環境影響分析、環境保護措施、主要污染物產生及排放情況等方面進行了詳細環境影響評價。

除揚塵、廢水排放、固體廢棄物排放方面，公司還針對噪聲影響和生態維護方面進行了監測或採取了相關管理措施：

噪聲方面，施工階段產生的噪聲經衰減後，施工機械作業噪聲在20米範圍外噪聲值可以達到《建築施工場界環境噪聲排放標準》(GB12523-2011)規定的晝間噪聲限值，90米範圍外可以達到夜間噪聲限值。本項目施工現場200米範圍內無聲環境保護目標，噪聲影響特點為短期性、暫時性，施工活動結束，施工噪聲也就隨之結束。電場運營期主要噪聲源為升壓站運行過程及風機風輪旋轉產生的噪聲，在採取低噪聲設備等有效控制後能達到《工業企業廠界環境噪聲排放標準》(GB12348-2008)中的1類標準的要求，對周圍聲環境影響較小。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

In terms of ecological maintenance, the impact of the project construction period and operation period on the ecological environment is mainly reflected in the destruction of vegetation and soil erosion, and so on. By rationally planning the construction site operations and formulating post-construction ecological restoration programs, the company can reduce its disturbance to local vegetation, water, soil and birds, and has limited impact on the natural ecology. At the same time, the amount of pollutants generated during the operation is small, and all pollutants can meet the discharge standard after adopting corresponding treatment measures. The project has achieved energy conservation and consumption reduction, and reduced the impact of pollutant emissions on the surrounding environment.

生態維護方面，項目施工期、運行期對生態環境的影響主要表現在破壞植被、水土流失等。公司通過合理規劃施工現場作業以及制定施工後生態修復方案等方式，能夠減低對當地植被、水土、鳥類的干擾，對自然生態的影響較小。同時，運營期間污染物產生量較少，各污染物經採取相應治理措施後均能達標排放，項目做到了節能降耗、減少污染物排放對周圍環境的影響。

### 3 PEOPLE-ORIENTED, COMMON GROWTH

The Group has always insisted that employees are the most precious wealth and the source for the sustainable development of the enterprise. Therefore, the Group actively creates favorable conditions for the career development and physical and mental health of the employees.

#### 3.1 Legitimate Employment and Welfare Protection

##### *Overview*

Since 2018, the Group's Organization and Personnel Department has revised 10 systems such as the "Interim Measures for Compensation Management of the Head Office" and the "Administrative Measures for Education and Training of Employees of the Head Office" based on the system developed by the combined China Energy.

There were no violations in 2018 in terms of employee employment, remuneration, working hours, equal opportunities, anti-discrimination and other benefits, etc.

##### *Employment according to Law*

In terms of employment, the Group insists on the principle of employment according to law. In accordance with the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China and other applicable laws and regulations, the Group has strictly managed employment and established the Measures Governing Employment and Appointment (Tentative), etc., so as to practically protect the legal rights and interests of the employees.

### 3 以人為本共同成長

本集團始終堅信員工是最寶貴的財富，是企業可持續發展的源泉，積極為員工的事業發展和身心健康創造良好的條件。

#### 3.1 依法僱傭及福利保障

##### *基本情況*

2018年以來，本集團組織人事部以整合後的國家能源集團制度為基礎，先後修訂了《本部薪酬管理暫行辦法》及《本部員工教育培訓管理辦法》等10項制度。

在員工僱傭、薪酬待遇、工作時間、平等機會、反歧視及其他待遇福利等方面，2018年全年未發生違規事項。

##### *依法僱傭*

本集團在員工僱傭方面堅持依法僱傭的原則，按照《中華人民共和國勞動法》及《中華人民共和國勞動合同法》等相關法律法規的要求嚴格僱傭管理，制訂了《用人用工管理辦法(試行)》等制度，切實保障員工的合法權益。

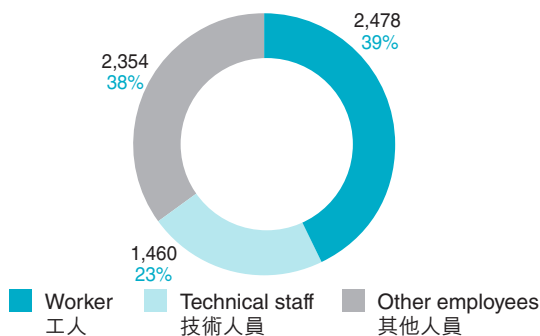
# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

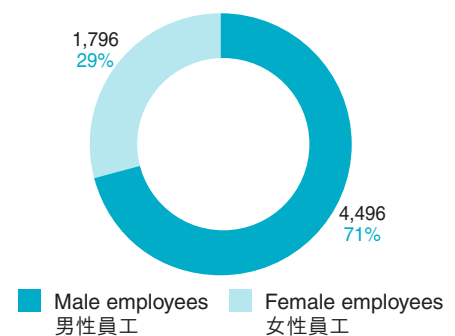
In 2018, the workforce of the Group totaled 6,292, including 2,478 workers, 1,460 technicians and 2,354 other staff; in which 4,496 were male employees, accounting for 71%, and 1,796 female employees, accounting for 29%; among the management, women accounted for 20%, which is similar to the staff ratio; 3,490 employees aged 35 and below, accounting for 55% of the total number of employees, 1,751 employees aged 36–45, accounting for 28%, and 956 employees aged 46–55, accounting for 15%, 95 employees are over the age of 56, accounting for 2%; except for one employee working in the Hong Kong office, the remaining 6,291 employees are all working in mainland China.

2018年本集團全體員工人數為6,292人，工人2,478人，技術人員1,460人，其他人員2,354人；男性員工4,496人，佔71%，女性員工1,796人，佔29%；管理層中，女性佔20%，與員工比例相近；35歲及以下員工3,490人，佔員工總數的55%，36-45歲員工1,751人，佔28%，46-55歲員工956人，佔15%，56歲以上員工95人，佔2%；除1位員工在中國香港辦公室外，其餘6,291名員工均在中國大陸。

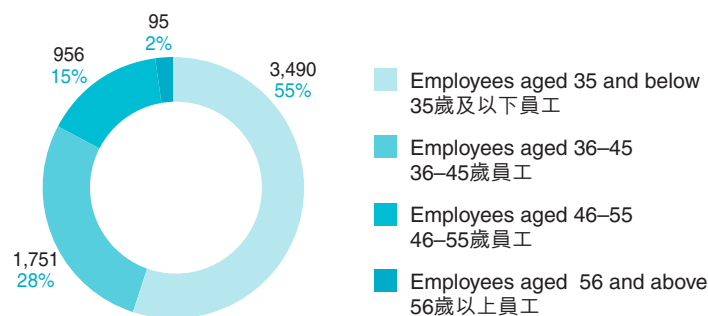
Number and proportion of employees by employment type  
按僱傭類型劃分的員工人數及比例



Number and proportion of employees by gender  
按性別劃分的員工人數及比例



Number and proportion of employees by age group  
按年齡組別劃分的員工人數及比例



The total number of employees who resigned voluntarily in 2018 was 639, all of whom were mainland Chinese employees. The total staff turnover rate was 8.27%. Among them, the male employees account for 2.16%, female employees account for 6.11%; employees aged 35 and below account for 4.66%, employees aged 36–45 account for 1.79%, employees aged 46–55 account for 1.51%, and employees aged 56 and above account for 0.31%. The staff turnover rate is within a reasonable range.

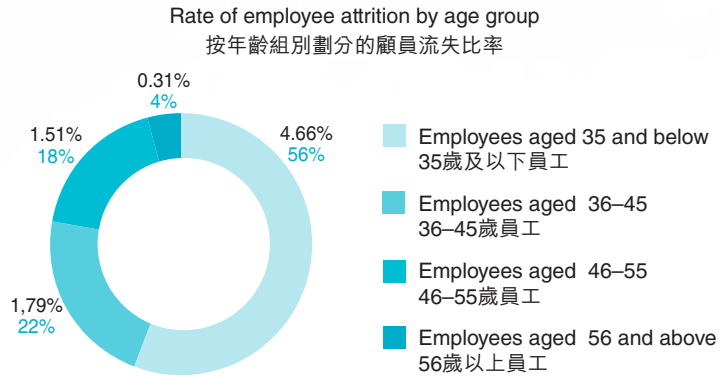
2018年度員工因主動辭職的流失總人數為639人，均為中國大陸員工，員工總流失率為8.27%<sup>11</sup>。其中男性員工佔2.16%，女性員工佔6.11%；35歲及以下員工佔4.66%，36–45歲員工佔1.79%，46–55歲員工佔1.51%，56歲及以上員工佔0.31%。員工流失率在合理範圍內。

<sup>11</sup> The staff turnover rate = the Number of staff turnover / (the initial number of employees + increase in the number of employees in the current period) \* 100%

<sup>11</sup> 員工流失率 = 員工流失人數 / (期初員工人數 + 本期增加員工人數) \* 100%

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)



In terms of avoiding child workers and forced work, the Group perfects staff employment system and eliminates entirely illegal employment according to the applicable national rules and regulations, for example, it checks the identity information of staff according to the national Regulations Forbidding the Use of Child Workers, effectively avoiding child workers; the Employment Contract entered into with staff sets forth "Fixed-time work system is executed; the average weekly working hours shall not be more than 40 and the daily working hours shall not be more than 8 hours", effectively protecting the legal rights and interests of the staff and avoiding the phenomenon of forced work. At the same time, the Group advocates equal employment policy and provides equal employment opportunities and labor security for employees of different nationalities, races, genders, religious beliefs and cultural backgrounds.

In 2018, there were no labor disputes caused by violation of laws and regulations.

在防止僱傭童工和強制勞工方面，本集團依據國家相關規定完善用工制度，從源頭上消除違規隱患：嚴格按照國家《禁止使用童工規定》的要求核定員工身份信息，有效地避免了童工問題；在與員工簽訂的《勞動合同書》中，約定「執行定時工作制，平均每週工作不超過四十小時，每天工作不超過八小時」，有效地保障了員工合法權益，避免出現強制勞動現象。同時，本集團倡導平等用工政策，為不同國籍、種族、性別、宗教信仰和文化背景的員工提供平等的就業機會和勞動保障。

2018年全年未發生因違法違規引起的勞動糾紛。



### **Remuneration Management**

In order to adapt to the requirements of the transformation and development, the Group has established and perfected the gross pay management system orienting market value and based on performance evaluation. In addition, according to the applicable national regulations and the relevant measures of China Energy such as the Interim Measures Governing Gross Pay and the Interim Measures Governing the Annual Pay for the Officers of the Enterprise, The Group revised and implemented the "Interim Measures Governing Remuneration of the Head Office (Revised)", "Administrative Measures for Compensation Payment of the Head Office (Revised)" and "Measures for Annual Salary System of Enterprise Leaders (Revised)". The remuneration management of the Group adheres to four principles, namely: the principle of focusing on value creation and more work and more gain, the principle of fairness, justice and reasonable gap, the principle of tripartite linkage among enterprise performance, department performance and individual performance and the principle of paying equal attention to process and result and continuous improvement of performance. Every subsidiary of the Group has established its own management measures according to the above principles and then formulated corresponding management measures for each company and reported them to the Group for filing according to the regulations and rules of the Head Office.

### **Welfare System**

Throughout the year of 2018, no social security violations and defaults of payment occurred. The Group has established various systems in respect of social insurance, housing fund, enterprise annuity and supplementary medical insurance in strict accordance with the applicable policies and regulations of the State and local governments to ensure employees to be treated equally in terms of endowment, medical treatment, and work-related injury, unemployment and birth and other aspects in accordance with the law.

In accordance with the "Provisions of the State Council on Home Visit Subsidies", the Group has revised the "Interim Measures of the Head Office Governing Staff Attendance and Leave", implemented a paid annual leave system, appropriately solved the problem of visiting relatives for those live far from their families, to legally protect employees' rights to take on leave.

### **薪酬管理**

為適應轉型發展的要求，本集團建立和完善了以市場價值為導向、以績效考核為基礎的工資總額管理體系，並根據國家有關規定和國家能源集團《工資總額管理暫行辦法》及《企業領導人員年薪制管理暫行辦法》等相關辦法，修訂並施行本集團《本部薪酬管理暫行辦法(修訂)》、《本部薪酬支付管理辦法(修訂)》及《企業領導人員年薪制辦法(修訂)》。本集團薪酬管理堅持四大原則，即：突出價值創造、多勞多得導向原則；突出公平、公正、合理拉開差距原則；突出企業、部門、個人績效三方聯動原則；過程與結果並重、績效持續改進原則。本集團附屬公司依據上述原則，參照集團本部規定制定各公司相應管理辦法並報本集團備案。

### **福利制度**

2018年全年未發生任何社會保險違規及欠繳現象。本集團嚴格按照國家和地方政府有關政策法規建立了各項社會保險、住房公積金、企業年金和補充醫療保險制度，確保員工在養老、醫療、工傷、失業及生育等方面依法享有平等的權利。

本集團依照《國務院關於職工探親待遇的規定》，修訂《本部員工考勤與休假管理暫行辦法》，實施帶薪年假制度，適當解決員工同親屬長期遠居兩地的探親問題，合法保障員工行使休假權利。

### 3.2 Safety production and occupational health

The Group strictly implements the relevant laws and regulations such as the “Safety Production Law of the People’s Republic of China” and the “Law on Prevention and Control of Occupational Disease of the People’s Republic of China, etc. The Group adheres to the policy of “Safety First, Prevention Foremost and Comprehensive Treatment” and requires the affiliates of the Group to clearly define their safety and occupational health management systems. All affiliates have established their Safety Production Management Committees and Occupational Disease Prevention Leading Groups to supervise the implementation of systems and measures for safety production and occupational disease prevention.

#### **Safety production protection**

Safety production is the foundation for the healthy development of a company. Strengthening enterprise safety production management and establishing intrinsically safe production enterprise can provide safe, stable and orderly production and operation order and environment for the enterprise, enhance employees’ sense of security and belonging, and win good corporate reputation.

The Company’s overall security situation in 2018 was generally smooth and steady, and its security management was within and under control. In 2018, the number and rate of job-related deaths of the Group’s employees were both zero. During the reporting period, Lucency Company formulated and revised eight systems including “Safety and Civilization Construction Evaluation System for Engineering Projects”, “EPC Engineering Project Site Disposal Plan (Template)” and “Emergency Rescue Plan Compilation”, etc. In accordance with the “General Standard for Secondary Evaluation of Industrial Manufacturing Safety Production Standardization”, Guodian Zhishen has formulated and revised 7 safety management systems such as the “Emergency Plan for Sudden (Safety) Incidents of Overseas Projects” and “Three Simultaneous Management System for Safe Production” based on the original 22 safety management systems, to protect the safety and health of employees in the production process and ensure the smooth implementation of production and operation activities.

### 3.2 安全生產及職業健康

本集團嚴格執行《中華人民共和國安全生產法》及《中華人民共和國職業病防治法》等相關法律法規。本集團堅持「安全第一、預防為主、綜合治理」的方針，要求本集團附屬公司細化安全和職業健康管理制。各附屬公司均成立了安全生產管理委員會及職業病防治領導小組，監督安全生產和職業病防治等方面制度和措施的落實。

#### **安全生產保障**

安全生產是企業健康發展的基礎。加強企業安全生產管理，建立本質安全型生產企業，能為企業生產經營提供安全、穩定、有序的生計經營秩序和環境，增強員工的安全感和歸屬感，贏得良好的企業信譽和聲譽。

公司2018年全年安全形勢總體平穩，安全管理可控、在控。2018年，本集團因公死亡員工人數及比率均為0。朗新明公司在報告期內制定及修訂了《工程項目安全文明施工評比制度》和《EPC工程項目現場處置方案(模版)》、《應急救援預案彙編》等8項制度。國電智深依據《北京市工業製造業安全生產標準化二級評審通用標準》，在原有22項安全管理制度基礎上，制定和修訂了《海外項目突發(安全)事件應急預案》、《安全生產「三同時」管理制度》等7項安全管理制度，保護公司員工在生產過程中的安全和健康，保證生產經營活動的順利實施。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In order to improve the level of safety production, during the reporting period, the Group carried out several special safety inspections and potential risks identifications in “spring, autumn, winter”, and specific “safety production months” and for “flood prevention” both at the Head Office and subsidiary levels. As of now, a total of 48 projects of 10 affiliated companies have been investigated with a total of 1,743 problems detected. All the problems have been reported back to the relevant units, and all problem rectifications have formed a closed loop.

In order to enhance employees' safety awareness, the Group and its affiliates have carried out a number of all staff safety education and training activities. In early September, the Group led a one-week safety training in Baoding, covering multi-professional courses such as laws and regulations, outsourcing project management, standardization construction, large-scale machinery management, scaffolding management, power consumption management, anti-corrosion construction, restricted space operation management, and manufacturing safety management. 140 safety and environmental management personnel from 10 subsidiary companies affiliated to Guodian Tech participated in the training.

Use the Guodian Tech lecture hall and video conference to give presentation and training to the staff on the 2017 group safety accidents and the typical accident cases in the past issued by the Group. Summarize and convey the 5 safety and environmental protection special video conferences of the Group in 2018 in time.

In 2018, the Group's affiliates conducted a total of 57,646 hours safety training.

### **Occupational Health Protection**

The Group attaches great importance to the management of occupational disease hazards and adheres to the core scientific development concept of “people-oriented” to tangibly create a healthy and safe working environment for all employees.

為提高安全生產水平，在報告期內，本集團在本部和附屬公司層面均開展了「春、秋、冬季」、「安全生產月」、「防洪度汛」等多次專項安全檢查和隱患排查等專項檢查，截至目前共對所屬10個公司的48個項目進行了全面的隱患排查工作，共查出1,743項問題。問題已全部反饋到相關單位，目前已全部整改閉環。

為提高員工安全意識，本集團及各附屬公司開展了多項全員安全教育培訓活動。9月初牽頭在保定組織了為期一周的安全培訓，內容涵蓋了法律法規、外包工程管理、標準化施工、大型機械管理、腳手架管理、用電管理、防腐施工、受限空間作業管理、製造業安全管理等多專業課程。科環集團所屬10家分子公司140名安全環保管理人員參加了培訓。

利用科環大講堂、視頻會等方式對集團公司下發的2017年集團安全事故彙編、過往的典型事故案例進行宣講和全員培訓。對2018年集團5次安全環保專項視頻會，及時進行總結和傳達。

2018年，本集團附屬公司開展安全培訓共57,646小時。

### **職業健康保護**

本集團高度重視職業病危害管理問題，堅持「以人為本」的核心科學發展觀，切實為全體員工營造健康、安全的工作環境。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

United Power has formulated management systems such as the “United Power Employee Occupational Health Management System” and developed an annual assessment indicator for occupational health and safety. In 2018, the company passed the review of Occupational Health and Safety Assessment Series (OHSAS18001), which provided a systematic guarantee for the occupational health and safety management involved in business operations, and the company successfully met all the occupational health and safety indicators in 2018. Lucency formulates annual occupational disease hazard prevention cost investment plan and implementation plan each year, conducts occupational hazard factor testing and evaluation on the production site, informs all employees of the test results, and conducts occupational health training and poisoning self-rescue and mutual rescue drills with respect to occupational disease prevention, and sets up occupational hazard emergency disposal plates in hazardous locations.

The Group arranges physical examinations for all employees every year, and installs the central ventilation system for the office area to display the air quality of the work area in real time and create a good working atmosphere. In addition, Guodian Zhishen has formulated the “Occupational Health Labor Protection and Female Workers Protection Management System” and arranged an additionally spring physical examination for female employees, besides the annual physical examination of employees.

#### ***Outsourcing and Construction Safety Management***

The Group strictly abides by and implements the “Safety Management Standards for Outsourcing Projects (Trial)” formulated by Guodian Group, and develops relevant outsourcing and subcontracting safety management systems based on its own situations. In the bidding process, the Group adopts the “one-vote veto” system for bad credit record in safe production, which has completely reversed the situation in which the subcontracting units were out of control and the Group’s management was weak. It resolutely implements the blacklist management system for units that have illegal subcontracting or that replace management with subcontracting.

聯合動力制定了《聯合動力員工職業健康管理制度》等管理制度，制定了職業健康安全年度考核指標。2018年，公司通過了職業健康安全管理体系認證(OHSAS18001)複審工作，為企業運營所涉及的職業健康安全管理工作提供了體系化保障，圓滿完成了2018年各項職業健康安全指標。朗新明每年制定年度職業病危害防治費用投入計劃和實施方案，對生產現場進行職業危害因素檢測評估，檢測結果告知全體員工，並針對職業病防護開展職業衛生培訓及中毒自救互救演練，危險場所設置職業危害應急處置卡。

本集團每年為全體員工安排體檢，同時為辦公區加裝新風系統，實時顯示工區空氣質量，營造良好工作氛圍。此外，國電智深還制定了《職業健康勞動保護及女工保護管理制度》，除每年員工體檢外，還為女員工增加了春季體檢。

#### ***外包及施工安全管理***

本集團嚴格遵守並執行國電集團制定的《外包項目安全管理標準(試行)》，並針對自身實際制定並落實相關外包、分包安全管理制度。在招標環節，對存在安全生產不良信用記錄的「一票否決」，徹底扭轉分包單位安全失控、管理不力的局面。對存在違法分包、轉包或以包代管的單位，堅決執行黑名單管理制度。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

Longyuan Project further strengthens the control of subcontracting source, improves the market access system, strictly supervises and manages subcontracting of projects, conducts qualification review, and resolutely eliminates the phenomenon of replacing management with subcontracting, lenient management and illegal subcontracting, multi-level subcontracting. It incorporates subcontractors into the company's safety management system, implements identical deployment, inspection, and assessment, and intensifies its supervision, inspection, and assessment on subcontractors.

In 2019, the safety management of the Group and its affiliates will, based on strengthening safety supervision and assessment, implement safety management through comprehensive review of safety management files, self-checking and self-correcting safety responsibility system, safety management system and operation procedures, on-site safety management, emergency management, safety education and training, labor protection supplies and other safety basic management work and on-site management work.

### 3.3 Training and Career Development Mechanism

The Group attaches great importance to the cultivation, selection and development of talents, and concentrates all kinds of dominant resources on high-potential and high-performance employees.

#### ***Education and Training System***

The focus of the Group's staff training in 2018. First, gradually perfect the team of internal trainers at all levels, actively select and hire outstanding leaders, management personnel, technical leaders, chief engineers, and advanced model figures to serve as internal trainers, to form a team of internal training teachers with full professional coverage at all levels, at present, the company's internal trainers have reached a total of 56 people, including four professional categories covering science and technology R&D, engineering management, integrated management and party building. The second is the "Innovation • Sharing" salon brand building, which has created four salon blocks, namely, high-end lecture, internal trainer lecture, seminar and special training. The internal trainers and chief engineers of the Group provided instructions on a regular basis. These salon activities were rich in contents and covered multiple themes such as professional technical lecture, staff mental health, Book Club sharing, etc. In 2018, 25 salon activities were carried out, and 2,187 people and 3,447 people/times were trained throughout the year.

龍源工程進一步加強分包源頭控制，加強市場准入制，嚴格工程分包監督管理，做好資質審查，堅決杜絕以包代管、管而不嚴和違法分包、層層轉包現象。把分包商納入到公司安全管理體系中，實行同部署、同檢查、同考核，加大對分包商的監督檢查和考核力度。

2019年，本集團及各附屬公司的安全管理工作將以加強安全監督考核為抓手，通過全面梳理安全管理檔案，自查自糾安全責任制、安全管理制度及操作規程、現場安全管理、應急管理、安全教育培訓、勞動防護用品等安全基礎管理工作及現場管理工作落實安全管理工作。

### 3.3 教育培訓及發展機制

本集團高度重視人才的培養、選拔和發展工作，集中各類優勢資源向高潛力、高績效員工傾斜。

#### ***教育培訓體系***

2018年本集團員工培訓工作重點。一是逐步健全各層級企業內訓師隊伍，積極選聘優秀領導人員、經營管理人員、專業技術帶頭人、首席師、先進模範人物擔任內部培訓師，形成專業全覆蓋、層級全覆蓋的內訓師資隊伍，目前本公司內訓師已累計達到56人，涵蓋科技研發、工程管理、綜合管理及黨建四個專業類別。二是「創•享」沙龍品牌建設，打造高端講堂、內訓師講堂、主題研討、專題培訓等四個沙龍模塊，由本集團內訓師、首席師定期授課。沙龍活動內容豐富，涵蓋專業技術講座、員工心理健康、讀書會分享等多個主題。2018年全年完成25期沙龍活動，全年培訓2,187人，3,447人次。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The thought on training work for the next step of the Group is to provide training for the 7 categories of talent under the “Rainbow” Plan by stages, by batches and by levels around the strategic target and central task of the enterprise. The Group will customize the design of the study map, cultivate internal quality courses, and customize a course system from multiple dimensions such as professional skill, career development, comprehensive quality promotion, etc.. The Group will innovate training methods and use hybrid training methods to realize the transformation from “training” to “learning”. The Group will implement closed-loop training management, strengthen the application of results, establish talent training files, promote and appoint outstanding talent experiencing the required training and assessed excellent in order to ensure the talents can bring what they have learnt into full play.

#### **Selection and Promotion Mechanism**

In order to meet the needs of human resources in the development strategy of the Group and construct a talent selection and promotion mechanism suitable for the transformation and upgrading of the enterprise, the Group has successively issued relevant rules and regulations including the Career Development Channel Management Measures, the Measures Governing Officer Assessment, the Measures Governing Professional Training and On-the-Job Placement Training, the Guiding Opinions on Strengthening Cultivating, Using and Stimulating Young Talents (Trial), etc.

For the development and promotion of management personnel, the Group strengthens the competitive selection mechanism, makes full use of the results of performance evaluation and democratic evaluation and forms a talent selection mechanism allowing the smooth circulation of talents. For the development and promotion of technicians, the Group has established the full-caliber and full-process career development route and promotion direction considering both “Professional Technique and Professional Skill”. The promotion sequence is divided into five levels and the salary for each level matches with the corresponding level of management position.

With respect to the work characteristics of technical R&D talents, the Group has developed corresponding promotion and evaluation mechanisms to pave the way for the development of scientific research personnel, clarify the future growth path, fully stimulate the working enthusiasm of technical R&D talents, and comprehensively broaden the space and height of their career promotion.

本集團下一步培訓工作思路是圍繞企業戰略目標和中心任務對「彩虹」計劃7類人才進行分期分批、分層培訓。定制設計學習地圖，培育內部精品課程，以專業技能、職業發展、綜合素質提升等多維度定制課程體系。創新培訓方式，運用混合式培訓方法，實現從「訓」到「學」的轉變。閉環培訓管理，加強結果應用，建立人才培訓檔案，對培訓考核優秀的人才進行提拔任用，確保人才學有所用。

#### **選拔晉升機制**

為滿足本集團發展戰略對人力資源的需求，構築與公司轉型升級相適應的人才選拔晉升機制，本集團相繼出台了《職業發展通道管理辦法》、《領導幹部考核管理辦法》、《專業培養及掛職鍛煉管理辦法》以及《關於加強青年英才培養使用激勵工作的指導意見(試行)》等相關制度。

對於管理人員的發展晉升，本集團強化競爭選拔機制，充分利用績效考核和民主測評結果，形成能上能下的人才選用機制；對於技術人員的發展晉升，確立「專業技術和專業技能」並行的全口徑、全過程職業發展路線和晉升方向，晉升序列統一分為五大層級，各層級的薪酬待遇水平分別與管理崗位相應層級進行橫向對應。

針對技術研發人才的工作特點，本集團制定了相應的晉升機制和考評機制，打通科研人員發展通道，明晰未來成長路徑，充分激發技術研發人才的工作積極性，全面拓寬職業晉升的空間和高度。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

The Head Office of the Group particularly supervises and urges the affiliates to achieve full coverage of the assessment system, to increase the leverage effect of performance appraisal, and link the assessment results with post promotion, excellent staff selection, post adjustment, and career development channel rating to achieve the purpose of promoting fair and reasonable income gaps and making backbone employees better paid.

### 3.4 Employee Care and Team Building

In the course of driving the change and shaping the culture, the Group adheres to the people-oriented management concept, eliminates the worries for the employees, provides care for the employees, and lays the foundation for the harmonious, stable and healthy development of the enterprise.

The Group thoroughly implemented the Law of the People's Republic of China on the Protection of Rights and Interests of Women and the Regulations on Labor Protection for Female Staff, actively safeguarded women's rights and interests, revised collective labor contracts to increase contents regarding the protection of female staff's rights and interests. It instructed the affiliated companies to organize women-specific activities and ensure that the activities are novel and practical. In 2018, the Technology Management Department of Lucency won the title of Civilized Women Post of the Group Company; United Power Sida Company carried out the selection of Women's Model and the Best Craftswomen, after two rounds of competition, 10 persons were awarded the Women's Model and 12 were awarded the Best Craftswomen, which actively helped women to hold up "half the sky" in the enterprise.

The trade unions of the Group put the interests of employees in the first place and effectively implemented the "People-benefit Project" to benefit the employees. The first is to perform targeted assistance through special assistance funds. In accordance with the "Implementation Plan for Further Improving the Targeted Assistance Work for the Needy Workers", a total of RMB470,000 special funds for the assistance of employees in difficulty were distributed. We increased the assistance of employees in difficulty, instructed the affiliates to establish special funds for difficulty assistance, established and improved the files of employees in difficulty, and helped different people with different strategies but the same precision according to the actual causes of difficulties to the employees. We concerned about the staff, and sent caring of the organization to the staff who were hospitalized, holding weddings and funerals, in a timely manner. The second is to implement the welfare of the trade unions, ensure that employees enjoy the benefits of the union, and purchase traditional festival gifts, heatstroke prevention and cooling supplies for employees.

本集團本部重點督導附屬公司實現考核體系全覆蓋，加大績效考核槓桿效應，將考核結果與崗位晉升、優秀評選、職務調整、職業發展通道等級評定等相掛鉤，達到促進公平、合理拉開收入差距、向骨幹員工傾斜的目的。

### 3.4 員工關懷及團隊建設

在驅動變革及塑造文化的征程中，本集團秉承以人為本的管理理念，為員工解憂，為員工送去關愛，為企業和諧穩定健康發展奠定基礎。

本集團深入貫徹落實《中華人民共和國婦女權益保障法》、《女職工勞動保護規定》，積極維護婦女權益，修訂集體勞動合同，增加女職工權益保護內容。指導附屬公司舉辦女工特色活動，確保活動形式新穎、貼合實際。2018年，朗新明技術管理部榮獲集團公司巾幗文明崗稱號；聯合動力思達公司開展了巾幗標兵、最美工匠評選活動，經過初賽、複賽等方式，評出巾幗標兵10人，最美工匠12人，積極發揮女職工在企業「半邊天」的作用。

本集團工會將職工利益放到第一位，有效落實「惠民工程」，使職工真正受益。一是專項幫扶資金助力精準幫扶。按照集團《關於進一步做好困難職工精準幫扶工作的實施方案》，共發放困難職工救助專項資金人民幣47萬元。加大困難職工幫扶力度，指導附屬公司建立困難幫扶專項資金，建立並完善困難職工檔案，依據困難職工致困原因，實現因人施策，精準幫扶。關心職工，對生病住院、婚喪嫁娶的職工及時送去組織的關懷。二是落實職工工會福利，確保員工享受到工會福利，為員工購買傳統佳節慰問品、防暑降溫用品等。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

The trade unions of the Group care about the physical and mental health of employees, closely follow the actual situation of the Group, and carry out various forms of mass cultural and sports activities based on the needs of employees. First, they actively organized and participated in the first employee basketball competition held by the National Energy Group, successfully held the second “Guodian Tech Cup” basketball game, and set up the Guodian Tech Football Team and actively participated in various events. Second, they gave full play to the role of the eight branches of the Guodian Tech Cultural and Sports Association, and continued to carry out activities that were loved and supported by employees. Third, the Head Office and affiliated companies of the Group have carried out spring and autumn tours. At the same time, the Group actively built reading rooms for workers, conducted first-aid and other knowledge lectures, and carried out a variety of activities such as “Books VS Environmental Protection” and official document writing training to continuously meet the needs of employees for amateur cultural life.

本集團工會關心職工身心健康，緊貼集團實際，立足職工需求，開展形式多樣的群眾性文化體育活動。一是積極組織參加了國家能源集團舉辦的第一屆職工籃球比賽，成功舉辦了第二屆「科環杯」籃球比賽，組建了國電科環足球隊並積極參加各項賽事。二是充分發揮國電科環文體協會八大分會的作用，持續開展職工喜聞樂見的活動。三是本集團本部及附屬公司均開展了春遊、秋遊活動。同時，本集團積極建設職工書屋，開展急救等知識講座，開展了「書香環保」、公文寫作培訓等豐富多樣的活動，不斷滿足職工業餘文化生活需求。

#### 4 COMPLIANCE MANAGEMENT AND QUALITY SERVICE

##### 4.1 Fight Corruption and Promote Incorruptible Employment according to Law

In 2018, the Group firmly built up the “Spirit of Contract” and the concept of operation according to law, constantly improved the clean governance and operation system with scientific decision-making, perfect mechanism and strong supervision, seriously carried out anti-corruption activities, and formed a good atmosphere of honest practice. The Group strictly complies with the laws and regulations on bribery, extortion, fraud and money laundering. In 2018, there were no violations having major impact on the Company.

In order to standardize employees' vocational behavior and prevent corruption, and according to the relevant system of the National Energy Group, the Group formulated 8 systems in 2018 to further improve the discipline inspection and supervision system.

#### 4 合規經營品質服務

##### 4.1 依法依規廉潔從業

2018年，本集團牢固樹立「契約精神」和依法經營理念，不斷健全決策科學、機制完善及監督有力的廉政運行體系，認真開展反貪反腐活動，形成廉潔從業的良好氛圍。本集團嚴格遵守有關賄賂、勒索、欺詐及洗黑錢的法律法規，2018年未發生對公司有重大影響的違規事件。

為規範員工的職業行為，預防腐敗發生，依據國家能源集團相關制度，本集團於2018年先後制定8項制度，進一步完善了紀檢監察制度體系。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The Discipline inspection and supervision Department of the Group is responsible for letter (e-mail) reading, visiting reception and telephone answering, and is responsible for the recording, arrangement, registration, sorting and screening of the materials. An incoming letter not within the acceptance scope of the Discipline inspection and supervision Department will be delivered to the relevant department for handling after being registered. An incoming letter within the acceptance scope of the Discipline inspection and supervision Department, depending on the content and object reflected therein, will be handled in the form of self-handling, reporting (result), transferring, or preserving, etc. After the petition letter is handled, if the letter has the name of the petitioner, the handling result will be notified of the petitioner in the written or oral form.

In addition, the Group continued to build the “four-in-one” pre-appointment supervision system for party members and cadres: strictly dealing with the integrity inspection on, integrity reply letters of, integrity examinations of, and integrity talks with the incoming cadres, demanding they to be “person aware of right political position, person clean economically, person with right style and leader of work”.

At the same time, in order to standardize the vocational behavior of employees in the marketing system and prevent bribery to customers, the Group actively promotes “clean marketing” behavior through various meetings and trainings, and uses the illegal cases to alert people around and create an atmosphere of “not daring to commit corruption”. It has issued the “Code of Conduct for Marketing Personnel (Trial)”, and clearly required marketing personnel to take law abiding as the basic principle of marketing work. Marketing system staff should abide by national laws and regulations, rules and regulations of China Energy and the Group, and abide by organizational discipline, confidential discipline, financial discipline and integrity and self-discipline regulations.

Huadian Tianren organized all the company cadres and key position employees to learn and sign the Letter of Commitment for Incorruptible Employment, as well as signing the Incorruptible Commitment Agreement with customers, owners and suppliers.

In 2018, the Group had no corruption cases filed and concluded against any company and its employees. The Group will continue to promote comprehensive strict management of the Party and comprehensive strict management of the enterprise on the depth of efforts to further promote the construction of Party style and clean governance and the work against corruption.

本集團由紀檢監察部負責來信(電子郵件)閱讀、來訪接待及來電接聽工作，並進行記錄、整理、登記、分類和篩選。對不屬於紀檢監察部受理範圍的來信，登記後轉有關部門辦理，屬於紀檢監察部受理的信件，根據反映的內容和對象，區別輕重緩急，分別按自辦、交辦(報結果)、轉辦及留存等方式辦理。信訪處理完結後，對署名舉報信訪件，將處理結果以書面或口頭的形式告知信訪人。

此外，本集團持續構建「四位一體」黨員幹部任前監督體系：嚴格任前廉政考察、廉政回函、廉政考試、廉政談話，要求其做「政治上的明白人、經濟上的清白人、作風上的正派人、工作上的帶頭人」。

同時，為規範市場營銷系統員工職業行為，防止與客戶之間賄賂行為發生，本集團通過各類會議及培訓，積極宣貫「綠色營銷」行為，利用違法案例警醒身邊人，促進營造「不敢腐」氛圍。發佈《市場營銷人員行為規範準則(試行)》，明確要求將堅持依法經營作為市場營銷工作的基本準則。營銷體系幹部員工應遵守國家法律法規，遵守國家能源集團、本集團規章制度，遵守組織紀律、保密紀律、財經紀律和廉潔自律規定。

華電天仁集中組織公司幹部及關鍵崗位人員學習並簽訂廉潔從業承諾書，並與客戶、業主、供應商訂廉潔承諾書協議書。

2018年，本集團未發生對公司及員工提出並已審結的貪污訴訟案件。本集團將繼續在促進全面從嚴治黨與全面從嚴治企深度融合上下功夫，進一步推動公司黨風廉政建設和反腐敗工作的開展。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

#### 4.2 Take responsibility for product and place quality in the first place

The Group attaches great importance to the quality of products and services, and builds up its brand, promotes its development and wins benefits with quality. In 2018, there were no product and service liability violations that had a significant impact on the Group.

Based on the principle of "management as a whole and responsibility by levels", the Group promulgated the "Measures Governing Quality of Guodian Technology; Environment Group Corporation Limited" to guide the Group to comprehensively carry out quality management work. In 2018, the quality work was smoothly promoted and the quality objectives were successfully achieved:

1. There were no major manufacturing, engineering, operation and maintenance quality problems and major equipment damage accidents;
2. The pass rate of quality inspection met the requirements of the Group, the construction installation quality met the design requirements, and all product delivery quality met the standards and achieved customer satisfaction;
3. Strictly implemented the national quality standards and quality technical requirements, carried out refined quality control throughout the construction of the project, and all project quality acceptances have reached the eligibility criteria; and
4. The main quality indicators have reached the advanced level compared with similar projects and products. The acceptance rate of construction project acceptance was 100%, the excellence rate of acceptance of installation engineering was 100%, the excellence rate of engineering commissioning test was 100%, and the one-time success rate of entire system startup was 100%.

The Group has established a full lifecycle quality management system covering all aspects of design, production, construction and operation and maintenance, continuously promoted product structure optimization and upgrading, ensured continuous improvement of product quality, further enhanced the quality awareness of all employees, and has always been taking quality assurance as the lifeline of enterprise development.

#### 4.2 產品責任質量為先

本集團高度重視產品質量和服務質量，以質量樹品牌、促發展、贏效益。2018年，未發生對本集團有重大影響的產品和服務責任違規事項。

本集團以「統籌管理，分級負責」為原則，頒佈《國電科技環保集團股份有限公司質量管理辦法》指導本集團全面開展質量管理工作，2018年質量工作平穩推進，各項質量目標圓滿達成：

1. 未發生重大製造、工程、運維質量問題和重大設備損壞事故；
2. 質量檢驗合格率達到集團要求，建築安裝質量滿足設計要求，所有產品交付質量符合標準並達到客戶滿意；
3. 嚴格貫徹國家質量標準、和質量技術要求，對工程項目施工全過程實施精細化質量控制，所有工程質量驗收達到合格標準；及
4. 主要質量指標達到同類項目和產品的先進水平。建築工程驗收合格率100%，安裝工程驗收優良率100%，工程調試試運項目驗收優良率100%，整套啟動一次成功率100%。

本集團已建立起了覆蓋設計、生產、施工及運維各業務單元的全生命週期質量管理體系，不斷推進產品結構優化升級，確保產品質量持續提升，進一步增強全員質量意識，把保障質量作為企業發展的生命線。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

#### 4.3 Innovation, efficiency and scientific advancement

As the practitioner of green energy reform, the Group inherits the gene of innovative culture, fully exerts the inherent power of market-oriented scientific and technological innovation, and has established a strong and powerful technology research and development system with rational division of labor and clear architecture.

**Talent team:** The Group faces the frontier of energy science and technology, faces the market development demand, faces the production management, aims at the international cutting-edge technology, and focuses on cultivating a science and technology talent team leading at home and abroad and with rational structure.

**Equal emphasis on production and research:** The Group cultivates technologies cultivation, equally emphasizes production and research, adheres to the combination of market orientation and its actual need and strives to cultivate the core competitiveness in various business sectors.

**Intellectual property:** The group pays attention to innovation incentive and intellectual property protection, requires each branch or subsidiary to formulate relevant intellectual property management and protection measures and sign NDA with technical personnel with intellectual property owned by the enterprise, reward the technical personnel in respect of intellectual property, thus not only protecting the technology, but also arousing the enthusiasm of the staff in invention and creation. During the reporting period, the Group has obtained a total of 324 patents, including 50 national invention patents. The Group has cumulatively obtained 1,863 patents in its history, including 495 invention patents.

**Achievement transformation:** As of the end of 2018, around the core business, the Group had created a total of 89 mature technologies. In the past three years, 59 items of new technology industrialization realized operating revenues of more than RMB10 billion, and scientific and technological innovation has provided the source and motive force for the sustainable development of the Group.

#### 4.3 創新增效科學進步

作為能源綠色變革的踐行者，本集團傳承創新文化基因，充分發揮以市場為導向的科技創新內在動力，建立堅強有力、分工合理、層次清晰的技術研發體系。

**人才隊伍：**面向能源科技前沿、面向市場發展需求、面向生產管理一線，瞄準國際尖端技術，著力培育一支國內領先、國際一流、結構合理的科技人才隊伍。

**產研並重：**技術培育產研並重，堅持市場導向與本集團實際需求相結合，著力培育各業務板塊的核心競爭能力。

**知識產權：**本集團注重創新激勵和知識產權保護，要求各分、子公司制定相關的知識產權管理及保護辦法，與技術人員簽訂保密協議，知識產權歸屬權為企業所有，同時對技術人員進行相應的知識產權獎勵，在保護技術的同時加大了員工發明創造的積極性。報告期內累計獲得專利324項，其中國家發明專利50件。本集團歷史累計獲得專利1,863件，其中發明專利495件。

**成果轉化：**截至2018年底，本集團圍繞核心業務共形成了89項成熟技術。近三年來形成的59項新技術產業化實現營業收入超過人民幣百億元，科技創新為本集團的持續發展提供了源泉和動力。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

In future, while maintaining its technical advantages in the traditional business areas, the Group will actively develop intelligent thermal power and intelligent wind power integrated solutions, accelerate the application promotion of mature technologies in overseas markets, explore the technical application in coal mining, coal chemical industry, traffic and transportation, nuclear power, PV power generation, fuel gas power generation, urban heat supply, industrial boiler, metallurgical environmental protection, etc., pay attention to the technological development of shale gas, hydrogen energy, energy storage, and distributed energy, strengthen the synergy of internal innovative resources and carry out application research and development in due time so as to provide a new growth point for the development of every company.

未來，本集團將在傳統業務領域保持技術優勢的同時積極研發智慧火電、智慧風電整體解決方案；加快成熟技術在海外市場應用推廣；開拓煤炭開採、煤化工、交通運輸、核電、光伏發電、燃氣發電、城市供熱、工業鍋爐及冶金環保等領域的技術應用；關注頁岩氣、氫能、儲能及分布式能源的技術發展，不斷加強內部創新資源協同，適時開展應用研發，為公司發展提供新的增長點。

## 5 SHARING DEVELOPMENT, CONTRIBUTING TO THE SOCIETY

### 5.1 Supplier Cooperation and Management

The Group utilizes the unified procurement platform of the National Energy Group and adheres to the “four unified” requirements for group procurement: unified planning, unified standards, unified processes, and unified platforms. During the procurement process, the third-party companies within the National Energy Group are responsible for the organization of bid evaluation committee and the evaluation group, and shall implement the relevant confidentiality discipline and application challenge regulations of the China Energy. The procurement supervision shall be designated by the National Energy Group or the Group company as required and the procurement process shall be supervised, and the supplier shall be determined based on the results of the evaluation. The procurement document templates shall strictly implement the “Law of the People’s Republic of China on Tenders and Bids” and the “Regulation on the Implementation of the Law of the People’s Republic of China on Bid Invitation and Bidding”, and clarify the qualifications of qualified suppliers (such as quality, environment, occupational health certification, and safety production, 3C and other national mandatory requirements) in the procurement documents according to the specific conditions of the subject matter. In the future work, the Group will continue to strengthen the management of supplier social responsibility. In 2018, the Group had totally 2,735 suppliers, all of which are enterprises in Mainland China.

## 5 共享發展奉獻社會

### 5.1 供應商合作與管理

本集團利用國家能源集團的統一採購平台，堅持集團採購工作的四個統一要求：統一計劃、統一標準、統一流程、統一平台。採購過程由國家能源集團內的第三方公司負責評標委員會、評審小組成員組建，並執行國家能源集團相關保密紀律和申請迴避規定。採購監督按規定由國家能源集團或本集團公司派出並對採購過程監督，依據評審結果確定供應商。採購文件範本嚴格執行《中華人民共和國招標投標法》、《中華人民共和國招標投標法實施條例》，依據標的物具體情況在採購文件中明確合格供應商資格條件(例質量、環境、職業健康認證以及安全生產、3C等國家強制要求)。在今後的工作中將持續加強供應商社會責任管理工作。2018年，本集團合作的供應商總計2,735家，全部為中國大陸企業。

# ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

## 環境、社會及管治報告(續)

The suppliers required by Lucency are mainly construction engineering subcontractors, installation engineering subcontractors, technical service providers and consumable suppliers, etc. The company pays close attention to suppliers' waste gas, waste liquid, and solid waste discharge, industrial safety hazards, fire safety, flammable chemical safety hazards, and whether child labors are hired, and so on.

### 5.2 Establish Good Customer Relationship

The Group's main customers are thermal power and wind power generation units, and some coal and chemical enterprises, as well as some local governments with municipal water operation needs. The Group packs and marks products strictly according to the applicable national standards; and it strictly observes the Advertising Law of the People's Republic of China in publicity in order to ensure authentic contents and protect the legal rights and interests of customers. If necessary, both parties shall abide by the confidentiality provisions as stipulated in the contract. In 2018, the customer satisfaction of the Group was generally high, and the normalized problem feedback and resolution mechanism was also improved.

In 2018, the Group did not have any customer complaint regarding serious problems in relation to the safety production. The percentage of products or items sold or delivered that had to be recalled for safety or health reasons was 0%.

#### **Customer Satisfaction**

The Group's goal of customer satisfaction is to continuously improve customer satisfaction to keep customer satisfaction over 90%. At present, on one hand, the Group continues to organize customer satisfaction surveys on a quarterly basis through combined methods of third-party survey platforms, WeChat, mail and letters; on the other hand, in 2018, 9 regional market service centers were newly established nationwide, covering 30 provincial-level administrative regions across the country, 39 regional service representatives were appointed, so as to strengthen key functions such as customer information feedback and service support. At present, the company's service objects has covered nearly 530 main bodies of market service inside and outside the system, giving full play to the advantages of convenient communication with customers. By collecting project problems on-site frequently, and following up the problem processing in time until the problem realized closed loop, to achieve full life cycle marketing services. The problem closed-loop rate of the year is 95%, which well improved the customer experience and increased customer satisfaction. All through the year, the Group received a total of 136 customer letters of appreciation.

朗新明所需供應商主要為建築工程分包商、安裝工程分包商、技術服務商以及耗材供應商等。公司高度關注供應商的廢氣、廢液、固廢排放問題，工業衛生安全隱患，消防、易燃化學品安全隱患，以及是否僱傭童工等問題。

### 5.2 構建良好客戶關係

本集團主要客戶為從事火電、風電業務的發電企業，和部分煤炭、化工企業，以及有市政水務運營需求的部分地方政府。本集團嚴格按照國家標準進行包裝、標識，在宣傳中嚴守《中華人民共和國廣告法》要求，確保內容真實，保護客戶合法權益。如需要，雙方按照合同約定遵守保密相關條例。2018年客戶滿意度評價總體較高，常態化的問題反饋和解決機制也更加完善。

2018年，本集團未發生性質嚴重、影響用戶安全生產的客戶投訴，已售或已交付的產品或項目中因安全或健康原因而須回收的百分比為0%。

#### **客戶滿意度**

本集團對客戶滿意方面的目標為持續提高客戶滿意度，使客戶滿意度不低於90%。目前本集團一方面繼續按季度組織客戶滿意度調查工作，通過第三方調查平台、微信、郵件以及信函等方式聯合開展；另一方面，2018年在全國新設立了9個區域市場服務中心，覆蓋全國30個省級行政區，任命區域服務代表39人，強化客戶信息反饋、服務支持等關鍵職能。目前服務對象已覆蓋系統內外近530個市場服務主體，充分發揮了與客戶溝通便利的優勢。通過高頻次地開展現場項目問題收集工作，並及時跟進問題處理，直至問題閉環，以實現全壽命週期營銷服務。全年問題閉環率達95%，較好地改善了客戶體驗，提高了客戶滿意度。全年本集團共收到客戶表揚信136份。



## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

### 環境、社會及管治報告(續)

#### **Customer Complaint Mechanism**

The Group has established a two-level complaint mechanism for the Head Office and affiliates. Customers can complain via site feedback, or by mail, call, fax, etc., to the Head Office of the Group or the in-charge departments of the affiliates. All kinds of customer complaints are received and handled by special personnel, and such special personnel are responsible for closed-loop tracking.

In 2018, the newly established 9 regional market service centers of the Company actively collected 40 feedback problems from project owners, among which 38 were identified by the owners satisfactorily or solved within the reporting period by telephone or verbal. The timeliness of user complaint handling and the satisfaction of customers with the results of complaint handling during the year continued to increase. The problem feedback and closed-loop processing mechanism on a regular basis promoted the continuous improvement of the performance, safety, quality and service of the Group's products, and played an important role in enhancing the brand image.

#### **5.3 Fulfilling Corporate Social Responsibility**

The Group actively participated in the local government-enterprise co-construction, science, education, health, donation and other social public welfare activities and thus promoted the social harmony of the region where it was located.

The Group has established the "Green Ribbon" Youth Volunteer Association, which has gradually established three series of volunteer service brands, namely the "Energy Knowledge into the Campus", "Uniting Love Sowing Love" and "The Ubiquitous Green Ribbon Super Hero", revealing the spirit of young and striving, as well as passing through the positive energy of youth, and the good image of fulfilling social responsibility of state-owned central enterprises of Guodian Tech.

In 2018, the Group launched the "Youth Lightning Small Wishes" action to help 190 poor children realize their wishes, donated materials worth RMB37,000, and established 5 love book houses. Within the reporting period, the "Green Ribbon" Volunteers Association has carried out more than 280 hours of activities nationwide.

#### **客戶投訴機制**

本集團具有集團本部和附屬公司兩級投訴機制，客戶可通過現場反饋，也可向集團本部或附屬公司歸口管理部門通過郵件、電話或傳真等渠道投訴。各類客戶投訴均由專人負責接待和處理，並負責閉環跟蹤。

2018年本公司新設立的9個區域市場服務中心主動收集項目業主反饋問題40個，其中業主已於報告期內通過電話或口頭確認滿意解決的項目問題有38個。本年度用戶投訴處理的及時性以及客戶對投訴處理結果的滿意度均持續提高。常態化的問題反饋和閉環處理機制促進了本集團產品的性能、安全、質量和服務持續提高，對品牌形象的提升發揮重要作用。

#### **5.3 踐行企業社會責任**

本集團積極參與所在地區的地企共建、科教衛生、捐資助學等社會公益活動，促進了所在地區的社會和諧。

本集團成立有「綠絲帶」青年志願者協會，協會逐步建立了「能源知識進校園」、「團聚愛播種愛」、「無處不在的綠絲帶超體」三大系列志願服務品牌，展現了科環青年向上的精神，以及傳遞青春正能量，履行央企社會責任的良好風貌。

2018年本集團開展了「青春點亮微心願」活動，幫助190名貧困兒童實現心願，捐贈物資價值人民幣3.7萬元，並建立了5所愛心書屋。在報告期內，「綠絲帶」志願者協會在全國範圍開展活動總計280個小時以上。

## ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In future, the “Green Ribbon” Volunteer Association will always incorporate the Youth Poverty Alleviation and Assistance Action into the four-dimensional work pattern of “Consolidating Youth, Serving the Overall Situation, Serving as the Bridge, and Strictly Managing the Group”, and continue to spread the excellent Chinese traditional culture including the concepts of unity, harmony, relief from distress, etc., constantly hold the “Youth Lightening Small Wishes” activity, “One-to-One” student aid, caring empty nesters, constructing love book houses, “Learning from Lei Feng” youth activity and other activities.

未來，「綠絲帶」志願者協會將一直把青春扶貧助力行動納入「凝聚青年、服務大局、當好橋樑、從嚴治團」四維工作格局，傳播以團結和睦、扶危濟困等觀念為核心的中華優秀傳統文化，持續開展「青春點亮微心願」、「一對一」助學、關愛空巢老人、建立愛心書屋及「學雷鋒青年行」等系列活動。

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## 附錄－香港交易所的環境、社會及管治(ESG)內容索引

Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Page number 頁碼	Report content 報告內容
<b>Subject Areas A. Environment</b> 主要範疇A.環境			
<b>Aspect A1: Emissions</b> 層面A1：排放物			
A1	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste. 一般披露 有關廢氣及溫室氣體排放、向水及土地的排污、有害及無害廢棄物的產生等的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	140-146 2.3	Reduce Pollution Emissions Implement Scientific Management  降低污染排放 施行科學管理
A1.1	The types of emissions and respective emissions data. 排放物種類及相關排放數據。	136 2.2.2 144 2.3.3	Water Resource Management 水資源管理 Exhaust Gas Management 廢氣管理
A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 溫室氣體總排放量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	133 2.2.1	Energy Management 能源管理
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 所產生有害廢棄物總量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	140-141 2.3.1	Hazardous Waste Management 有害廢棄物管理
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 所產生無害廢棄物總量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	143 2.3.2	Non-hazardous Waste Management 無害廢棄物管理
A1.5	Description of measures to mitigate emissions and results achieved. 描述減低排放量的措施及所得成果。	144-146 2.3.3 125-128 2.1.1	Exhaust Gas Management 廢氣管理 Segment of Environmental Protection and Energy Conservation Solutions 環保與節能解決方案板塊



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A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	140-142	2.3.1		Hazardous Waste Management 有害廢棄物管理
	描述處理有害及無害廢棄物的方法、減低產生量的措施及所得成果。	143-144	2.3.2		Non-hazardous Waste Management 無害廢棄物管理
		125-128	2.1.1		Segment of Environmental Protection and Energy Conservation Solutions 環保與節能解決方案板塊
<b>Aspect A2: Use of Resources</b>					
<b>層面A2：資源使用</b>					
A2	General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials. 一般披露 有效使用資源(包括能源、水及其他原材料)的政策。	130-139	2.2		Reduce Resource Consumption Adhere to the Concept of Resource Saving 減少資源消耗奉行節約理念
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility). 按類型劃分的直接及／或間接能源(如電、氣或油)總耗量(以千個千瓦時計算)及密度(如以每產量單位、每項設施計算)。	132-133	2.2.1		Energy Management 能源管理
A2.2	Total water consumption and intensity (e.g. per unit of production volume, per facility). 總耗水量及密度(如以每產量單位、每項設施計算)。	136	2.2.2		Water Resource Management 水資源管理
A2.3	Description of the energy use efficiency plan and the results achieved. 描述能源使用效益計劃及所得成果。	130-139	2.2		Reduce Resource Consumption Adhere to the Concept of Resource Saving 減少資源消耗奉行節約理念
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose water efficiency initiatives and result achieved. 描述求取適用水源上可有任何問題，以及提升用水效益計劃及所得成果。	136-137	2.2.2		Water Resource Management 水資源管理
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced. 製成品所用包裝材料的總量(以噸計算)及(如適用)每生產單位占量。	138-139	2.2.3		Use of Packaging Materials 包裝物使用

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<b>Aspect A3: The Environment and Natural Resources</b> 層面A3：環境及天然資源			
A3	General Disclosure Policies on minimizing the issuer's significant impact on the environment and natural resources. 一般披露 減低發行人對環境及天然資源造成重大影響的政策。	123-148 2	Practicing the Concept of Green Development 踐行綠色發展理念
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them. 描述業務活動對環境及天然資源的重大影響及已採取管理有關影響的行動。	123-148 2	Practicing the Concept of Green Development 踐行綠色發展理念
<b>Subject Areas B. Society</b> 主要範疇B.社會			
<b>Employment and Labor Practices</b> 僱傭及勞工常規			
<b>Aspect B1: Employment</b> 層面B1：僱傭			
B1	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. 一般披露 有關薪酬及解僱、招聘及晉升、工作時數、假期、平等機會、多元化、反歧視以及其他待遇及福利的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	148-151 3.1	Legitimate Employment and Welfare Protection 依法僱傭及福利保障
B1.1	Total workforce by gender, employment type, age group and geographical region. 按性別、僱傭類型、年齡組別及地區劃分的雇員總數。	149 3.1	Legitimate Employment and Welfare Protection 依法僱傭及福利保障
B1.2	Employee turnover attrition rate by gender, age group and geographical region. 按性別、年齡組別及地區劃分的雇員流失比率。	149-150 3.1	Legitimate Employment and Welfare Protection 依法僱傭及福利保障

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<b>Aspect B2: Health and Safety</b> 層面B2：健康與安全			
B2	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards. 一般披露 有關提供安全工作環境及保障雇員避免職業性危害的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	152-155	3.2 Safety production and occupational health  安全生產及職業健康
B2.1	Number and rate of work-related fatalities.  因工作關係而死亡的人數及比率。	152	3.2 Safety production and occupational health 安全生產及職業健康
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored. 描述所採納的職業健康與安全措施，以及相關執行及監察方法。	152-155	3.2 Safety production and occupational health 安全生產及職業健康
<b>Aspect B3: Development and Training</b> 層面B3：發展及培訓			
B3	General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. 一般披露 有關提升雇員履行工作職責的知識及技能的政策。描述培訓活動。	155-157	3.3 Employee Training and Career Development Mechanism  教育培訓及發展機制

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<b>Aspect B4: Labor Standards</b> 層面B4：勞工準則			
B4	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labor. 一般披露 有關防止童工或強制勞工的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	148-151	3.1 Legitimate Employment and Welfare Protection  依法僱傭及福利保障
B4.1	Description of measures to review employment practices to avoid child and forced labor. 描述檢討招聘慣例的措施以避免童工及強制勞工。	148-151	3.1 Legitimate Employment and Welfare Protection 依法僱傭及福利保障
B4.2	Description of steps taken to eliminate such practices when discovered. 描述在發現違規情況時消除有關情況所採取的步驟。	148-151	3.1 Legitimate Employment and Welfare Protection 依法僱傭及福利保障
<b>Operating Practices</b> 營運慣例			
<b>Aspect B5: Supply Chain Management</b> 層面B5：供應鏈管理			
B5	General Disclosure Policies on managing environmental and social risks of the supply chain. 一般披露 管理供應鏈的環境及社會風險政策。	162-163	5.1 Supplier Cooperation and Management  供應商合作與管理
B5.1	Number of suppliers by geographical region. 按地區劃分的供應商數目。	162	5.1 Supplier Cooperation and Management 供應商合作與管理
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APPENDIX-INDEX TO CONTENTS OF ENVIRONMENTAL,  
SOCIAL AND GOVERNANCE (ESG) OF HKEX (CONTINUED)  
附錄－香港交易所的環境、社會及管治(ESG)內容索引(續)

Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Page number 頁碼	Report content 報告內容
<b>Aspect B6: Product Responsibility</b> 層面B6：產品責任			
B6	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labeling and privacy matters relating to products and services provided and methods of redress. 一般披露 有關所提供產品和服務的健康與安全、廣告、標籤及私隱事宜以及補救方法的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	160 4.2 163-164 5.2	Take responsibility for product and place quality in the first place 產品責任質量為先 Establish Good Customer Relationship 構建良好客戶關係
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons. 已售或已運送產品總數中因安全與健康理由而須回收的百分比。	163 5.2	Establish Good Customer Relationship 構建良好客戶關係
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B6.3	Description of practices relating to observing and protecting intellectual property rights. 描述與維護及保障知識產權有關的慣例。	161-162 4.3	Innovation, efficiency, and scientific advancement 創新增效科學進步
B6.4	Description of quality assurance process and product recall procedures. 描述質量檢定過程及產品回收程序。	160 4.2	Take responsibility for product and place quality in the first place 產品責任質量為先

# APPENDIX-INDEX TO CONTENTS OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) OF HKEX (CONTINUED)

## 附錄－香港交易所的環境、社會及管治(ESG)內容索引(續)

<b>Environmental, Social and Governance Report Guide</b> 《環境、社會及管治報告指引》		<b>Page number</b> 頁碼	<b>Report content</b> 報告內容
<b>Aspect B7: Anti-corruption</b> 層面B7：反貪污			
B7	General Disclosure Information on:  (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. 一般披露 有關防止賄賂、勒索、欺詐及洗黑錢的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	158-159	4.1  Fight Corruption and Promote Incorruptible Employment according to Law  依法依規廉潔從業
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases. 於匯報期內對發行人或其雇員提出並已審結的貪污訴訟案件的數目及訴訟結果。	159	4.1  Fight Corruption and Promote Incorruptible Employment according to Law 依法依規廉潔從業
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.  描述防範措施及舉報程序，以及相關執行及監察方法	158-159	4.1  Fight Corruption and Promote Incorruptible Employment according to Law 依法依規廉潔從業
<b>Community</b> 社區			
<b>Aspect B8: Community Investment</b> 層面B8：社區投資			
B8	General Disclosure Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. 一般披露 有關以社區參與來瞭解營運所在社區需要和確保其業務活動會考慮社區利益的政策。	164-165	5.3  Fulfilling Corporate Social Responsibility  踐行企業社會責任
B8.1	Focus areas of contribution (e.g. education, environmental issues, labor needs, health, culture, sports). 專注貢獻範疇(如教育、環境事宜、勞工需求、健康、文化、體育)。	164-165	5.3  Fulfilling Corporate Social Responsibility 踐行企業社會責任
B8.2	Resources contributed (e.g. money or time) to the focus area. 在專注範疇所動用資源(如金錢或時間)。	164	5.3  Fulfilling Corporate Social Responsibility 踐行企業社會責任

# REPORT OF THE INDEPENDENT AUDITOR

## 獨立核數師報告



### Independent auditor's report to the shareholders of Guodian Technology & Environment Group Corporation Limited

(a joint stock company incorporated in the People's Republic of China with limited liability)

### OPINION

We have audited the consolidated financial statements of Guodian Technology & Environment Group Corporation Limited (the “**Company**”) and its subsidiaries (together the “**Group**”) set out on pages 184 to 349, which comprise the consolidated statement of financial position as at 31 December 2018, the consolidated statement of profit or loss, the consolidated statement of profit or loss and other comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2018 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (“**IFRSs**”) issued by the International Accounting Standards Board (“**IASB**”) and have been properly prepared in compliance with the disclosure requirements of the Hong Kong Companies Ordinance.

### BASIS FOR OPINION

We conducted our audit in accordance with Hong Kong Standards on Auditing (“**HKSAs**”) issued by the Hong Kong Institute of Certified Public Accountants (“**HKICPA**”). Our responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the consolidated financial statements* section of our report. We are independent of the Group in accordance with the HKICPA's *Code of Ethics for Professional Accountants* (the “**Code**”) together with any ethical requirements that are relevant to our audit of the consolidated financial statements in the People's Republic of China, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

致國電科技環保集團股份有限公司股東

(於中華人民共和國註冊成立的股份有限公司)

### 意見

本核數師(以下簡稱「我們」)已審計列載於第184至第349頁國電科技環保集團股份有限公司(「**貴公司**」)及其附屬公司(「**貴集團**」)的合併財務報表。此合併財務報表包括於2018年12月31日的合併財務狀況表與截至該日止年度的合併損益表、合併損益及其他綜合收益表、合併權益變動表和合併現金流量表，以及合併財務報表附註，包括主要會計政策概要。

我們認為，該等合併財務報表已根據國際會計準則理事會頒佈的《國際財務報告準則》真實而公允地反映了貴集團於2018年12月31日的合併財務狀況及截至該日止年度的合併財務表現及合併現金流量，並已遵照香港《公司條例》的披露要求妥為擬備。

### 意見的基礎

我們已根據香港會計師公會頒佈的《香港審計準則》進行審計。我們在該等準則下承擔的責任已在本報告「核數師就審計合併財務報表承擔的責任」部分中作進一步闡述。根據香港會計師公會頒佈的《專業會計師道德守則》(以下簡稱「**守則**」)以及中華人民共和國任何與我們對合併財務報表的審計有關的道德要求，我們獨立於貴集團，並已履行這些道德要求以及守則中的其他專業道德責任。我們相信，我們所獲得的審計憑證能充足及適當地為我們的審計意見提供基礎。

# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

#### Loss allowance for trade receivables and contract assets

Refer to Notes 23 and 24 to the consolidated financial statements and the accounting policies in Note 2(n)(i).

#### The Key Audit Matter

At 31 December 2018, the Group's trade receivables and contract assets totalled RMB11,813 million after deduction of the allowance for expected credit losses of RMB2,262 million.

#### How the matter was addressed in our audit

Our audit procedures to assess the loss allowance for trade receivables and contract assets included the following:

- obtaining an understanding of and assessing the design, implementation and operating effectiveness of key internal controls over the credit control, the receivables collection process and making loss allowances for trade receivables and contract assets;
- obtaining an understanding on the key data and assumptions of the expected credit loss model adopted by the management, including the historical default data, aging of debtor balances, credit terms, recent settlement patterns and forecast of future economic conditions;
- assessing the reasonableness of management's estimates on loss allowance by examining the information used by management to form such judgements, including testing the accuracy of the historical default data and evaluating whether the historical loss rates are appropriately adjusted based on current economic conditions and forward-looking information;

### 關鍵審計事項

關鍵審計事項是根據我們的專業判斷，認為對本期合併財務報表的審計最為重要的事項。這些事項是在我們審計整體合併財務報表及出具意見時進行處理的。我們不會對這些事項提供單獨的意見。

#### 應收賬款及合同資產壞賬撥備

請參閱合併財務報表附註23和24以及附註2(n)(i)中的會計政策。

#### 關鍵審計事項

於二零一八年十二月三十一日，本集團應收賬款及合同資產淨值合計約為人民幣11,813百萬元，本集團按照預期信用損失確認應收賬款及合同資產減值虧損人民幣2,262百萬元。

#### 審計事項如何解決

我們對應收賬款及合同資產壞賬準備實施的審計程序包括以下內容：

- 瞭解並評估包含信用政策、應收款項及合同資產收款流程以及計提壞賬準備的內部控制的設計、執行及其運行有效性；
- 瞭解管理層採用的預期信用損失模型的關鍵資料和假設，包括歷史違約資料，債務人賬齡，信用條款，近期結算方式以及對未來經濟狀況的預測；
- 通過檢查管理層用於形成上述判斷的資訊，評估管理層對壞賬撥備估計的合理性，包括測試歷史違約資料的準確性，評估歷史損失率是否根據當前經濟狀況和前瞻性資訊進行了適當調整；



# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS (CONTINUED)

#### Loss allowance for trade receivables and contract assets (continued)

Refer to Notes 23 and 24 to the consolidated financial statements and the accounting policies in Note 2(n)(i).

The Key Audit Matter (continued)	How the matter was addressed in our audit (continued)
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Management estimates the loss allowance at an amount equal to lifetime expected credit loss for trade receivables and contract assets with assessments of expected credit losses and estimated loss rates based on the ageing of overdue balances, repayment histories of individual debtors, existing customer-specific and market conditions and forward-looking information. Such assessment involves a significant degree of judgement.

We identified the loss allowance for trade receivables and contract assets as a key audit matter because of the inherent uncertainty in assessing if trade receivables and contract assets will be recovered in full and because the assessment of expected credit losses requires the exercise of significant management judgement.

- assessing whether items were correctly categorised in the aging report by comparing a sample of individual items with the relevant underlying documentation;
- assessing the assumptions and estimates made by management for the assessment of loss allowances for trade receivables and contract assets by performing a retrospective review of the historical accuracy of these assumptions and estimates, including historical default data and estimated loss rate;
- comparing, on a sample basis, cash receipts from debtors and actual billing to customers subsequently to the financial year relating to trade receivables and contract assets balances at 31 December 2018 with bank-in slips; and
- assessing the disclosures in the consolidated financial statements in relation to the loss allowances for trade receivables and contract assets with reference to the requirements of the prevailing accounting standards.

### 關鍵審計事項(續)

#### 應收賬款及合同資產壞賬撥備(續)

請參閱合併財務報表附註23和24以及附註2(n)(i)中的會計政策。

#### 關鍵審計事項(續)

#### 審計事項如何解決(續)

管理層根據預計信用損失模型估計應收賬款及合同資產整個存續期間的預期信用損失，並根據逾期應收款項的賬齡、每個債務人的歷史還款記錄、已存在的客戶的特定性和市場條件以及前瞻性資訊評估信用損失率，該項評估涉及重大的主觀判斷。

我們將應收賬款及合同資產的壞賬撥備作為關鍵審計事項，是由於應收賬款、合同資產的可回收性具有固有不確定性，且預期信用損失的確認需要管理層作出重大判斷。

- 通過對比單個專案樣本和相關基礎檔案，評估應收款項及合同資產在賬齡報告中是否進行了正確劃分；
- 通過對應收賬款及合同資產的壞賬撥備的假設和估計(包括歷史違約資料及預期損失率)的歷史準確性執行回溯性審閱，以評估管理層採用的假設及估計是否合理；
- 以抽樣方式對截止2018年12月31日應收賬款及合同資產的回款情況、開具的發票與銀行對賬單進行比較；及
- 評估應收款項和合同資產的壞賬準備是否根據現行會計準則於合併財務報表中進行了適當披露。

# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS (CONTINUED)

#### Assessing potential impairment of non-current assets held by certain subsidiaries of the Group

Refer to Note 13 to the consolidated financial statements and the accounting policies in Note 2(n)(ii).

#### The Key Audit Matter

For the year ended 31 December 2018, certain subsidiaries of the Group recorded a significant decrease in revenue or were loss making due to various market, economic and political factors, which included severe market competition, delays in operations influenced by government policies and decreases in market demand resulting from the slowdown in construction of new thermal power plants in the power industry.

#### How the matter was addressed in our audit

Our audit procedures to assess potential impairment of non-current assets held by certain subsidiaries of the Group included the following:

- assessing and challenging the Group's impairment assessment model, which included assessing the impairment indicators identified by management, the identification of CGUs and the allocation of assets to those CGUs and evaluating the methodology adopted by management in the preparation of impairment assessments with reference to the requirements of the prevailing accounting standards;
- comparing the data in the discounted cash flow forecasts used for the impairment assessments with the relevant data of the Group's financial budget which was approved by the directors;

### 關鍵審計事項(續)

評估本集團部分附屬公司持有的非流動資產的潛在減值

請參閱合併財務報表附註13及附註2(n)(ii)中的會計政策。

#### 關鍵審計事項

於2018年度貴集團某些附屬公司收入發生大幅下滑，或由於市場、政治和經濟等方面原因產生虧損，及市場競爭，受政府政策原因延遲開展運營，以及能源電力行業新建火電廠建設放緩導致市場需求下降。

#### 審計事項如何解決

我們就評估貴集團某些附屬持有的非流動資產的潛在減值的審計程序包括以下程序：

- 對貴集團減值測試模型進行評價和提出疑問，評估管理層識別出的減值跡象、現金產生單元的劃分及其對應資產的分配，覆核管理層進行減值準備評估時採用的方法是否符合現行會計準則的要求；
- 將用作減值評估的經折現現金流量預測中使用的資料與貴集團經董事會批准的財務預算進行對比；

# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS (CONTINUED)

#### Assessing potential impairment of non-current assets held by certain subsidiaries of the Group

Refer to Note 13 to the consolidated financial statements and the accounting policies in Note 2(n)(ii).

#### The Key Audit Matter (continued)      How the matter was addressed in our audit (continued)

Management considered the above events and circumstances indicated that the non-current assets associated with these subsidiaries may be impaired and performed impairment assessments of these assets, or the cash-generating units (“CGUs”) to which these assets were allocated, to determine their recoverable amounts. Management determined the recoverable amounts by using the value in use model or fair value less costs of disposal model. The impairment assessment involves significant degree of management judgement, particularly in relation to the key assumptions adopted, including revenue growth rates, gross profit margins, long-term growth rates, inflation rates, the discount rate applied in the discounted cash flow forecast and the remaining useful economic lives and price volatility of the relevant assets.

- assessing the reliability of management’s cash flow forecasting process by comparing the previous year’s forecasts with the current year’s results, discussing significant variances with management and considering the effect of such variances on the current year’s forecasts;
- comparing the key assumptions adopted by management in the discounted cash flow forecasts with externally available information as well as our own assessments in relation to key inputs, which included revenue growth rates, gross profit margins, long-term growth rates and inflation rates;
- comparing the discount rates applied in the discounted cash flow forecasts with these of comparable companies in the same industry;

### 關鍵審計事項(續)

評估部分附屬公司所持有的長期資產的潛在減值

請參閱合併財務報表附註13及附註2(n)(ii)中的會計政策。

#### 關鍵審計事項(續)

#### 審計事項如何解決(續)

鑒於此，管理層認為這些附屬公司的非流動資產存在減值跡象，並對其非流動資產或相關資產所屬的現金產單元進行減值測試，以計算其可回收金額。管理層採用使用價值法或公允價值減處置費用法，確定其可變現淨值。該減值評估涉及重大的管理層判斷，尤其是採用的關鍵假設，包括預計的收入增長率、毛利率、長期增長率、通脹率、折現現金流預測使用的折現率和相關資產的剩餘可使用經濟年限和價格波動。

- 通過對比以前年度預測和當前年度的實際結果，評估管理層編製現金流量預測過程的可靠性，對於重大差異與管理層進行討論並考慮該差異對於當前年度的財務影響；
- 將管理層編製經折現現金流量預測時採用的關鍵假設與外部可獲得資訊以及我們關於關鍵比例的評估結果進行對比，包括收入增長率、毛利率、長期增長率以及通脹率；
- 將經折現的現金流量預測表中採用的折現率與同行業可比公司採用的折現率進行對比；

# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS (CONTINUED)

#### Assessing potential impairment of non-current assets held by certain subsidiaries of the Group

Refer to Note 13 to the consolidated financial statements and the accounting policies in Note 2(n)(ii).

#### The Key Audit Matter (continued)      How the matter was addressed in our audit (continued)

We identified assessing potential impairment of non-current assets held by certain subsidiaries of the Group as a key audit matter because the impairment assessments include a number of assumptions and estimates which require the exercise of significant management judgement and are inherently uncertain and could be subject to management bias.

- challenging the key assumptions to which the outcome of the impairment assessment was most sensitive, including those relating to forecast revenue and forecast profit margins, and considering if there was any indication of management bias in the selection of these assumptions;
- assessing the key assumptions adopted in the calculation of the fair value less costs of disposal of related assets, including the remaining economic useful lives and price volatility of the relevant assets, by assessing whether the key assumptions were within the range adopted by other companies in the same industry or performing recalculations by using market and other external available information derived from similar industries or comparable transactions; and
- considering the disclosures in the consolidated financial statements in respect of the impairment assessment with reference to the requirements of the prevailing accounting standards.

### 關鍵審計事項(續)

評估部分附屬公司所持有的長期資產的潛在減值

請參閱合併財務報表附註13及附註2(n)(ii)中的會計政策。

#### 關鍵審計事項(續)

#### 審計事項如何解決(續)

我們把評估貴集團某些附屬公司持有的非流動資產的潛在減值列為關鍵審計事項，因為這些減值測試涉及眾多假設和估計，這需要重大的管理層判斷，可能存在固有的不確定性和可能存在管理層的偏見。

- 對減值測試結果變動最敏感的關鍵假設提出疑問，包括關於收入預測和毛利率預測的假設，關注在選擇該部分假設時是否存在管理層偏見的跡象；
- 評估計算公允價值減相關資產處置成本所採納的關鍵假設，包括相關資產剩餘可使用的經濟年限及價格波動，通過評估關鍵假設是否屬於同行業內其他公司採納的範圍內或通過採用源自類似行業或可比較交易的市場及外部可獲得的資料重新計算；及
- 關注減值評估在合併財務報表中的披露是否滿足現行會計準則披露。

# REPORT OF THE INDEPENDENT AUDITOR (CONTINUED)

## 獨立核數師報告(續)

### KEY AUDIT MATTERS (CONTINUED)

#### Tax provisioning

Refer to Note 8 and Note 32 to the consolidated financial statements and the accounting policies in Note 2(w).

#### The Key Audit Matter

The Group's entities operate in different tax jurisdictions across Mainland China and file income taxes with numerous local tax authorities. The Group is subject to aperiodic challenges by local tax authorities on a range of tax matters in the normal course of its business.

In addition, certain subsidiaries of the Group are approved High and New Technology Enterprises and are taxed at a preferential tax rate of 15%, as compared with the standard tax rate of 25%, for enterprise income tax during the approved period, subject to fulfillment of the annual qualification criteria and potential investigation by the local tax authorities.

Management determines the applicable tax rates for the calculation of current income tax and deferred income tax based on the expected tax rates that are likely to be approved by the local tax authorities according to the tax rules and regulations enacted at the end of the reporting period.

We identified tax provisioning as a key audit matter because significant management judgement can be required for in determining the provisions for taxation where the ultimate tax determinations may be uncertain.

#### How the matter was addressed in our audit

Our audit procedures to assess the provisions for taxation included the following:

- reading correspondence with the relevant local tax authorities and inspecting details of enquiries from the local tax authorities;
- challenging the appropriateness of the assumptions applied and estimates made in relation to tax provisioning by considering the range of possible outcomes that may be assessed under the applicable tax laws and regulations;
- involving our internal tax specialists to assist us in critically assessing the assumptions adopted by management in the calculation of provisions for taxation with reference to local tax rules and practices in different tax jurisdictions; and
- considering the tax disclosures in the consolidated financial statements with reference to the requirements of the prevailing accounting standards.

### 關鍵審計事項(續)

#### 所得稅的計提

請參閱合併財務報表附註8和附註32以及附註2(w)中的會計政策。

#### 關鍵審計事項

貴集團的附屬公司在中國大陸的各個地區接受不同的稅收監管，並向眾多地方稅務機關申報繳納所得稅。各地稅務機關不定期對貴集團日常經營過程的各項稅務事項提出質疑。

此外，部分貴集團的附屬公司被認定為高新技術企業，在25%的法定稅率基礎上，高新技術認定有效期間內享受15%的優惠稅率，前提是滿足每年的資格標準並可能需要接受當地稅務機關檢查。

根據在報告期末有效的稅收法律法規，管理層基於可能被當地稅務機關認定的預期所得稅率，決定用於計算當期所得稅和遞延所得稅的適用稅率。

我們把稅款的計提列為關鍵審計事項，因為最終稅金金額的認定存在不確定性，稅金的計提涉及重大的管理層判斷。

#### 審計事項如何解決

我們就款項的計提的審計程序包括以下程序：

- 審閱相關當地稅務機關與貴集團的往來函件，檢查當地稅務機關對貴集團的質詢之詳情；
- 通過考慮在適用的法律法規下的可能作出的不同的稅項評估結果，質問管理層在計提稅款時使用的假設及作出的會計估計的合適性；
- 借助我們的內部稅務專家，協助我們參考地方稅收規定及實務的基礎上，合理評價管理層在計算稅款時使用的假設；及
- 根據現行會計準則，考慮合併財務報表中稅項的披露。



## REPORT OF THE INDEPENDENT AUDITOR (CONTINUED) 獨立核數師報告(續)

### INFORMATION OTHER THAN THE CONSOLIDATED FINANCIAL STATEMENTS AND AUDITOR'S REPORT THEREON

The directors are responsible for the other information. The other information comprises all the information included in the annual report, other than the consolidated financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

### RESPONSIBILITIES OF THE DIRECTORS FOR THE CONSOLIDATED FINANCIAL STATEMENTS

The directors are responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRSs issued by the IASB and the disclosure requirements of the Hong Kong Companies Ordinance and for such internal control as the directors determine is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the directors are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or to cease operations, or have no realistic alternative but to do so.

The directors are assisted by the Audit Committee in discharging their responsibilities for overseeing the Group's financial reporting process.

### 合併財務報表及其核數師報告以外的其他資訊

董事須對其他資訊負責。其他資訊包括刊載於年報內的全部資訊，但不包括合併財務報表及我們的核數師報告。

我們對合併財務報表的意見並不涵蓋其他資訊，我們亦不對該等其他資訊發表任何形式的鑒證結論。

結合我們對合併財務報表的審計，我們的責任是閱讀其他資訊，在此過程中，考慮其他資訊是否與合併財務報表或我們在審計過程中所瞭解的情況存在重大抵觸或者似乎存在重大錯誤陳述的情況。

基於我們已執行的工作，如果我們認為其他資訊存在重大錯誤陳述，我們需要報告該事實。在這方面，我們沒有任何報告。

### 董事就合併財務報表須承擔的責任

董事須負責根據國際會計準則理事會頒佈的《國際財務報告準則》及香港《公司條例》的披露要求擬備真實而中肯的合併財務報表，並對其認為為使合併財務報表的擬備不存在由於欺詐或錯誤而導致的重大錯誤陳述所需的內部控制負責。

在擬備合併財務報表時，董事負責評估貴集團持續經營的能力，並在適用情況下披露與持續經營有關的事項，以及使用持續經營為會計基礎，除非董事有意將貴集團清盤或停止經營，或別無其他實際的替代方案。

審計委員會協助董事履行監督貴集團的財務報告過程的責任。

## REPORT OF THE INDEPENDENT AUDITOR (CONTINUED) 獨立核數師報告(續)

### AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. This report is made solely to you, as a body, and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with HKSA's will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with HKSA's, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.

### 核數師就審計合併財務報表承擔的責任

我們的目標，是對合併財務報表整體是否不存在欺詐或錯誤而導致的重大錯誤陳述取得合理保證，並出具包括我們意見的核數師報告。我們僅向整體股東報告。除此以外，我們的報告不可用作其他用途。我們概不就本報告的內容，向任何其他人士負責或承擔法律責任。

合理保證是高水準的保證，但不能保證按照《香港審計準則》進行的審計，在某一重大錯誤陳述存在時總能發現。錯誤陳述可以由欺詐或錯誤引起，如果合理預期它們單獨或匯總起來可能影響合併財務報表使用者依賴合併財務報表所作出的經濟決定，則有關的錯誤陳述可被視作重大。

在根據《香港審計準則》進行審計的過程中，我們運用了專業判斷，保持了專業懷疑態度。我們亦：

- 識別和評估由於欺詐或錯誤而導致綜合財務報表存在重大錯誤陳述的風險，設計及執行審計程序以應對這些風險，以及獲取充足和適當的審計憑證，作為我們意見的基礎。由於欺詐可能涉及串謀、偽造、蓄意遺漏、虛假陳述，或凌駕於內部控制之上，因此未能發現因欺詐而導致的重大錯誤陳述的風險高於未能發現因錯誤而導致的重大錯誤陳述的風險。
- 瞭解與審計相關的內部控制，以設計適當的審計程序，但目的並非對貴集團內部控制的有效性發表意見。
- 評價董事所採用會計政策的恰當性及作出會計估計和相關披露的合理性。



## REPORT OF THE INDEPENDENT AUDITOR (CONTINUED) 獨立核數師報告(續)

### AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Audit Committee with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and, where applicable, related safeguards.

### 核數師就審計合併財務報表承擔的責任(續)

- 對董事採用持續經營會計基礎的恰當性作出結論。根據所獲取的審計憑證，確定是否存在與事項或情況有關的重大不確定性，從而可能導致對貴集團的持續經營能力產生重大疑慮。如果我們認為存在重大不確定性，則有必要在核數師報告中提請使用者注意合併財務報表中的相關披露。假若有關的披露不足，則我們應當發表非無保留意見。我們的結論是基於核數師報告日止所取得的審計憑證。然而，未來事項或情況可能導致貴集團不能持續經營。
- 評價合併財務報表的整體列報方式、結構和內容，包括披露，以及合併財務報表是否中肯反映交易和事項。
- 就貴集團內實體或業務活動的財務資訊獲取充足、適當的審計憑證，以便對合併財務報表發表意見。我們負責貴集團審計的方向、監督和執行。我們為審計意見承擔全部責任。

除其他事項外，我們與審計委員會溝通了計劃的審計範圍、時間安排、重大審計發現等，包括我們在審計中識別出內部控制的任何重大缺陷。

我們還向審計委員會提交聲明，說明我們已符合有關獨立性的相關專業道德要求，並與他們溝通有可能合理地被認為會影響我們獨立性的所有關係和其他事項，以及在適用的情況下，相關的防範措施。



## REPORT OF THE INDEPENDENT AUDITOR (CONTINUED) 獨立核數師報告(續)

### AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Ho Ying Man, Simon.

#### **KPMG**

*Certified Public Accountants*

8th Floor, Prince's Building  
10 Chater Road  
Central, Hong Kong

29 March 2019

### 核數師就審計合併財務報表承擔的責任(續)

從與審計委員會溝通的事項中，我們確定哪些事項對本期合併財務報表的審計最為重要，因而構成關鍵審計事項。我們在核數師報告中描述這些事項，除非法律法規不允許公開披露這些事項，或在極端罕見的情況下，如果合理預期在我們報告中溝通某事項造成的負面後果超過產生的公眾利益，我們決定不應在報告中溝通該事項。

出具本獨立核數師報告的審計項目合夥人是何應文。

#### **畢馬威會計師事務所**

*執業會計師*

香港中環  
遮打道10號  
太子大廈8樓

2019年3月29日

# CONSOLIDATED STATEMENT OF PROFIT OR LOSS

## 合併損益表

For the year ended 31 December 2018 (Expressed in Renminbi ("RMB"))  
截至2018年12月31日止年度(以人民幣列示)

			2018	2017
		Note	RMB'000	(Note)
		附註	人民幣千元	(附註)
				RMB'000
				人民幣千元
<b>Continuing operations</b>	<b>持續經營業務</b>			
Revenue	收入	4	<b>11,411,780</b>	11,703,002
Cost of sales	銷售成本		<b>(8,743,788)</b>	(8,847,401)
<b>Gross profit</b>	<b>毛利</b>		<b>2,667,992</b>	2,855,601
Other revenue	其他收入	5	<b>331,668</b>	355,111
Other net income	其他收益淨額	5	<b>42,278</b>	560,218
Selling and distribution expenses	銷售及分銷開支		<b>(653,816)</b>	(945,493)
Administrative expenses	行政開支		<b>(1,929,154)</b>	(1,720,956)
<b>Profit from operations</b>	<b>經營利潤</b>		<b>458,968</b>	1,104,481
Finance costs	財務成本	6	<b>(580,062)</b>	(563,800)
Share of profits less losses of associates	應佔聯營公司利潤減虧損		<b>61,433</b>	86,734
<b>(Loss)/profit before taxation from continuing operations</b>	<b>來自持續經營業務之稅前(虧損)/利潤</b>	7	<b>(59,661)</b>	627,415
Income tax	所得稅	8	<b>16,965</b>	(180,936)
<b>(Loss)/profit for the year from continuing operations</b>	<b>本年來自持續經營業務之(虧損)/利潤</b>		<b>(42,696)</b>	446,479
<b>Discontinued operation</b>	<b>已終止經營業務</b>			
Profit/(loss) for the year from discontinued operation	本年來自已終止經營之業務利潤/(虧損)	11	<b>155,059</b>	(355,709)
<b>Profit for the year</b>	<b>本年利潤</b>		<b>112,363</b>	90,770
<b>Attributable to:</b>	<b>歸屬於：</b>			
– Equity shareholders of the Company	– 本公司權益股東		<b>114,087</b>	43,703
– Non-controlling interests	– 非控股權益		<b>(1,724)</b>	47,067
<b>Profit for the year</b>	<b>本年利潤</b>		<b>112,363</b>	90,770
<b>Basic and diluted earnings/(loss) per share (expressed in RMB cent)</b>	<b>每股基本及攤薄盈利/(虧損)</b>	12		
– Continuing and discontinued operations	– 持續經營業務和已終止經營業務		<b>1.88</b>	0.72
– Continuing operations	– 持續經營業務		<b>(0.68)</b>	6.55
– Discontinued operation	– 已終止經營業務		<b>2.56</b>	(5.83)

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

## 合併損益及其他綜合收益表

For the year ended 31 December 2018 (Expressed in RMB)

截至2018年12月31日止年度(以人民幣列示)

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
<b>Profit for the year</b>	本年利潤	<b>112,363</b>	90,770
<b>Other comprehensive income for the year (after tax and reclassification adjustments)</b>	本年其他綜合收益(稅後及重新分類調整後)		
Item that will not be reclassified to profit or loss:	不會重分類計入損益的項目：		
– Equity investments at FVOCI – net movement in fair value reserve (non-recycling)	– 以公允價值計量且其變動計入其他綜合收益的股權投資 – 淨變動計入公允價值儲備(不重新計入)	<b>(44,414)</b>	–
Items that may be reclassified subsequently to profit or loss:	其後將重分類計入損益的項目：		
– Exchange differences on translation of financial statements of operations outside the People's Republic of China (the “PRC”)	– 換算中華人民共和國(「中國」)境外業務財務報表產生的匯兌差額	<b>1,126</b>	(1,022)
– Reclassification adjustment for amounts transferred to profit or loss as closure of an operation outside the PRC	– 重新分類因註銷中國境外附屬公司產生的計入損益的金額	–	(265)
<b>Other comprehensive income for the year</b>	本年其他綜合收益	<b>(43,288)</b>	(1,287)
<b>Total comprehensive income for the year</b>	本年綜合收益總額	<b>69,075</b>	89,483
<b>Attributable to:</b>	歸屬於：		
Equity shareholders of the Company	本公司權益股東	<b>70,799</b>	42,416
Non-controlling interests	非控股權益	<b>(1,724)</b>	47,067
<b>Total comprehensive income for the year</b>	本年綜合收益總額	<b>69,075</b>	89,483

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF FINANCIAL POSITION

## 合併財務狀況表

As at 31 December 2018 (Expressed in RMB)  
於2018年12月31日(以人民幣列示)

			2018	2017
		Note	RMB'000	(Note)
		附註	人民幣千元	(附註)
				RMB'000
				人民幣千元
<b>Non-current assets</b>	<b>非流動資產</b>			
Property, plant and equipment	物業、廠房及設備	13	<b>4,250,821</b>	4,472,199
Investment properties	投資性物業	14	<b>226,281</b>	235,197
Lease prepayments	預付土地租賃款	15	<b>302,033</b>	309,883
Intangible assets	無形資產	16	<b>1,177,482</b>	1,163,921
Goodwill	商譽	17	<b>57,591</b>	57,591
Interests in associates	對聯營公司的投資	19	<b>396,682</b>	419,952
Other equity investments	其他權益投資	20	<b>858,415</b>	162,187
Other non-current assets	其他非流動資產	21	<b>3,353,611</b>	3,306,106
Deferred tax assets	遞延稅項資產	32(b)	<b>911,188</b>	724,191
<b>Total non-current assets</b>	<b>非流動資產總額</b>		<b>11,534,104</b>	10,851,227
<b>Current assets</b>	<b>流動資產</b>			
Inventories	存貨	22	<b>3,017,407</b>	3,145,414
Contract assets	合同資產	23	<b>1,518,764</b>	1,324,257
Trade and bills receivables	應收賬款及票據	24	<b>12,487,417</b>	12,842,798
Deposits, prepayments and other receivables	按金、預付款項及其他應收款項	25	<b>1,700,827</b>	2,001,198
Tax recoverable	可收回稅項	32(a)	<b>176,299</b>	132,988
Restricted deposits	受限制存款	26	<b>274,830</b>	192,835
Cash at bank and in hand	銀行存款及庫存現金	27	<b>3,436,459</b>	4,305,074
Assets held for sale	持有待售資產	28	<b>11,307</b>	812,459
<b>Total current assets</b>	<b>流動資產總額</b>		<b>22,623,310</b>	24,757,023
<b>Current liabilities</b>	<b>流動負債</b>			
Borrowings	借款	29(b)	<b>8,035,414</b>	7,699,284
Trade and bills payables	應付賬款及票據	30	<b>9,199,386</b>	9,684,721
Other payables	其他應付款項	31	<b>3,114,456</b>	3,372,339
Contract liabilities	合同負債	23	<b>665,988</b>	922,598
Income tax payable	應付所得稅	32(a)	<b>48,565</b>	44,312
Provision for warranty	質保金撥備	33	<b>92,597</b>	170,558
Liabilities held for sale	持有待售負債	28	-	70,679
<b>Total current liabilities</b>	<b>流動負債總額</b>		<b>21,156,406</b>	21,964,491
<b>Net current assets</b>	<b>流動資產淨額</b>		<b>1,466,904</b>	2,792,532
<b>Total assets less current liabilities</b>	<b>資產總額減流動負債</b>		<b>13,001,008</b>	13,643,759

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

## 合併財務狀況表(續)

As at 31 December 2018 (Expressed in RMB)  
於2018年12月31日(以人民幣列示)

			2018	2017
		Note	RMB'000	(Note)
		附註	人民幣千元	RMB'000
				(附註)
				人民幣千元
<b>Non-current liabilities</b>	<b>非流動負債</b>			
Borrowings	借款	29(a)	<b>3,693,318</b>	4,053,705
Deferred income	遞延收益	34	<b>318,933</b>	368,557
Deferred tax liabilities	遞延稅項負債	32(b)	<b>153,949</b>	207,269
Provision for warranty	質保金撥備	33	<b>574,744</b>	676,958
Other non-current liabilities	其他非流動負債	35	<b>516,892</b>	404,005
<b>Total non-current liabilities</b>	<b>非流動負債總額</b>		<b>5,257,836</b>	5,710,494
<b>NET ASSETS</b>	<b>資產淨額</b>		<b>7,743,172</b>	7,933,265
<b>CAPITAL AND RESERVES</b>	<b>資本及儲備</b>			
Share capital	股本	36(c)	<b>6,063,770</b>	6,063,770
Reserves	儲備		<b>(1,294,286)</b>	(1,199,226)
<b>Total equity attributable to equity shareholders of the Company</b>	<b>歸屬於本公司權益股東的權益總額</b>		<b>4,769,484</b>	4,864,544
Non-controlling interests	非控股權益		<b>2,973,688</b>	3,068,721
<b>TOTAL EQUITY</b>	<b>權益總額</b>		<b>7,743,172</b>	7,933,265

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

Approved and authorised for issue by the board of directors on 29 March 2019.

董事會於2019年3月29日批准及授權刊發。

**CHEN Dongqing 陳冬青**  
Executive Director 執行董事

**TANG Chaoxiong 唐超雄**  
Executive Director 執行董事

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

## 合併權益變動表

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

		Attributable to equity shareholders of the Company 歸屬本公司權益股東								
		Share capital	Capital reserve	PRC statutory reserve	Exchange reserve	Fair value reserve (non-recycling)	Accumulated losses	Sub-total	Non-controlling interests	Total equity
		股本	資本儲備	中國法定公積	匯兌儲備	(不重新計入)	累計虧損	小計	非控股權益	權益總額
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
		Note 36(c)	Note 36(d)(i)	Note 36(d)(ii)	Note 36(d)(iii)	Note 36(d)(iv)				
		附註36(c)	附註36(d)(i)	附註36(d)(ii)	附註36(d)(iii)	附註36(d)(iv)				
<b>Balance at 31 December 2017</b>	<b>2017年12月31日結餘</b>	6,063,770	1,053,550	129,332	995	-	(2,383,103)	4,864,544	3,068,721	7,933,265
Impact on initial application of IFRS 15	初次應用《國際財務報告準則》第15號的影響	-	-	-	-	-	(27,733)	(27,733)	-	(27,733)
Impact on initial application of IFRS 9	初次應用《國際財務報告準則》第9號的影響	-	-	-	-	11,482	(100,223)	(88,741)	(28,276)	(117,017)
<b>Balance at 1 January 2018</b>	<b>2018年1月1日結餘</b>	6,063,770	1,053,550	129,332	995	11,482	(2,511,059)	4,748,070	3,040,445	7,788,515
<b>Changes in equity for 2018:</b>	<b>2018年權益變動</b>									
Profit/(loss) for the year	本年利潤/(虧損)	-	-	-	-	-	114,087	114,087	(1,724)	112,363
Other comprehensive income	其他綜合收益	-	-	-	1,126	(44,414)	-	(43,288)	-	(43,288)
Total comprehensive income	綜合收益總額	-	-	-	1,126	(44,414)	114,087	70,799	(1,724)	69,075
Disposal of a subsidiary	處置附屬公司	-	-	-	-	-	-	-	(22,478)	(22,478)
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權益所有者支付股息	-	-	-	-	-	-	-	(91,940)	(91,940)
Acquisition of non-controlling interests in subsidiaries	收購非同一控制下附屬公司	-	-	-	-	-	(49,385)	(49,385)	49,385	-
<b>Balance at 31 December 2018</b>	<b>2018年12月31日結餘</b>	6,063,770	1,053,550	129,332	2,121	(32,932)	(2,446,357)	4,769,484	2,973,688	7,743,172

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

## 合併權益變動表(續)

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

		Attributable to equity shareholders of the Company 歸屬本公司權益股東							
		Share capital 股本	Capital reserve 資本儲備	PRC statutory reserve 中國法定公積金	Exchange reserve 匯兌儲備	Accumulated loss 累積虧損	Sub-total 小計	Non-controlling interests 非控股權益	Total equity 權益總額
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
		Note 36(c) 附註36(c)	Note 36(d)(i) 附註36(d)(i)	Note 36(d)(ii) 附註36(d)(ii)	Note 36(d)(iii) 附註36(d)(iii)				
<b>Balance at 1 January 2017</b> <b>(as previously reported)</b>	<b>2017年1月1日結餘</b> <b>(往期披露)</b>	6,063,770	1,071,707	129,332	2,282	(2,348,260)	4,918,831	3,076,379	7,995,210
Effect on acquisition of a subsidiary under common control	收購同一控制下附屬 公司的影響	-	30,000	-	-	43,345	73,345	-	73,345
<b>Balance at 1 January 2017</b> <b>(restated)</b>	<b>2017年1月1日結餘</b> <b>(重述)</b>	6,063,770	1,101,707	129,332	2,282	(2,304,915)	4,992,176	3,076,379	8,068,555
<b>Changes in equity for 2017:</b>	<b>2017年權益變動</b>								
Profit for the year	本年利潤	-	-	-	-	43,703	43,703	47,067	90,770
Other comprehensive income	其他綜合收益	-	-	-	(1,287)	-	(1,287)	-	(1,287)
Total comprehensive income	綜合收益總額	-	-	-	(1,287)	43,703	42,416	47,067	89,483
Dividends to the previous equity owner of the subsidiary acquired under common control	向收購的同一控制下 附屬公司的權益所 有者支付股息	-	-	-	-	(38,489)	(38,489)	-	(38,489)
Disposal of subsidiaries	處置附屬公司	-	-	-	-	-	-	(112,762)	(112,762)
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權 益所有者支付股息	-	-	-	-	-	-	(25,365)	(25,365)
Acquisition of a subsidiary under common control	收購非同一控制下附 屬公司	-	(48,157)	-	-	-	(48,157)	-	(48,157)
Reclassification of non-controlling interests due to liquidation of a subsidiary	因清算附屬公司重分 類非控股權益	-	-	-	-	(83,402)	(83,402)	83,402	-
<b>Balance at 31 December</b> <b>2017 (Note)</b>	<b>2017年12月31日結</b> <b>餘(附註)</b>	6,063,770	1,053,550	129,332	995	(2,383,103)	4,864,544	3,068,721	7,933,265

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

# CONSOLIDATED STATEMENT OF CASH FLOWS

## 合併現金流量表

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

			2018	2017
				(Note)
				(附註)
		Note	RMB'000	RMB'000
		附註	人民幣千元	人民幣千元
<b>Cash flows from operating activities</b>	<b>來自經營活動的現金流</b>			
Profit before taxation	稅前利潤		<b>95,398</b>	273,157
– Continuing operations	– 持續經營業務		<b>(59,661)</b>	627,415
– Discontinued operation	– 已終止經營業務	11	<b>155,059</b>	(354,258)
Adjustments for:	調整為：			
Depreciation	折舊	7(b)	<b>421,845</b>	453,938
Amortisation	攤銷	7(b)	<b>83,061</b>	78,769
Net gain on disposals of property, plant and equipment and intangible assets	出售物業、廠房及設備、無形資產收益淨額	5	<b>(1,301)</b>	(4,925)
Impairment loss on trade and other receivables and contract assets	應收賬款、其他應收款項及合同資產減值虧損	7(b)	<b>209,255</b>	278,684
Impairment loss on property, plant and equipment and intangible assets	物業、廠房、設備及無形資產減值虧損	7(b)	<b>145,114</b>	137,080
(Reversal of)/impairment loss of other non-current assets	其他非流動資產減值(轉回)/損失	7(b)	<b>(108,814)</b>	171,175
Write down of inventories	存貨撇減	22(b)	<b>30,256</b>	1,612
Finance costs	財務成本	6	<b>584,778</b>	570,695
Interest income	利息收入	5	<b>(97,052)</b>	(119,642)
Government grants	政府補助	34	<b>(55,683)</b>	(21,367)
Dividend income from unquoted equity securities	非上市權益證券的股息收入	5	<b>(18,115)</b>	(16,700)
Net gain on disposals of subsidiaries and interest in an associate	處置附屬公司及投資聯營公司淨收益	5	<b>(8,453)</b>	(561,454)
Share of profits less losses of associates	應佔聯營公司利潤減虧損		<b>(61,433)</b>	(86,734)
Impairment loss on assets held for sale	劃分為持有待售非流動資產減值損失	7(b)	–	17,968
Gain on debt restructuring and reversal of accrued payables	債務重組利得		–	(117,186)

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。



## CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED) 合併現金流量表(續)

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
	Note 附註		(Note) (附註)
<b>Cash flows from operating activities (continued)</b>	<b>來自經營活動的現金流(續)</b>		
Changes in working capital:	營運資金的變化：		
Decrease/(increase) in inventories	存貨減少／(增加)	<b>96,067</b>	(415,787)
(Increase)/decrease in contract assets	合同資產的(增加)／減少	<b>(231,940)</b>	119,127
Decrease in trade and bills receivables	應收賬款及票據的減少	<b>174,277</b>	1,224,545
Decrease/(increase) in deposits, prepayments and other receivables	按金、預付款項和其他應收款 項的減少／(增加)	<b>228,896</b>	(128,645)
Decrease in other non-current assets	其他非流動資產的減少	<b>199,981</b>	897,181
Decrease in trade and bills payables	應付帳款及票據的減少	<b>(515,476)</b>	(1,355,637)
Increase in other payables	其他應付款項的增加	<b>48,154</b>	120,493
Decrease in contract liabilities	合同負債的減少	<b>(256,610)</b>	(100,046)
Decrease in provision for warranty	質保金撥備的減少	<b>(208,783)</b>	(135,290)
Increase in assets held for sale	重分類為持有待售資產的營運 資金的增加	-	6,964
<b>Cash generated from operations</b>	<b>經營中產生的現金</b>	<b>753,422</b>	1,287,975
Income tax paid	已付所得稅	<b>(222,921)</b>	(280,231)
<b>Net cash generated from operating activities</b>	<b>經營活動產生的淨現金</b>	<b>530,501</b>	1,007,744

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

## CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

### 合併現金流量表(續)

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

		2018	2017
	Note	<b>RMB'000</b>	(Note)
	附註	人民幣千元	(附註)
			RMB'000
			人民幣千元
<b>Cash flows from investing activities</b>			
	投資活動產生的現金流		
Payments for purchase of property, plant and equipment, lease prepayments and intangible assets	採購物業、廠房及設備、預付土地租賃款及無形資產支出	<b>(506,325)</b>	(389,275)
Disposals of interests in subsidiaries, net of cash disposed of	出售附屬公司所處置之現金淨額	<b>(13,921)</b>	769,505
Cash and cash equivalents reclassified as assets held for sale	劃分為持有待售的現金及現金等價物	-	(75)
Payments for advances to related parties	給關聯方的墊款	<b>(6,028)</b>	(44,269)
Payments for advances to third parties	給第三方的墊款	<b>(371,123)</b>	-
Proceeds from repayment of advances by related parties	關聯方償還墊款	<b>13,180</b>	512,546
Proceeds from repayment of advances by third parties	第三方償還墊款	<b>74,800</b>	-
Increase in deposits with banks	銀行存款的增加	<b>(11,000)</b>	(1,672,000)
Withdrawal of deposits with banks	銀行存款的提取	<b>322,000</b>	1,582,008
Government grants received	收到的政府補助	<b>6,059</b>	11,038
Proceeds from disposals of property, plant and equipment and intangible assets	出售物業、廠房及設備及無形資產所得款項	<b>3,564</b>	177,473
Dividends received	已收股息	<b>89,119</b>	97,705
Interest received	已收利息	<b>98,915</b>	54,196
Payments for acquisition of a subsidiary under common control	支付收購附屬公司款項	<b>(18,000)</b>	(20,000)
		<b>(318,760)</b>	1,078,852
<b>Net cash (used in)/generated from investing activities</b>	投資活動(使用)/產生的淨現金	<b>(318,760)</b>	1,078,852

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。

## CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED) 合併現金流量表(續)

For the year ended 31 December 2018 (Expressed in RMB)  
截至2018年12月31日止年度(以人民幣列示)

		2018	2017
	Note	<b>RMB'000</b>	(Note)
	附註	人民幣千元	(附註)
			RMB'000
			人民幣千元
<b>Cash flows from financing activities</b>	<b>融資活動產生的現金流</b>		
Proceeds from borrowings	貸款所得款項	27(b) <b>9,879,000</b>	8,248,231
Proceeds from issuance of private placement notes	發行私人配售債務融資工具所得款項	27(b) <b>1,000,000</b>	-
Decrease in restricted deposits	受限制存款的減少	<b>257,969</b>	635,479
Increase in restricted deposits	受限制存款的增加	<b>(339,964)</b>	(656,775)
Repayment of advances from related parties	償還關聯方墊款	-	(9)
Repayment of borrowings and corporate bonds	償還貸款及公司債券	27(b) <b>(9,908,876)</b>	(10,088,100)
Repayment of private placement notes	償還私人配售債務融資工具	27(b) <b>(1,000,000)</b>	-
Dividends paid to the previous equity owner by the subsidiary acquired under common control	向收購的同一控制下附屬公司的股東支付股息	-	(38,489)
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權益所有者支付股息	<b>(82,293)</b>	(42,026)
Interest paid	已付利息	27(b) <b>(581,976)</b>	(584,124)
<b>Net cash used in financing activities</b>	<b>融資活動使用的淨現金</b>	<b>(776,140)</b>	(2,525,813)
<b>Net decrease in cash and cash equivalents</b>	<b>現金及現金等價物的淨減少額</b>	<b>(564,399)</b>	(439,217)
<b>Cash and cash equivalents at 1 January</b>	<b>於1月1日的現金及現金等價物</b>	<b>3,994,074</b>	4,443,102
Effect of foreign exchange rate changes	外匯匯率變化的影響	<b>6,784</b>	(9,811)
<b>Cash and cash equivalents at 31 December</b>	<b>於12月31日的現金及現金等價物</b>	27(a) <b>3,436,459</b>	3,994,074

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

The notes on pages 194 to 349 form part of these financial statements.

第194頁至第349頁的附註為本財務報告的組成部分。



# NOTES TO THE FINANCIAL STATEMENTS

## 財務報表附註

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 1 ORGANISATION

Guodian Technology & Environment Group Corporation Limited (the “**Company**”) was formerly known as Guodian Technology & Environment Group Limited Liability Company and was established on 6 April 2001 as a state-owned enterprise with limited liability. The Company was converted to a joint stock company with limited liability in the PRC on 16 May 2011. On 30 December 2011, the Company’s H shares were listed on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”).

On 27 August 2018, the parent and holding company of the Company was changed from Guodian Group Limited (“**Guodian**”) to China Energy Investment Corporation Limited (“**China Energy**”) (see Note 44).

### 2 SIGNIFICANT ACCOUNTING POLICIES

#### (a) Statement of compliance

These financial statements have been prepared in accordance with all applicable International Financial Reporting Standards (“**IFRSs**”), which collective term includes all applicable individual International Financial Reporting Standards, International Accounting Standards (“**IASs**”) and Interpretations issued by the International Accounting Standards Board (“**IASB**”) and the disclosure requirements of the Hong Kong Companies Ordinance. These financial statements also comply with the applicable disclosure provisions of the Rules Governing the Listing of Securities on the Stock Exchange. Significant accounting policies adopted by the Group are set out below.

The IASB has issued certain new and revised IFRSs that are first effective or available for early adoption for the current accounting period of the Group. Note 2(c) provides information on any changes in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Group for the current and prior accounting periods reflected in these financial statements.

### 1 組織

國電科技環保集團股份有限公司(「**本公司**」)前身為國電科技環保集團有限公司，為國有有限責任企業及成立於2001年4月6日。本公司於2011年5月16日轉制為中國股份有限公司。2011年12月30日，本公司的H股在香港聯合交易所有限公司(「**聯交所**」)上市。

於二零一八年八月二十七日，本公司的母公司及最終控股公司由國電集團(「**國電**」)更改為國家能源投資集團有限責任公司(「**國家能源集團**」)(見附註44)。

### 2 主要會計政策

#### (a) 合規聲明

此等財務報表依據國際會計準則理事會頒佈的所有適用的《國際財務報告準則》(該統稱包括所有適用的單項《國際財務報告準則》、《國際會計準則》和國際會計準則理事會發佈的詮釋)而編製，並符合香港《公司條例》中適用的披露規定。此等財務報表也符合《香港聯合交易所有限公司證券上市規則》中適用的披露規定。本集團所採納的重大會計政策概要如下。

國際會計準則理事會已頒佈若干新訂及經修訂的《國際財務報告準則》，並於本集團及本公司的當前會計期間首次生效或可提早採納。因首次採納此等已反映在財務報表中與本集團當期或過往會計期間相關的新準則而導致的會計政策變動的資訊載於附註2(c)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (b) Basis of preparation of the financial statements

The consolidated financial statements for the year ended 31 December 2018 comprise the Company and its subsidiaries (together referred to as the “Group”) and the Group’s interest in associates.

The measurement basis used in the preparation of the financial statements is the historical cost basis except for equity investments (see Note 2(i)) which are stated at their fair values.

Non-current assets and disposal groups held for sale are stated at the lower of carrying amount and fair value less cost to sell (see Note 2 (bb)).

The preparation of financial statements in conformity with IFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Judgements made by management in the application of IFRSs that have significant effect on these financial statements and major sources of estimation uncertainty are discussed in Note 3.

### 2 主要會計政策(續)

#### (b) 財務報表編製基礎

截至2018年12月31日止年度的合併財務報表包括本公司及其附屬公司(統稱為「本集團」)及本集團對聯營公司的權益。

除以公允價值列示的股權投資外(見附註2(i))，財務報表編製中使用的計量基礎是歷史成本基礎。

持有待售的非流動資產和處置組按帳面價值與公允價值減去處置費用的較低者列示(見附註2(bb))。

編製符合《國際財務報告準則》規定的財務報表要求管理層作出判斷、估計和假設，而該等判斷、估計和假設會影響政策的應用和資產、負債、收入以及支出的報告金額。估計和相關假設系基於過往經驗和在該情況下被認為是合理的各種其他因素，並因此形成判斷目前無法從其他來源而得出的資產和負債帳面價值的依據。實際結果可能有別於這些估計。

各項估計和相關假設會被持續審閱。如果會計估計的修訂僅影響作出有關修訂的期間，則有關修訂在當期確認；但如果會計估計的修訂對當期和以後的期間均有影響，則會在作出有關修訂的期間和以後的期間內確認。

管理層在應用《國際財務報告準則》時所作出且對財務報表有重大影響之判斷，以及估算產生不確定性之主要來源，詳述於附註3。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)

(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續)

### (CONTINUED)

#### (c) Changes in accounting policies

The IASB has issued a number of new IFRSs and amendments to IFRSs that are first effective for the current accounting period of the Group. Of these, the following developments are relevant to the Group's financial statements:

- IFRS 9, *Financial instruments*
- IFRS 15, *Revenue from contracts with customers*
- IFRIC 22, *Foreign currency transactions and advance consideration*

The Group has not applied any new standard or interpretation that is not yet effective for the current accounting period.

#### (i) IFRS 9, *Financial instruments*

IFRS 9 replaces IAS 39, *Financial instruments: recognition and measurement*. It sets out the requirements for recognising and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items.

The Group has applied IFRS 9 retrospectively to items that existed at 1 January 2018 in accordance with the transition requirements. The Group has recognised the cumulative effect of initial application as an adjustment to the opening equity at 1 January 2018. Therefore, comparative information continues to be reported under IAS 39.

#### (c) 會計政策變更

國際會計準則理事會頒佈了若干新訂的《國際財務報告準則》和經修訂的《國際財務報告準則》，該等新訂和經修訂準則於本集團當前會計期間首次生效。其中，以下變動與本集團的財務報表相關：

- 《國際財務報告準則》第9號，「金融工具」
- 《國際財務報告準則》第15號，「客戶合同收入」
- 《國際財務報告解釋公告》第22號，「外幣交易和預付對價」

本集團並未採用任何於當前會計期間尚未生效的新的準則或詮釋。

#### (i) 《國際財務報告準則》第9號，「金融工具」

《國際財務報告準則》第9號取代《國際會計準則》第39號「金融工具：確認及計量」。《國際財務報告準則》第9號規定了金融資產、金融負債及購買或出售非金融項目的若干合約的確認及計量要求。

本集團已根據過渡要求就於2018年1月1日的項目追溯採用《國際財務報告準則》第9號。本集團已將初始採用《國際財務報告準則》第9號的累積影響確認為於2018年1月1日期初權益的調整。因此，比較數據將繼續按照《國際會計準則》第39號進行匯報。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)      2 主要會計政策(續)

#### (c) Changes in accounting policies (Continued)

##### (i) IFRS 9, Financial instruments (Continued)

The following table summarises the impact of transition to IFRS 9 on accumulated losses and reserves and the related tax impact at 1 January 2018.

#### (c) 會計政策變更(續)

##### (i) 《國際財務報告準則》第9號，「金融工具」(續)

下表概述了過渡至《國際財務報告準則》第9號對累計虧損和儲備的影響，以及於2018年1月1日的相關稅務影響。

		<i>RMB'000</i> 人民幣千元
<b>Accumulated losses</b>	<b>累計虧損</b>	
Recognition of additional expected credit losses on:	確認以下項目的額外預期信用損失：	
– financial assets measured at amortised cost	– 以攤餘成本計量的金融資產	127,951
Related tax	相關稅項	(27,728)
Net increase in accumulated losses at 1 January 2018	於2018年1月1日累計虧損的增加淨額	100,223
<b>Fair value reserve (non-recycling)</b>	<b>公允價值儲備(不重新計入)</b>	
Increase in fair value reserve (non-recycling) at 1 January 2018	於2018年1月1日公允價值儲備(不重新計入)的增加額	(11,482)
<b>Non-controlling interests</b>	<b>非控股權益</b>	
Recognition of additional expected credit losses on financial assets measured at amortised cost and decrease in non-controlling interests at 1 January 2018	於2018年1月1日確認按攤餘成本計量的金融資產額外預期信用損失及非控股權益的減少數額	28,276

Further details of the nature and effect of the changes to previous accounting policies and the transition approach are set out below:

相對以往會計政策的變更的性質和影響，以及過渡方案的進一步詳情載列如下：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (i) IFRS 9, Financial instruments (Continued)

###### a. Classification of financial assets and financial liabilities

IFRS 9 categories financial assets into three principal classification categories: measured at amortised cost, at fair value through other comprehensive income (FVOCI) and at fair value through profit or loss (FVPL). These supersede IAS 39's categories of held-to-maturity investments, loans and receivables, available-for-sale financial assets and financial assets measured at FVPL. The classification of financial assets under IFRS 9 is based on the business model under which the financial asset is managed and its contractual cash flow characteristics. Under IFRS 9, derivatives embedded in contracts where the host is a financial asset in the scope of the standard are not separated from the host. Instead, the hybrid instrument as a whole is assessed for classification.

The following table shows the original measurement categories for each class of the Group's financial assets under IAS 39 and reconciles the carrying amounts of those financial assets determined in accordance with IAS 39 to those determined in accordance with IFRS 9.

#### (c) 會計政策變更(續)

##### (i) 《國際財務報告準則》第9號，「金融工具」(續)

###### a. 金融資產及金融負債的分類

《國際財務報告準則》第9號將金融資產分為三個主要類別，分別為按攤餘成本計量、按公允價值計量且其變動計入其他綜合收益及按公允價值計量且其變動計入損益。該等分類取代了《國際會計準則》第39號就持有至到期投資、貸款和應收款項、可供出售金融資產以及按公允價值計量且其變動計入損益計量的金融資產的分類。《國際財務報告準則》第9號中金融資產的分類是基於實體管理金融資產的業務模式及該資產的合同現金流量特徵而釐定。根據《國際財務報告準則》第9號，如果混合合同的主合同為準則範圍內的一項金融資產，則嵌入的衍生工具不從主合同中分拆出來。相反，該混合工具應整體進行分類評估。

下表列示了根據《國際會計準則》第39號對本集團各類金融資產的原始計量分類，並將根據《國際會計準則》第39號釐定的金融資產的帳面金額與根據《國際財務報告準則》第9號釐定的金融資產的帳面金額進行對賬。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (i) IFRS 9, Financial instruments (Continued)

- a. Classification of financial assets and financial liabilities (Continued)

#### (c) 會計政策變更(續)

##### (i) 《國際財務報告準則》第9號，「金融工具」(續)

- a. 金融資產及金融負債的分類(續)

		IAS 39 carrying amount at 31 December 2017 於2017年 12月31日 《國際會計準則》第 39號的 帳面金額 RMB'000 人民幣千元	Reclassification 重新分類 RMB'000 人民幣千元	Remeasurement 重新計量 RMB'000 人民幣千元	Impact of IFRS 15 《國際財務 報告準則》 第15號的影響 RMB'000 人民幣千元 (Note (i)) (附註(i))	IFRS 9 carrying amount at 1 January 2018 於2018年 1月1日 《國際財務 報告準則》 第9號的帳面金額 RMB'000 人民幣千元
<b>Financial assets carried at amortised cost</b>	<b>以攤餘成本計量的金融資產</b>					
Cash at bank and in hand	銀行存款及庫存現金	4,305,074	-	-	-	4,305,074
Contract assets	合同資產	1,324,257	-	(5,731)	(32,627)	1,285,899
Trade and bills receivables	應收賬款及票據	12,842,798	-	(115,357)	-	12,727,441
Other receivables (included in deposits, prepayments and other receivables)	其他應收款項(包含在按金、預付款項及其他應收款項中)	1,117,842	-	(32,810)	-	1,085,032
Long-term trade receivables (included in other non-current assets)	長期應收賬款(包含在其他非流動資產中)	3,226,476	-	(9,196)	-	3,217,280
		22,816,447	-	(163,094)	(32,627)	22,620,726
<b>Financial assets measured at FVOCI (non-recyclable)</b>	<b>以公允價值計量且其變動計入其他綜合收益(不重新計入)計量的金融資產</b>					
Equity securities (Note (iii))	權益證券(附註(iii))	-	162,187	11,482	-	173,669
<b>Financial assets classified as available-for-sale under IAS 39 (Note (ii))</b>	<b>根據《國際會計準則》第39號分類為可供出售金融資產(附註(ii))</b>	162,187	(162,187)	-	-	-

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續)

### (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (i) IFRS 9, Financial instruments (Continued)

- a. Classification of financial assets and financial liabilities (Continued)

Notes:

- (i) Contract assets of RMB32,627,000 were derecognised at 1 January 2018 as a result of the initial application of IFRS 15 (see Note 2(c)(ii)).
- (ii) Under IAS 39, equity securities not held for trading were classified as available-for-sale financial assets. These equity securities are classified as at FVPL under IFRS 9, unless they are eligible for and designated at FVOCI by the Group. At 1 January 2018, the Group designated its investments in equity securities at FVOCI (non-recycling), as the investments are held for strategic purposes.

For an explanation of how the Group classifies and measures financial assets and recognises related gains and losses under IFRS 9, see respective accounting policy notes in Notes 2(i), (n)(i), (q), (r) and (u).

The measurement categories for all financial liabilities remain the same. The carrying amounts for all financial liabilities at 1 January 2018 have not been impacted by the initial application of IFRS 9.

#### (c) 會計政策變更(續)

##### (i) 《國際財務報告準則》第9號，「金融工具」(續)

- a. 金融資產及金融負債的分類(續)

附註：

- (i) 因初始採用《國際財務報告準則》第15號導致於2018年1月1日終止確認合同資產總額人民幣32,627,000元(參閱附註2(c)(ii))。
- (ii) 根據《國際會計準則》第39號，非持有交易的權益證券被劃分為可供出售金融資產。該等權益證券根據《國際財務報告準則》第9號按公允價值計量且其變動計入損益計量分類，除非該等權益證券符合且由本集團指定為按公允價值計量且其變動計入其他綜合收益計量。於2018年1月1日，本集團指定其權益投資按公允價值計量且其變動計入其他綜合收益(不重新計入)計量，因為該項投資為以戰略目的持有。

有關本集團如何根據國際財務報告準則第9號分類及計量金融資產及確認相關收益及虧損的解釋，請參閱附註2(i)，(n)(i)，(q)，(r)及(u)中的相關會計政策。

所有金融負債的計量分類保持不變。所有金融負債於2018年1月1日的帳面金額並未受初始採用《國際財務報告準則》第9號影響。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (c) Changes in accounting policies (Continued)

#### (i) IFRS 9, Financial instruments (Continued)

##### a. Classification of financial assets and financial liabilities (Continued)

The Group did not designate or de-designate any financial asset or financial liability at FVPL at 1 January 2018.

##### b. Credit losses

IFRS 9 replaces the “incurred loss” model in IAS 39 with the “expected credit loss” (“ECL”) model. The ECL model requires an ongoing measurement of credit risk associated with a financial asset and therefore recognises ECLs earlier than under the “incurred loss” accounting model in IAS 39.

The Group applies the new ECL model to the following items:

- financial assets measured at amortised cost (including cash and cash equivalents, long-term trade receivables, trade and bills receivables and other receivables), and
- contract assets as defined in IFRS 15 (see Note 2(q)).

For further details on the Group’s accounting policy for accounting for credit losses, see Note 2(n)(i).

### (c) 會計政策變更(續)

#### (i) 《國際財務報告準則》第9號，「金融工具」(續)

##### a. 金融資產及金融負債的分類(續)

於2018年1月1日，本集團並未指定或取消指定任何按公允價值計量且其變動計入損益計量的金融資產或金融負債。

##### b. 信用損失

《國際財務報告準則》第9號將《國際會計準則》第39號的「已發生損失」模型替換為「預期信用損失」模型。預期信用損失模型要求對與金融資產相關的信用風險進行持續計量，因此，相較於根據《國際會計準則》第39號的「已發生損失」模型，該模型更早確認預期信用損失。

本集團將新的預期信用損失模型應用於以下項目：

- 以攤餘成本計量的金融資產(其中包括現金及現金等價物、長期應收賬款、應收賬款及票據及其他應收款項)；及
- 《國際財務報告準則》第15號中定義的合同資產(見附註2(q))。

有關本集團信用損失會計政策的進一步詳情，請參閱附註2(n)(i)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (i) IFRS 9, Financial instruments (Continued)

##### b. Credit losses (Continued)

Equity securities designated at FVOCI (non-recycling) are not subject to the ECL assessment.

The following table reconciles the closing loss allowance determined in accordance with IAS 39 as at 31 December 2017 with the opening loss allowance determined in accordance with IFRS 9 as at 1 January 2018.

#### (c) 會計政策變更(續)

##### (i) 《國際財務報告準則》第9號，「金融工具」(續)

##### b. 信用損失(續)

指定以公允價值計量且其變動計入其他綜合收益(不重新計入)計量的權益證券無須進行預期信用損失評估。

下表就於2017年12月31日根據《國際會計準則》第39號釐定的期末損失準備及於2018年1月1日根據《國際財務報告準則》第9號釐定的期初損失準備進行對賬。

		<i>RMB'000</i> 人民幣千元
Loss allowance at 31 December 2017 under IAS 39	根據《國際會計準則》第39號於2017年12月31日的損失準備	3,111,356
Additional credit loss recognised at 1 January 2018 on:	於2018年1月1日確認的額外信用損失的項目：	
– Trade and bills receivables ( <i>Note 24</i> )	– 應收賬款及票據(附註24)	115,357
– Other receivables (included in deposits, prepayments and other receivables)	– 其他應收款項(包含在按金、預付款項及其他應收款項中)	32,810
– Contract assets	– 合同資產	5,731
– Long-term trade receivables (included in other non-current assets)	– 長期應收賬款(包含在其他非流動資產中)	9,196
Loss allowance at 1 January 2018 under IFRS 9	根據《國際財務報告準則》第9號於2018年1月1日的損失準備	3,274,450

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (c) Changes in accounting policies (Continued)

### (c) 會計政策變更(續)

#### (i) IFRS 9, Financial instruments (Continued)

#### (i) 《國際財務報告準則》第9號，「金融工具」(續)

##### c. Transition

##### c. 過渡

Changes in accounting policies resulting from the adoption of IFRS 9 have been applied retrospectively, except as described below:

除下述情況外，採用《國際財務報告準則》第9號導致的會計政策變更已追溯應用：

- Information relating to comparative periods has not been restated. Differences in the carrying amounts of financial assets resulting from the adoption of IFRS 9 are recognised in retained earnings and reserves as at 1 January 2018. Accordingly, the information presented for 2017 continues to be reported under IAS 39 and thus may not be comparable with the current period.
- The following assessments have been made on the basis of the facts and circumstances that existed at 1 January 2018 (the date of initial application of IFRS 9 by the Group):
  - the determination of the business model within which a financial asset is held; and
  - the designation of certain investments in equity instruments not held for trading to be classified as at FVOCI (non-recycling).
- If, at the date of initial application, the assessment of whether there has been a significant increase in credit risk since initial recognition would have involved undue cost or effort, a lifetime ECL has been recognised for that financial instrument.

- 有關比較期間的資料並未重述。採用《國際財務報告準則》第9號導致的金融資產帳面金額差額於2018年1月1日留存收益及儲備中確認。因此，二零一七年度編製的資料繼續根據《國際會計準則》第39號進行匯報，且該等資料與當前期間的資料不具可比性。
- 下述評估乃根據2018年1月1日(本集團初始採用《國際財務報告準則》第9號的日期)存在的事實及情況所開展：
  - 釐定持有金融資產的業務模式；及
  - 指定若干非持有交易的權益工具投資以公允價值計量且其變動計入其他綜合收益(不重新計入)計量分類。
- 倘於初始採用日期，就初始確認後信用風險是否存在顯著增加開展的評估涉及付出不當成本或努力，則確認該金融工具的整個存續期預期風險損失。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續)

### (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (ii) IFRS 15, Revenue from contracts with customers

IFRS 15 establishes a comprehensive framework for recognising revenue and some costs from contracts with customers. IFRS 15 replaces IAS 18, *Revenue*, which covered revenue arising from sale of goods and rendering of services, and IAS 11, *Construction contracts*, which specified the accounting for construction contracts.

IFRS 15 also introduces additional qualitative and quantitative disclosure requirements which aim to enable users of the financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers.

The Group has elected to use the cumulative effect transition method and has recognised the cumulative effect of initial application as an adjustment to the opening balance of equity at 1 January 2018. Therefore, comparative information has not been restated and continues to be reported under IAS 11 and IAS 18. As allowed by IFRS 15, the Group has applied the new requirements only to contracts that were not completed before 1 January 2018.

The following table summarises the impact of transition to IFRS 15 on accumulated losses and the related tax impact at 1 January 2018:

#### (c) 會計政策變更(續)

##### (ii) 《國際財務報告準則》第15號，「客戶合同收入」

《國際財務報告準則》第15號建立了確認來自客戶合同收入及若干成本的全面框架。《國際財務報告準則》第15號取代《國際會計準則》第18號「收入」(涵蓋銷售商品及提供服務而產生的收入)，以及《國際會計準則》第11號「建造合同」(明確建造合同的會計處理)。

《國際財務報告準則》第15號還引入了額外的定性和定量披露要求，旨在使財務報表使用者能夠瞭解建造合同收入和現金流量的性質、數量、時間和不確定性。

本集團已選擇採用累積影響的過渡方法，並已將初始採用《國際財務報告準則》第15號的累積影響確認為於2018年1月1日期初結餘的調整。因此，比較數據並未重述，且繼續按照《國際會計準則》第11號和《國際會計準則》第18號進行匯報。在《國際財務報告準則》第15號的允許下，本集團僅將新規定應用於2018年1月1日前尚未完成的合同。

下表概述了於2018年1月1日過渡至《國際財務報告準則》第15號對累計虧損的影響以及相關稅務影響：

		RMB'000 人民幣千元
<b>Accumulated losses</b>	<b>累計虧損</b>	
Timing of revenue recognition – revenue from construction contracts	收入確認時點 – 客戶合同收入	32,627
Related tax	相關稅項	(4,894)
Net increase in accumulated losses at 1 January 2018	累計虧損於2018年1月1日的增加淨額	27,733

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (c) Changes in accounting policies (Continued)

### (c) 會計政策變更(續)

#### (ii) IFRS 15, Revenue from contracts with customers (Continued)

#### (ii) 《國際財務報告準則》第15號，「客戶合同收入」(續)

Further details of the nature and effect of the changes on previous accounting policies are set out below:

有關以往年度會計政策變更的性質及影響的進一步詳情載列如下：

##### a. Timing of revenue recognition

##### a. 確認收入的時點

Previously, revenue arising from construction contracts and provision of services was recognised over time, whereas revenue from sale of goods was generally recognised at a point in time when the risks and rewards of ownership of the goods had passed to the customers.

以往年度建造合同及提供服務產生的收入在一段時間內確認，而商品銷售產生的收入一般於貨物所有權的風險及回報轉移至客戶的時點進行確認。

Under IFRS 15, revenue is recognised when the customer obtains control of the promised good or service in the contract. This may be at a single point in time or over time. IFRS 15 identifies the following three situations in which control of the promised good or service is regarded as being transferred over time:

根據《國際財務報告準則》第15號，收入於客戶取得合同中所承諾的貨物或服務的控制權時確認。收入可能在某個時間點或在一段時間內確認。《國際財務報告準則》第15號確定了以下所承諾貨物或提供服務的控制權被視為在一段時間內轉移的三種情況：

- A. When the customer simultaneously receives and consumes the benefits provided by the entity's performance, as the entity performs;
- B. When the entity's performance creates or enhances an asset (for example work in progress) that the customer controls as the asset is created or enhanced;
- C. When the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date.

- A. 當實體履約時，客戶同時收到及使用實體履約所提供的利益時；
- B. 當實體履約創造或改良一項資產，且在資產被創造或改良的過程中由客戶控制時(如在產品)；
- C. 當實體履約時，不會創造出對實體而言具有替代用途的資產，且該實體對迄今完成的履約付款具有可執行權利時。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (ii) IFRS 15, Revenue from contracts with customers (Continued)

###### a. Timing of revenue recognition (Continued)

If the contract terms and the entity's activities do not fall into any of these 3 situations, then under IFRS 15 the entity recognises revenue for the sale of that good or service at a single point in time, being when control has passed. Transfer of risks and rewards of ownership is only one of the indicators that is considered in determining when the transfer of control occurs.

The adoption of IFRS 15 does not have a significant impact on when the Group recognises revenue from sales of goods and provision of services. However, the timing of revenue recognition from construction contracts is affected as follow:

According to the requirements of IFRS 15, a contract modification is a change in the price or point of a contract, or both. This may be described as a change order, a variation, or an amendment. When a contract modification is approved, it creates or changes the enforceable rights and obligations of the parties to the contract. This approval may be written, oral, or implied by customary business practices, and should be legally enforceable.

If the parties have not approved a contract modification, then an entity continues to apply the requirements of the new standard to the existing contract until approval is obtained.

#### (c) 會計政策變更(續)

##### (ii) 《國際財務報告準則》第15號， 「客戶合同收入」(續)

###### a. 確認收入的時點(續)

倘合同條款及實體活動並不屬於該等三種情況的任何一種，則根據《國際財務報告準則》第15號，實體於某一指定時間點(即控制權轉移時)就銷售貨物或服務確認收入。所有權風險及回報的轉移僅為釐定控制權何時轉移的一項指標。

採用《國際財務報告準則》第15號對本集團何時確認商品銷售和提供服務產生的收入並無重大影響。然而，客戶合同收入確認時間點受到以下影響：

根據《國際財務報告準則》第15號的規定，合同修訂是對合同範圍或價格(或兩者兼有)的變更。該等變更可被視作變更指令、變更或修訂。合同修訂審批通過後，將形成或變更合同各方的可執行權利與義務。合同審批通過的形式可能為書面、口頭或通過商業行為慣例所隱含，且該等批准在法律上是可執行的。

倘合同各方並未審批通過合同修訂，則實體繼續對當前現有合同採用新準則的規定，直至該等合同修訂獲得批准。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (c) Changes in accounting policies (Continued)

#### (ii) IFRS 15, Revenue from contracts with customers (Continued)

##### a. Timing of revenue recognition (Continued)

IAS 11 includes specific guidance on the accounting for variations in a construction contract as a variation is an instruction from a customer to change the scope of work to be performed. A variation is included in contract revenue when:

- it is probable that the customer will approve the variation; and
- the amount of revenue can be measured reliably.

This specific guidance is not carried forward into the new standard. Instead, claims and variations in construction contracts are accounted for under the new standard's general guidance on contract modifications.

The criteria in the IFRS 15 for recognising a contract modification to some contract change the timing of revenue recognition from variations. Accordingly, the timing of revenue recognition from construction contracts due to contract modifications is later under IFRS 15 than under IAS 11.

### (c) 會計政策變更(續)

#### (ii) 《國際財務報告準則》第15號，「客戶合同收入」(續)

##### a. 確認收入的時點(續)

《國際會計準則》第11號包含有關建造合同變更會計處理的具體指引，所謂變更是指客戶指出就合同所規定的施工範圍作出變更。當符合以下條件時，這種變更應包含在合同收入中：

- 客戶可能批准變更；及
- 收入的金額能夠可靠地計量。

該具體指引並未轉入新準則中。但是，建造合同中的索賠及變更是根據新準則就合同修訂的一般指引進行會計處理。

《國際財務報告準則》第15號就確認若干合同修訂中的一項合同修訂的標準改變了收入確認的時間點。因此，根據《國際財務報告準則》第15號因合同修訂導致的建造合同收入確認時間較根據《國際會計準則》第11號的上述收入確認時間晚。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (c) Changes in accounting policies (Continued)

#### (ii) IFRS 15, Revenue from contracts with customers (Continued)

- b. Bid commissions payable related to sales or construction contracts

The Group previously recognised bid commissions payable related to sales or construction contracts as distribution costs when they were incurred. Under IFRS 15, the Group is required to capitalise these bid commissions as costs of obtaining contracts when they are incremental and are expected to be recovered, unless the expected amortisation period is one year or less from the date of initial recognition of the asset, in which case the bid commissions can be expensed when incurred. Capitalised commissions are charged to profit or loss when the revenue from the related contracts is recognised and are included as distribution costs at that time.

This change in accounting policy does not have any material impact on the financial position and the financial result of the Group.

- c. Presentation of contract assets and liabilities

Under IFRS 15, a receivable is recognised only if the Group has an unconditional right to consideration. If the Group recognises the related revenue (see Note 2(y)) before being unconditionally entitled to the consideration for the promised goods and services in the contract, then the entitlement to consideration is classified as a contract asset. Similarly, a contract liability, rather than a payable, is recognised when a customer pays non-refundable consideration, or is contractually required to pay non-refundable consideration and the amount is already due, before the Group recognises the related revenue. For a single contract with the customer, either a net contract asset or a net contract liability is presented. For multiple contracts, contract assets and contract liabilities of unrelated contracts are not presented on a net basis (see Note 2(q)).

### (c) 會計政策變更(續)

#### (ii) 《國際財務報告準則》第15號，「客戶合同收入」(續)

- b. 與銷售或建造合同相關的應付投標佣金

本集團過往在與銷售或建造合同相關的應付投標佣金發生時將其確認為分銷成本。根據《國際財務報告準則》第15號，本集團須將該等投標佣金資本化為取得合同的成本(當其為增量且預計將收回時)，除非預期攤銷期為自初始確認該資產之日起一年或以下，投標佣金能夠在發生時計入費用。資本化佣金於相關合同收入確認時計入損益，並列入當時的分銷成本。

會計政策變更並未對本集團的財務狀況及財務業績產生任何重大影響。

- c. 合同資產及負債的呈列

根據《國際財務報告準則》第15號，僅於本集團對對價有無條件權利時才會確認應收款。倘本集團於就合同承諾貨品及服務收取對價或對對價有無條件權利之前確認相關收入(見附註2(y))，則對對價的權利分類為合同資產。類似地，倘客戶於本集團確認相關收入前支付不可退款的對價或按合同須支付不可退款的對價且有關款項已到期應付，則確認合同負債而非應付款項。就與客戶的單一合同而言，會呈列合同資產淨值或合同負債淨額。就多項合同而言，無關聯合同的合同資產及合同負債不會按淨額基準呈列(見附註2(q))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (c) Changes in accounting policies (Continued)

##### (ii) IFRS 15, Revenue from contracts with customers (Continued)

- c. Presentation of contract assets and liabilities (Continued)

Previously, contract balances relating to construction contracts in progress were named “Gross amounts due from customers for contract work” or “Gross amounts due to customers for contract work” in the consolidated statement of financial position respectively.

To reflect these changes in presentation, the Group renamed “Gross amounts due from customers for contract work” and “Gross amounts due to customers for contract work” to “Contract assets” and “Contract liabilities” at 1 January 2018, as a result of the adoption of IFRS 15, respectively.

- d. The adoption of IFRS 15 does not have material impact on the Group’s consolidated financial statements for the year ended 31 December 2018, by comparing the amounts reported under IFRS 15 in these consolidated financial statements with estimates of the hypothetical amounts that would have been recognised under IAS 18 and IAS 11 if those superseded standards had continued to apply to 2018 instead of IFRS 15.

#### (c) 會計政策變更(續)

##### (ii) 《國際財務報告準則》第15號，「客戶合同收入」(續)

- c. 合同資產及負債的呈列(續)

過往，與仍在進行的建造合同相關的合同結餘於財務狀況表中分別呈列為「應收客戶合同工程款總額」、「應付客戶合同工程款總額」。

為反映採用《國際財務報告準則》第15號的變化，本集團於2018年1月1日將「應收客戶合同工程款總額」和「應付客戶合同工程款總額」分別更名為「合同資產」和「合同負債」。

- d. 採用《國際財務報告準則》第15號對本集團截至2018年12月31日的合併財務報表並無重大影響。原因是假設《國際會計準則》第18號和《國際會計準則》第11號這些被《國際財務報告準則》第15號所取代的準則在2018年繼續適用，財務報表所呈報的金額與根據《國際財務報告準則》第15號所顯示的金額並無明顯差異。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (c) Changes in accounting policies (Continued)

##### (iii) IFRIC 22, Foreign currency transactions and advance consideration

This interpretation provides guidance on determining “the date of the transaction” for the purpose of determining the exchange rate to use on initial recognition of the related asset, expense or income (or part of it) arising from a transaction in which an entity receives or pays advance consideration in a foreign currency.

The interpretation clarifies that “the date of the transaction” is the date on initial recognition of the non-monetary asset or liability arising from the payment or receipt of advance consideration. If there are multiple payments or receipts in advance of recognising the related item, the date of the transaction for each payment or receipt should be determined in this way. The adoption of IFRIC 22 does not have any material impact on the financial position and the financial result of the Group.

#### (d) Functional and presentation currency

These financial statements are presented in RMB, rounded to the nearest thousand, which is the functional currency of the Company and its subsidiaries established in the PRC (“**PRC Subsidiaries**”) carrying on the principal activities of the Group. The functional currencies of the Company’s subsidiaries in Hong Kong and United States are Hong Kong dollars (“**HKD**”) and United States dollars (“**USD**”) respectively.

#### (e) Subsidiaries and non-controlling interests

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing whether the Group has power, only substantive rights (held by the Group and other parties) are considered.

#### (c) 會計政策變更(續)

##### (iii) 《國際財務報告解釋公告》第22號，「外幣交易和預付對價」

該解釋公告為釐定「交易日期」提供指引，目的是於實體以外幣收到或支付預付對價的交易中釐定初始確認相關資產、費用或收入(或部分收入)時使用的匯率。

該解釋公告闡明「交易日期」為初始因支付或收到預付對價而產生的非貨幣性資產或負債的日期。倘於確認相關項目前具有多項付款或收款，則應以該方式確定每筆付款或收款的交易日期。採用《國際財務報告解釋公告》第22號並未對本集團的財務狀況及財務業績產生任何重大影響。

#### (d) 功能及列報貨幣

此等財務報表均以本公司及在中國設立的附屬公司(「**中國附屬公司**」)開展本集團經營活動所採用的功能貨幣人民幣列示，約至最接近的千位。本公司在香港和美國的各附屬公司的功能貨幣分別為港元和美元。

#### (e) 附屬公司及非控股權益

附屬公司是由本集團控制的實體。當本集團承擔相應風險或有權通過參與實體之業務獲得可變動回報，並能夠通過其對實體的權力對這些回報施加影響，則視為本集團對該實體有控制權。在評估本集團是否有權力，僅需考慮其實質權利(本集團及其他方所持有的)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (e) Subsidiaries and non-controlling interests (Continued)

An investment in a subsidiary is consolidated into the consolidated financial statements from the date that control commences until the date that control ceases. Intra-group balances, transactions and cash flows and any unrealised profits arising from intra-group transactions are eliminated in full in preparing the consolidated financial statements. Unrealised losses resulting from intra-group transactions are eliminated in the same way as unrealised gains but only to the extent that there is no evidence of impairment.

Non-controlling interests represent the equity in a subsidiary not attributable directly or indirectly to the Company, and in respect of which the Group has not agreed any additional terms with the holders of those interests which would result in the Group as a whole having a contractual obligation in respect of those interests that meets the definition of a financial liability. For each business combination, the Group can elect to measure any non-controlling interests either at fair value or at the non-controlling interests' proportionate share of the subsidiary's net identifiable assets.

Non-controlling interests are presented in the consolidated statement of financial position within equity, separately from equity attributable to the equity shareholders of the Company. Non-controlling interests in the results of the Group are presented on the face of the consolidated statement of profit or loss and the consolidated statement of profit or loss and other comprehensive income as an allocation of the total profit or loss and total comprehensive income for the year between non-controlling interests and the equity shareholders of the Company. Loans from holders of non-controlling interests and other contractual obligations towards these holders are presented as financial liabilities in the consolidated statement of financial position in accordance with Notes 2(s) or (t) depending on the nature of the liability.

Changes in the Group's interests in a subsidiary that do not result in a loss of control are accounted for as equity transactions, whereby adjustments are made to the amounts of controlling and non-controlling interests within consolidated equity to reflect the change in relative interests, but no adjustments are made to goodwill and no gain or loss is recognised.

### 2 主要會計政策(續)

#### (e) 附屬公司及非控股權益(續)

自控制開始之日起至控制終止之日，將對附屬公司的投資併入合併財務報表中。在編製合併財務報表時，全數抵銷集團內部交易產生的集團內部結餘、交易現金流量以及任何未實現利潤。集團內部交易產生的未實現損失以未實現利潤相同的方式作抵銷，但僅限於沒有減值證據的部份。

非控股權益是指非本公司直接或間接應佔的附屬公司權益，且本集團並無與相關權益持有人另行訂立條款而導致本集團整體須根據其所佔權益承擔符合金融負債定義的合同責任。對於各業務合併而言，本集團可以選擇按公允價值或按本集團佔附屬公司的可識別淨資產的比例而計量任何非控股權益。

非控股權益在合併財務狀況表的權益中列示，惟與本公司權益股東應佔權益分開。非控股權益持有人所佔本集團的業績，會按照該年度的損益總額及其他綜合收益總額在非控股權益持有人與本公司權益股東之間進行分配，並在合併損益表以及合併損益及其他合併綜合收益表呈列。來自非控股權益持有人的借貸及對該持有人的其他合同責任，會視乎負債的性質，並按照附註2(s)或(t)於合併財務狀況表中呈列為金融負債。

本集團於附屬公司的權益如發生變動但不會造成喪失控制權，則該變動乃按權益交易的方式入帳，即僅調整在合併權益內的控股及非控股權益金額，以反映其相關權益的變動，但不會調整商譽及不會確認盈虧。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (e) Subsidiaries and non-controlling interests (Continued)

When the Group loses control of a subsidiary, it is accounted for as a disposal of the entire interest in that subsidiary, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former subsidiary at the date when control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (see Note 2(i)) or, when appropriate, the cost on initial recognition of an investment in an associate or joint venture.

In the Company's statement of financial position, an investment in a subsidiary is stated at cost less impairment losses (see Note 2(n)(ii)), unless the investment is classified as held for sale (or included in a disposal group that is classified as held for sale) (see Note 2(bb)).

### (f) Associates

An associate is an entity in which the Group or Company has significant influence, but not control or joint control, over its management, including participation in the financial and operating policy decisions.

An investment in an associate is accounted for in the consolidated financial statements under the equity method. Under the equity method, the investment is initially recorded at cost, adjusted for any excess of the Group's share of the acquisition-date fair values of the investee's identifiable net assets over the cost of the investment (if any). The cost of the investment includes purchase price, other costs directly attributable to the acquisition of the investment, and any direct investment into the associate that forms part of the Group's equity investment. Thereafter, the investment is adjusted for the post-acquisition change in the Group's share of the investee's net assets and any impairment loss relating to the investment (see Notes 2(i) and (n)(ii)). Any acquisition-date excess over cost, the Group's share of the post-acquisition, post-tax results of the investees and any impairment losses for the year are recognised in the consolidated statement of profit or loss, whereas the Group's share of the post-acquisition post-tax items of the investees' other comprehensive income is recognised in the consolidated statement of profit or loss and other comprehensive income.

### (e) 附屬公司及非控股權益(續)

當本集團喪失一家附屬公司的控股權，則按出售該附屬公司的所有權益入帳，而所產生的盈虧將確認為損益。於喪失控股權當日仍保留於前附屬公司的任何權益乃按公允價值確認，而該金額將被視為一項金融資產(見附註2(i))初始確認的公允價值或(如適用)一項對聯營公司或合營公司之投資的初始確認的成本。

在本公司的財務狀況表中，對附屬公司的投資是按成本減去減值虧損(見附註2(n)(ii))後入帳。除非該投資被確認為持有待售(或者包含在一組被歸類為持有待售的處置組中)(見附註2(bb))。

### (f) 聯營公司

聯營公司是指本集團或本公司可以對其管理層發揮重大影響的實體，包括參與其財務及經營決策，但不是控制或聯合控制管理層。

對聯營公司的投資是按權益法計入合併財務報表。根據權益法，投資初始按成本計值，並調整本集團於收購日期佔被投資公司可識別淨資產公允價值超出投資成本的任何差額(如有)。投資成本包括購買價格，其他可以直接歸屬於取得投資的成本以及能夠形成本集團權益投資一部分的任何直接投資。其後，投資就本集團佔被投資公司淨資產及任何有關投資的減值虧損的收購後變動作出調整(見附註2(i)和(n)(ii))。任何收購日超出成本的金額、本集團應佔本年度收購後被投資公司稅後業績及減值虧損均於合併損益表中確認，而本集團佔被投資公司於收購日後的其他稅後綜合收益的項目則確認於合併損益及其他綜合收益表。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (f) Associates (Continued)

When the Group's share of losses exceeds its interest in the associate, the Group's interest is reduced to nil and recognition of further losses is discontinued except to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the investee. For this purpose, the Group's interest is the carrying amount of the investment under the equity method together with any other long-term interests that in substance form part of the Group's net investment in the associate.

Unrealised profits and losses resulting from transactions between the Group and its associates are eliminated to the extent of the Group's interest in the investee, except where unrealised losses provide evidence of an impairment of the asset transferred, in which case they are recognised immediately in profit or loss.

If an investment in an associate becomes an investment in a joint venture or vice versa, retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method.

In all other cases, when the Group ceases to have significant influence over an associate, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (see Note 2(i)).

In the Company's statement of financial position, investments in associates are stated at cost less impairment losses (see Note 2(n)(ii)).

### 2 主要會計政策(續)

#### (f) 聯營公司(續)

當本集團的虧損份額超過其在該聯營公司的權益，本集團的權益會減少至零，並且不再確認額外虧損，本集團已產生法定或推定責任或代表被投資公司付款除外。就此而言，本集團權益是以按照權益法計算投資的帳面值，以及事實上構成本集團在聯營公司投資淨額一部份的長期權益為準。

本集團與其聯營公司間交易所產生的未實現損益，均按本集團於被投資公司所佔的權益為限進行抵銷，但假如未實現虧損提供所轉讓資產出現減值的證據，則該等未實現虧損會立即在損益內確認。

如果對聯營公司的投資變為對合營企業的投資，或者對合營企業的投資變為對聯營公司的投資，則所保留的權益不需重新計量。相反，該投資將繼續按照權益法進行核算。

在其他任何情況下，當本集團不再對聯營公司產生重大影響時，即按照處置該被投資公司的全部權益處理，由此產生的收益或虧損在損益中確認。在喪失重大影響當日所保留的有關前被投資公司的權益按公允價值確認，該金額為金融資產初始確認的公允價值(見附註2(i))。

本公司財務狀況表所示，對聯營公司投資，是按成本減去減值虧損(見附註2(n)(ii))後入帳。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (g) Business combinations under common control

Business combinations arising from transfer of interests in entities that are under the control of the equity shareholders that controls the Group are accounted for as if the acquisition had occurred at the beginning of the years or, if later, at the date that common control was established. The assets and liabilities acquired are recognised at the carrying amounts recognised previously in the Group's equity shareholders' consolidated financial statements. Upon transfer of interest in an entity to another entity that are under the control of the equity owner that controls the Group, any difference between the Group's interest in the carrying value of the assets and liabilities and the cost of transfer of interest in the entity is recognised directly in equity.

#### (h) Goodwill

Goodwill represents the excess of

- (i) the aggregate of the fair value of the consideration transferred, the amount of any non-controlling interest in the acquiree and the fair value of the Group's previously held equity interest in the acquiree; over
- (ii) the net fair value of the acquiree's identifiable assets and liabilities measured as at the acquisition date.

When (ii) is greater than (i), then this excess is recognised immediately in profit or loss as a gain on a bargain purchase.

Goodwill is stated at cost less accumulated impairment losses. Goodwill arising on a business combination is allocated to each cash-generating unit, or groups of cash generating units, that is expected to benefit from the synergies of the combination and is tested annually for impairment (see Note 2(n)(ii)).

On disposal of a cash generating unit during the year, any attributable amount of purchased goodwill is included in the calculation of the profit or loss on disposal.

#### (g) 同一控制下的業務合併

發生在共同受某一權益股東控制下實體之間的業務合併，需假設收購發生在年初，或在共同控制權成立之日的孰晚日期。所取得的資產及負債乃按本集團權益股東的合併財務報表中確認之帳面價值確認。在將一個實體的權益轉移到控制該實體的所有者控制的另一個實體時，該集團對該資產和負債的帳面價值和該實體的權益轉移費用之間的任何差異直接在權益中確認。

#### (h) 商譽

商譽指

- (i) 已轉讓代價的公允價值、於被收購公司的任何非控制股東權益的金額，以及本集團之前於被收購公司持有的股權的公允價值的總額；超過
- (ii) 於收購日期計量的被收購公司的可識別淨資產的公允價值。

當(ii)較(i)為大時，該超越值即時在損益內確認為議價收購收益。

商譽按成本減累計減值虧損列賬。業務合併產生之商譽分配至預計將會受惠於合併之協同作用之各現金產生單元或現金產生單元組別，並於每年進行減值測試(見附註2(n)(ii))。

在當年內出售現金產生單元，任何可歸屬的購入商譽的金額均應包含在計算出售的損益內。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (i) Other investments in debt and equity securities

The Group's policies for investments in debt and equity securities, other than investments in subsidiaries and associates, are set out below.

Investments in debt and equity securities are recognised/derecognised on the date the Group commits to purchase/sell the investment. The investments are initially stated at fair value plus directly attributable transaction costs, except for those investments measured at fair value through profit or loss (FVPL) for which transaction costs are recognised directly in profit or loss. For an explanation of how the Group determines fair value of financial instruments, see Note 37(e). These investments are subsequently accounted for as follows, depending on their classification.

#### (A) Policy applicable from 1 January, 2018

Investments other than equity investments

Non-equity investments held by the Group are classified into one of the following measurement categories:

- amortised cost, if the investment is held for the collection of contractual cash flows which represent solely payments of principal and interest. Interest income from the investment is calculated using the effective interest method (see Note 2(y)(vi)).
- fair value through other comprehensive income (FVOCI) – recycling, if the contractual cash flows of the investment comprise solely payments of principal and interest and the investment is held within a business model whose objective is achieved by both the collection of contractual cash flows and sale. Changes in fair value are recognised in other comprehensive income, except for the recognition in profit or loss of expected credit loss, interest income (calculated using the effective interest method) and foreign exchange gains and losses. When the investment is derecognised, the amount accumulated in other comprehensive income is recycled from equity to profit or loss.

### (i) 其他債券和權益證券投資

本集團對附屬公司和聯營公司以外的其他權益證券投資的會計政策如下。

債券和權益證券投資確認/終止確認於本集團承諾購買/出售該投資當日。該投資按照公允價值加直接交易成本列賬，惟以公允價值計量且其變動計入損益的投資除外，其交易成本直接計入損益。有關本集團如何確定金融工具公允價值的說明，請見附註37(e)。這些投資隨後會根據其分類計入如下。

#### (A) 從2018年1月1日開始適用的準則

股權投資以外的投資

本集團持有的非股權投資按照如下計量方式之一進行計量：

- 以攤餘成本計量，如果該投資僅僅是為了收集合同本金和利息的現金流量。投資的利息收入採用實際利率法計算(見附註2(y)(vi))。
- 以公允價值計量且其變動計入其他綜合收益—重新計入，如果該投資的合同現金流僅為本金和利息的支付並且該投資的業務模式既以收取合同現金流量為目標又以出售該金融資產為目標。公允價值的變動計入其他綜合收益，除了預計信用損失的利潤或損失，利息收入(採用實際利率法)和匯兌損益。當該投資終止確認時，其他綜合收益中累計的金額將從權益回收至損益。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (i) Other investments in debt and equity securities (Continued)

##### (A) Policy applicable from 1 January, 2018 (Continued)

Investments other than equity investments (Continued)

- fair value at profit or loss (FVPL) if the investment does not meet the criteria for being measured at amortized cost or FVOCI (recycling). Changes in the fair value of the investment (including interest) are recognised in profit or loss.

Equity investments

An investment in equity securities is classified as FVPL unless the equity investment is not held for trading purposes and on initial recognition of the investment the Group makes an irrevocable election to designate the investment at FVOCI (non-recycling) such that subsequent changes in fair value are recognised in other comprehensive income. Such elections are made on an instrument-by-instrument basis, but may only be made if the investment meets the definition of equity from the issuer's perspective. Where such an election is made, the amount accumulated in other comprehensive income remains in the fair value reserve (non-recycling) until the investment is disposed of. At the time of disposal, the amount accumulated in the fair value reserve (non-recycling) is transferred to retained earnings. It is not recycled through profit or loss. Dividends from an investment in equity securities, irrespective of whether classified as at FVPL or FVOCI, are recognised in profit or loss as other income in accordance with the policy set out in Note 2(y)(v).

#### (i) 其他債券和權益證券投資(續)

##### (A) 從2018年1月1日開始適用的準則(續)

股權投資以外的投資(續)

- 以公允價值計量且其變動計入當期損益，如果該投資既不滿足以攤餘成本計量也不滿足以公允價值計量且其變動計入其他綜合收益(重新計入)。投資的公允價值變動(包括利息)在損益中確認。

股權投資

權益證券投資使用公允價值計量且其變動計入當期損益，除非該股權投資並不以交易為目的而持有且在其初始確認時，本集團做出不可撤銷的選擇以指定該投資以公允價值計量且其變動計入其他綜合收益(不重新計入)以便後續公允價值變動確認為其他綜合收益。此類選擇是在逐個工具的基礎上進行的，但惟以自發行人之角度，該投資工具符合權益投資的概念下才進行。在該種情況下，在其他綜合收益中累計的金額保留在公允價值儲備(不重新計入)中，直至投資處置為止。在出售該等權益證券後，其他綜合收益(不重新計入)中的累計金額將直接轉入留存收益。股權投資的股利，無論其以公允價值計量且其變動計入當期損益還是公允價值變動且其變動計入其他綜合收益，均按照附註2(y)(v)所載政策確認為其他收入。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (i) Other investments in debt and equity securities (Continued)

### (i) 其他債券和權益證券投資(續)

#### (B) Policy applicable prior to 1 January, 2018

#### (B) 2018年1月1日之前適用的政策

Investments in securities held for trading were classified as financial assets measured at FVPL. Any attributable transaction costs were recognised in profit or loss as incurred. At the end of each reporting period the fair value was remeasured, with any resultant gain or loss being recognised in profit or loss.

交易性證券投資以公允價值計量且其變動計入當期損益的金融資產。任何相關交易費用發生時均列入損益內確認。公允價值於每個報告期末重新計量，由此產生的任何收益或虧損列入損益內。

Dated debt securities that the Group had the positive ability and intention to hold to maturity were classified as held-to-maturity securities. Held-to-maturity securities were stated at amortised cost (for impairment see Note 2(n)(i) – policy applicable prior to 1 January 2018).

該集團打算且能夠持有至到期日的債券證券歸類為持有至到期投資。持有至到期投資以攤餘成本列示(減值見附註2(n)(i)–2018年1月1日之前適用的政策)。

Investments which did not fall into any of the above categories were classified as available-for-sale financial assets. At the end of each reporting period the fair value was remeasured, with any resultant gain or loss being recognised in other comprehensive income and accumulated separately in equity in the fair value reserve (recycling). Dividend income from equity investments and interest income from debt securities calculated using the effective interest method were recognised in profit or loss in accordance with the policies set out in Notes 2(y)(v) and 2(y)(vi), respectively. Foreign exchange gains and losses arising from debt securities were also recognised in profit or loss. When the investments were derecognised or impaired (see Note 2(n)(i) – policy applicable prior to 1 January 2018), the cumulative gain or loss recognised in equity was reclassified to profit or loss.

未列入上述任何類別之證券投資應歸類為可供出售證券。公允價值於每個報告期末重新計量，由此產生的任何收益或虧損於其他綜合收益中確認，並單獨累計於權益中的公允價值儲備(重新計入)。根據附註2(y)(v)和(y)(vi)中規定的政策，利用實際利率法計算的權益證券股息收入和債券利息收入確認為當期損益。因債券攤餘成本變動而產生的外匯損益也確認為當期損益。當此等投資被終止確認或減值(見附註2(n)(i)–2018年1月1日之前適用的政策)時，累計收益或虧損從權益重分類至損益。

### (j) Investment property

### (j) 投資性物業

Investment properties are land and/or buildings which are owned or held under a leasehold interest (see Note 2(m)) to earn rental income and/or for capital appreciation.

投資性物業是以賺取租金收入及／或為資本增值而持有或租用(見附註2(m))的土地及樓宇。

Investment properties are stated at cost less accumulated depreciation and impairment losses (see Note 2(n)(ii)). The depreciation policy is the same as that of property, plant and equipment (see Note 2(k)). Rental income from investment properties is accounted for as described in Note 2(y)(iv).

投資性物業按成本減累計折舊及減值虧損(見附註2(n)(ii))列賬。折舊政策與物業、廠房及設備(見附註2(k))的折舊政策相同。投資性物業租賃收入按照附註2(y)(iv)中所述方法列賬。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (k) Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation and impairment losses (see Note 2(n)(ii)).

The cost of self-constructed items of property, plant and equipment includes the cost of materials, direct labour, the initial estimate, where relevant, of the costs of dismantling and removing the items and restoring the site on which they are located, and an appropriate proportion of production overheads and borrowing costs (see Note 2(aa)).

Gains or losses arising from the retirement or disposal of an item of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the item and are recognised in profit or loss on the date of retirement or disposal.

Depreciation is calculated to write off the cost of items of property, plant and equipment, less their estimated residual value, if any, using the straight line method over their estimated useful lives as follows:

– Land, buildings and structures	20 – 50 years
– Machinery and equipment	3 – 20 years
– Motor vehicles	3 – 10 years
– Furniture, fixtures and others	3 – 10 years

Where parts of an item of property, plant and equipment have different useful lives, the cost of the item is allocated on a reasonable basis between the parts and each part is depreciated separately. Both the useful life of an asset and its residual value, if any, are reviewed annually.

#### (k) 物業、廠房及設備

物業、廠房及設備按成本減累計折舊及減值虧損(見附註2(n)(ii))列賬。

自建物業、廠房及設備專案成本包括材料成本、直接勞工成本、拆卸及搬遷有關專案的成本與修復專案所在場地的還原修復費用初步估計成本(如有關)以及適當比例的間接生產開支與借貸成本(見附註2(aa))。

報廢或出售物業、廠房及設備專案產生的收益或虧損為出售所得款項淨額與項目帳面值的差額，於報廢或出售日期在損益中確認。

折舊是在下列估計可使用期限內按直線法衝銷物業、廠房及設備項目的成本，扣除估計殘值(如有)計算。

– 土地、樓宇及建築物	20 – 50年
– 機器及設備	3 – 20年
– 汽車	3 – 10年
– 傢俱、裝置和其他	3 – 10年

如果物業、廠房及設備項目各部份的可使用期限不同，則該項目的成本會合理分配至各部份，而每部份須分開折舊。本集團會每年審閱資產的可使用期限及其殘值(如有)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (l) Intangible assets (other than goodwill)

The Group recognises an intangible asset arising from a service concession arrangement when it has a right to charge for usage of the concession infrastructure. An intangible asset received as consideration for providing construction services in a service concession arrangement are measured at fair value upon initial recognition by reference to the fair value of the services provided. Subsequent to initial recognition the intangible asset is measured at cost less accumulated amortisation and impairment losses (see Note 2(n)(ii)). If the Group is paid for the construction services partly by an intangible asset and partly by a financial asset (see Note 2(r)), then each component of the consideration is accounted for separately and is initially recognised at fair value of the consideration.

Expenditure on research activities is recognised as an expense in the period in which it is incurred. Expenditure on development activities is capitalised if the product or process is technically and commercially feasible and the Group has sufficient resources and the intention to complete development. The expenditure capitalised includes the costs of materials, direct labour, and an appropriate proportion of overheads and borrowing costs, where applicable (see Note 2(aa)). Capitalised development costs are stated at cost less accumulated amortisation and impairment losses (see Note 2(n)(ii)). Other development expenditure is recognised as an expense in the period in which it is incurred.

Other intangible assets that are acquired by the Group are stated at cost less accumulated amortisation (where the estimated useful life is finite) and impairment losses (see Note 2(n)(ii)). Expenditure on internally generated goodwill and brands is recognised as an expense in the period in which it is incurred.

#### (l) 無形資產(商譽除外)

如果本集團有權就使用特許權基礎設施收費，本集團會確認服務特許權安排產生的無形資產。作為提供服務特許權安排的代建設服務的代價所收取的無形資產，於初始確認時按公允價值計量。在初始確認後，無形資產按成本減去累計攤銷和減值虧損(見附註2(n)(ii))計量。如果就建造服務支付予本集團的對價部份為無形資產而部份為金融資產(見附註2(r))，對價的各部份則應分別入賬並初始按對價的公允價值計量。

研究活動開支於其產生期間確認為開支。如果產品或程序於技術上可行及可投入商業運作，且本集團具備充裕資源及有意完成開發，則開發活動開支進行資本化。資本化的開支包括材料成本、直接勞工成本，以及在適當比例的間接成本及借貸成本(如適用)(見附註2(aa))。資本化之開發成本按照成本減去累計攤銷及減值虧損(見附註2(n)(ii))列賬。其他開發支出於其產生期間確認為費用。

本集團收購的其他無形資產以成本減去累計攤銷(如果既定的估計可使用期限)和減值虧損(見附註2(n)(ii))列賬。內部產生的商譽和品牌開支在其產生當期以費用形式確認。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (l) Intangible assets (other than goodwill) (Continued)

Amortisation of intangible assets with finite useful lives is charged to profit or loss on a straight-line basis over the assets' estimated useful lives. The following intangible assets with finite useful lives are amortised from the date they are available for use and their estimated useful lives are as follows:

- Concession assets	20 – 34 years
- Technical know-how	5 – 18 years
- Capitalised development costs	5 – 10 years
- Software and others	3 – 10 years

The estimated useful life of a concession asset in a service concession arrangement is the period from when the Group is able to charge for the use of the infrastructure to the end of the concession period.

Both the period and method of amortisation are reviewed annually.

#### (m) Leased assets

An arrangement, comprising a transaction or a series of transactions, is or contains a lease if the Group determines that the arrangement conveys a right to use a specific asset or assets for an agreed period of time in return for a payment or a series of payments. Such a determination is made based on an evaluation of the substance of the arrangement and is regardless of whether the arrangement takes the legal form of a lease.

#### (l) 無形資產(商譽除外)(續)

有既定可使用期限的無形資產的攤銷是以直線法於資產的估計可使用期限內計入損益。以下有既定可使用期限的無形資產由可供使用當日起，在估計可使用期限內攤銷：

- 特許權資產	20 – 34年
- 專業技術	5 – 18年
- 資本化開發成本	5 – 10年
- 軟件及其他	3 – 10年

服務特許經營安排中的特許權資產的預計可使用年限於本集團可收取基礎設施使用費開始至特許經營期結束時終止之期間。

攤銷期限及方法均每年進行審閱。

#### (m) 租賃資產

如果本集團確定一項安排(由一宗交易或一系列交易組成)會於協定期間內賦予一項特定資產或多項資產的使用權，以換取一項或多項付款，則該安排為或包括一項租賃。該確定乃根據對該安排的實質情況所作評估，而無論該安排是否採取租賃的法律形式。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

### 2 主要會計政策(續)

#### (m) Leased assets (Continued)

#### (m) 租賃資產(續)

##### (i) Classification of assets leased to the Group

##### (i) 本集團租用的資產分類

Assets that are held by Group under leases which transfer to the Group substantially all the risks and rewards of ownership are classified as being held under finance leases. Leases which do not transfer substantially all the risks and rewards of ownership to the Group are classified as operating leases except for land held for own use under an operating lease, the fair value of which cannot be measured separately from the fair value of a building situated thereon at the inception of the lease, is accounted for as being held under a finance lease, unless the building is also clearly held under an operating lease. For these purposes, the inception of the lease is the time that the lease was first entered into by the Group, or taken over from the previous lessee.

對於本集團以租賃持有的資產，如果租賃使所有權的絕大部份風險及回報轉讓予本集團，該項資產被分類為以融資租賃持有。如租賃不會將所有權的絕大部份風險及回報轉讓予本集團，則該項資產被分類為經營租賃，惟以經營租賃持做自用，但無法在租賃開始時將其公允價值與建於其上的樓宇的公允價值分開計量的土地是按以融資租賃持有方式入帳，但清楚的以經營租賃持有的樓宇除外。就此而言，租賃的開始時間是指本集團首次訂立租賃時，或自前承租人接收時。

##### (ii) Assets acquired under finance leases

##### (ii) 根據融資租賃獲得的資產

Where the Group acquires the use of assets under finance leases, the amounts representing the fair value of the leased asset, or, if lower, the present value of the minimum lease payments, of such assets are recognised as property, plant and equipment and the corresponding liabilities, net of finance charges, are recorded as obligations under finance leases. Depreciation is provided at rates which write off the cost of the assets over the term of the relevant lease or, where it is likely the Group will obtain ownership of the asset, the life of the asset, as set out in Note 2(k). Impairment losses are accounted for in accordance with the accounting policy as set out in Note 2(n)(ii). Finance charges implicit in the lease payments are charged to profit or loss over the period of the leases so as to produce an approximately constant periodic rate of charge on the remaining balance of the obligations for each accounting period. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

如果本集團根據融資租賃獲得資產的使用權，便會將相當於租賃資產公允價值及最低租賃預付款的現值(兩者中的較低者)確認為物業、廠房及設備，而扣除融資費用後的相應負債則列為融資租賃承擔。折舊是在相關的租賃期或資產的可用期限(如本集團很可能取得資產的所有權)內，以沖銷其成本的比率計提；有關的資產可用期限列載於附註2(k)。減值虧損按照附註2(n)(ii)所載的會計政策入帳。租賃付款內含的融資費用會計入租賃期內的損益中，使各會計期間的融資費用佔承擔餘額的比率大致相同。或有租金於其產生的會計期間在損益中列支。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (m) Leased assets (Continued)

#### (iii) Operating lease charges

Where the Group has the use of assets held under operating leases, payments made under the leases are charged to profit or loss in equal instalments over the accounting periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the leased asset. Lease incentives received are recognised in profit or loss as an integral part of the aggregate net lease payments made. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

The cost of acquiring land held under an operating lease is amortised on a straight-line basis over the period of the lease term.

### (n) Credit losses and impairment of assets

#### (i) Credit loss from financial instruments and contract assets

(A) Policy applicable from 1 January, 2018

The Group recognize a loss allowance for expected credit loss (ECLs) on the following items:

- financial assets measured at amortised cost (including cash and cash equivalents, long-term trade receivables, trade and bills receivables and other receivables); and
- contract assets as defined in IFRS 15 (see Note 2(q)).

Financial assets measured at fair value, including equity securities designated at FVOCI (non-recycling), are not subject to the ECL assessment.

### (m) 租賃資產(續)

#### (iii) 經營租賃之費用

如果本集團通過經營租賃持有資產的使用權，會以租賃作出的付款於租期的會計期間內，按等額的攤付金額計入損益，但是，可以更清楚地反映租賃資產所產生的收益模式的基準則除外。所獲租賃獎勵應於損益中確認為租賃淨付款總額的一部份。或有租金將於其產生的會計期間自損益中列支。

根據經營租賃所持土地的收購成本於租賃期內按直線法攤銷。

### (n) 信用損失和資產減值

#### (i) 金融工具和合同資產之信用損失

(A) 政策於2018年1月1日起適用

本集團根據預期信用損失模型確認損失準備的專案如下：

- 以攤餘成本計量的金融資產(其中包括現金及現金等價物、長期應收款項、應收及其他應收款項及應收聯營公司借款)；及
- 《國際財務報告準則》第15號中定義的合同資產(詳見附註2(q))。

以公允價值計量的金融資產，包括指定為以公允價值計量且其變動計入其他綜合收益(非重新計入)的權益證券無需進行預計信用損失評估。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

- (A) Policy applicable from 1 January, 2018  
(Continued)

##### *Measurement of ECLs*

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all expected cash shortfalls (i.e. the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive).

The expected cash shortfalls of long-term trade receivables, trade and bills receivables, other receivables and contract assets are discounted using the effective interest rate determined at initial recognition or an approximation thereof where the effect of discounting is material.

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

In measuring ECLs, the Group takes into account reasonable and supportable information that is available without undue cost or effort. This includes information about past events, current conditions and forecasts of future economic conditions.

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

- (A) 政策於2018年1月1日起  
適用(續)

##### *預期信用損失的計量*

預期信用損失是指信用損失的概率加權估計值。信用損失是按所有預期現金短缺的現值(即：根據合同應付集團的現金流量與本集團預計收到的現金流量之間的差額)計量。

倘若折現的影響重大，長期應收款項、應收賬款和其他應收款及合同資產則使用初始確認時釐定的實際利率或其近似值作為折現率折現預期現金短缺。

計量預期信用損失的最長期限是最長合同期限，本集團在該期間內承擔信用風險。

在計量預期信用損失時，本集團會考慮無需付出不當成本或努力即可獲取的合理及可提供支援的資訊，其中包括有關過去事項和當前狀況的資料，以及對未來經濟狀況的預測。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

(A) Policy applicable from 1 January, 2018  
(Continued)

##### *Measurement of ECLs (Continued)*

ECLs are measured on either of the following bases:

- 12-month ECLs: these are losses that are expected to result from possible default events within the 12 months after the reporting date; and
- lifetime ECLs: these are losses that are expected to result from all possible default events over the expected lives of the items to which the ECL model applies.

Loss allowances for trade receivables and contract assets are always measured at an amount equal to lifetime ECLs. ECLs on these financial assets are estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors and an assessment of both the current and forecast general economic conditions at the reporting date.

For all other financial instruments, the Group recognises a loss allowance equal to 12-month ECLs unless there has been a significant increase in credit risk of the financial instrument since initial recognition, in which case the loss allowance is measured at an amount equal to lifetime ECLs.

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

(A) 政策於2018年1月1日起  
適用(續)

##### *預期信用損失的計量(續)*

預期信用損失根據以下任一基礎計量：

- 十二個月預期信用損失：該等損失為於報告日期後十二個月內可能發生的違約事件造成的損失；及
- 整個存續期預期信用損失：該等損失為由預期信用損失模型適用項目的整個存續期內所有可能的違約事件導致的損失。

應收賬款及合同資產的損失準備是按照整個存續期的等價來計量。該等金融資產的預期信用損失為使用基於本集團歷史信用損失經驗的計提矩陣進行估計，根據債務人的具體情況及對報告日期當前的經濟條件及未來的經濟條件預測的評估進行調整。

就所有其他金融工具而言，本集團確認相當於十二個月預期信用損失的損失準備，除非自初始確認以來，金融工具的信用風險顯著增加。在這種情況下，損失準備將按照等同整個存續期預期信用損失的金額計量。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

- (A) Policy applicable from 1 January, 2018  
(Continued)

##### *Significant increases in credit risk*

In assessing whether the credit risk of a financial instrument has increased significantly since initial recognition, the Group compares the risk of default occurring on the financial instrument assessed at the reporting date with that assessed at the date of initial recognition. In making this reassessment, the Group considers that a default event occurs when (i) the borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realising security (if any is held); or (ii) the financial asset is 90–365 days past due. The Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

- (A) 政策於2018年1月1日起  
適用(續)

##### *信用風險的顯著增加*

在評估一項金融工具的信用風險自初始確認後是否顯著增加時，本集團將於報告日評估的金融工具違約風險與初始確認日的違約風險進行比較。在開展重新評估時，本集團認為當(i)借款人不可能全額履行其對本集團的信用義務，且本集團並無採取諸如變現證券(若持有)等追索行動；或(ii)該金融資產已逾期90-365天時，確定為違約事件。本集團對合理及可提供支援的定量和定性資料均進行斟酌，其中包括無需付出不當成本或努力即可取得的歷史經驗及預測資料。

尤其是在評估自初始確認後信用風險是否顯著增加時將考慮以下資料：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

(A) Policy applicable from 1 January, 2018  
(Continued)

##### *Significant increases in credit risk (Continued)*

- failure to make payments of principal or interest on their contractually due dates;
- an actual or expected significant deterioration in a financial instrument's external or internal credit rating (if available);
- an actual or expected significant deterioration in the operating results of the debtor; and
- existing or forecast changes in the technological, market, economic or legal environment that have a significant adverse effect on the debtor's ability to meet its obligation to the Group.

Depending on the nature of the financial instruments, the assessment of a significant increase in credit risk is performed on either an individual basis or a collective basis. When the assessment is performed on a collective basis, the financial instruments are grouped based on shared credit risk characteristics, such as past due status and credit risk ratings.

ECLs are remeasured at each reporting date to reflect changes in the financial instrument's credit risk since initial recognition. Any change in the ECL amount is recognised as an impairment gain or loss in profit or loss. The Group recognises an impairment gain or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account.

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

(A) 政策於2018年1月1日起適用(續)

##### *信用風險的顯著增加(續)*

- 未能於合同到期日支付本金或利息；
- 金融工具外部或內部信用評級(如有)的實際或預期顯著惡化；
- 經營業績的實際或預期顯著惡化；及
- 技術、市場、經濟或法律環境的現有或預測變動對債務人履行其對本集團義務的能力產生重大不利影響。

根據金融工具的性質，對信用風險顯著增加的評估是基於個別或整體開展。在基於整體開展評估時，金融工具根據共有的信用風險特徵(如：逾期狀況及風險信用評級)進行分組。

本集團於各個報告日重新計量預期信用損失，以反映自初始確認後金融工具信用風險的變化。預期信用損失的任何變化均於損益中確認為減值損益。本集團確認所有金融工具的減值損益，並通過損失準備金帳戶對其帳面金額進行相應調整。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

### 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

#### (n) 信用損失和資產減值(續)

##### (i) Credit loss from financial instruments and contract assets (Continued)

##### (i) 金融工具和合同資產之信用損失(續)

(A) Policy applicable from 1 January, 2018  
(Continued)

(A) 政策於2018年1月1日起  
適用(續)

##### *Basis of calculation of interest income*

##### *利息收入計算基準*

Interest income recognised in accordance with Note 2(y)(vi) is calculated based on the gross carrying amount of the financial asset unless the financial asset is credit-impaired, in which case interest income is calculated based on the amortized cost (i.e. the gross carrying amount less loss allowance) of the financial asset.

利息收入根據附註2(y)(vi)金融資產的帳面金額總額進行計算，惟金融資產為信用減值資產時，利息收入乃根據金融資產的攤餘成本計算(即：帳面金額總額減損失準備)。

At each reporting date, the Group assesses whether a financial asset is credit-impaired. A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

本集團於各報告日評估金融資產是否為信用減值。當一項或多項事件對金融資產的預計未來現金流量產生不利影響時，則該金融資產為信用減值。

Evidence that a financial asset is credit-impaired includes the following observable events:

金融資產信用減值的跡象包括以下各可觀察事件：

- significant financial difficulties of the debtor;
- a breach of contract, such as a default or delinquency in interest or principal payments;
- it becoming probable that the borrower will enter into bankruptcy or other financial reorganisation;
- significant changes in the technological, market, economic or legal environment that have an adverse effect on the debtor; or
- the disappearance of an active market for a security because of financial difficulties of the issuer.

- 債務人遭遇重大財務困難；
- 違反合同，如拖欠或違反支付利息或本金；
- 借款人可能進行破產清算或其他財務重組；
- 技術、市場、經濟或法律環境發生重大變化，並對債務人產生不利影響；或
- 因發行人遭遇財務困難致使該證券失去活躍市場。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (n) Credit losses and impairment of assets (Continued)

#### (i) Credit loss from financial instruments and contract assets (Continued)

- (A) Policy applicable from 1 January, 2018  
(Continued)

##### *Write-off policy*

The gross carrying amount of a financial asset or contract asset is written off (either partially or in full) to the extent that there is no realistic prospect of recovery. This is generally the case when the Group determines that the debtor does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off.

Subsequent recoveries of an asset that was previously written off are recognised as a reversal of impairment in profit or loss in the period in which the recovery occurs.

- (B) Policy applicable prior to 1 January, 2018

Prior to 1 January, 2018, an “incurred loss” model was used to measure impairment loss on financial assets not classified as at FVPL (e.g. trade and other receivables, available-for-sale investments and held-to-maturity debt securities). Under the “incurred loss” model, an impairment loss was recognised only when there was objective evidence of impairment. Objective evidence of impairment included:

- significant financial difficulty of the debtor;
- a breach of contract, such as a default or delinquency in interest or principal payments;
- it becoming probable that the debtor will enter bankruptcy or other financial reorganisation;

### (n) 信用損失和資產減值(續)

#### (i) 金融工具和合同資產之信用損失(續)

- (A) 政策於2018年1月1日起適用(續)

##### *衝銷政策*

金融資產或合同資產的帳面金額總額於預計實際無法收回時衝銷(部分或全部)。通常是指當本集團釐定債務人概無產生足夠現金流量的資產或收入來源以償還衝銷的金額。

過往衝銷但隨後收回的資產於收回發生期間的損益中確認為減值轉回。

- (B) 政策於2018年1月1日前適用

在2018年1月1日之前，「已發生損失」模型用於計量未歸類為以公允價值計量且其變動計入當期損益的金融資產的減值損失(例如應收和其他應收款，可供出售投資和持有至到期債券)。根據「已發生損失」模式，僅存在客觀證據時確認減值損失。客觀的減值證據包括：

- 債務人有重大財務困難；
- 違反合同，例如拖欠或逾期償還利息或本金款項；
- 債務人可能面臨破產或進行其他財務重組；

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

### 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

#### (n) 信用損失和資產減值(續)

##### (i) Credit loss from financial instruments and contract assets (Continued)

##### (i) 金融工具和合同資產之信用損失(續)

(B) Policy applicable prior to 1 January, 2018  
(Continued)

(B) 政策於2018年1月1日前  
適用(續)

- significant changes in the technological, market, economic or legal environment that have an adverse effect on the debtor; and
- a significant or prolonged decline in the fair value of an investment in an equity instrument below its cost.

- 技術、市場、經濟或法律環境發生重大變動而對債務人產生不利影響；及
- 一項權益工具投資之公允價值大幅度或長期貶值至低於其成本。

If any such evidence existed, an impairment loss is determined and recognised as follows:

如有任何該等證據存在，便會確定減值虧損並按以下方式確認：

- For investments in associates accounted for under the equity method in the consolidated financial statements (see Note 2(f)), the impairment loss was measured by comparing the recoverable amount of the investment with its carrying amount in accordance with Note 2(n)(ii). The impairment loss was reversed if there has been a favourable change in the estimates used to determine the recoverable amount in accordance with Note 2(n)(ii).
- For unquoted equity securities carried at cost, the impairment loss was measured as the difference between the carrying amount of the financial asset and the estimated future cash flows, discounted at the current market rate of return for a similar financial asset where the effect of discounting was material. Impairment losses for equity securities carried at cost were not reversed.

- 對於合併財務報表中按權益法核算的對聯營公司的投資(見附註2(f))，減值虧損是根據附註2(n)(ii)以投資可收回金額與其帳面金額之間之差額計量。倘若用以決定可收回金額之估計有利好之變動，則該減值虧損可按附註2(n)(ii)所述撥回。
- 就按成本列賬之非上市權益證券而言，減值虧損乃按金融資產之帳面值與類似金融資產當時市場回報率折現計算(倘若折現產生重大影響)的預計未來現金流量之間之差額計量。按成本列賬之權益證券減值虧損將不會撥回。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (n) Credit losses and impairment of assets (Continued)

#### (i) Credit loss from financial instruments and contract assets (Continued)

(B) Policy applicable prior to 1 January, 2018  
(Continued)

- For trade and other current receivables and other financial assets carried at amortised cost, the impairment loss was measured as the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate (i.e. the effective interest rate computed at initial recognition of these assets), where the effect of discounting was material. This assessment was made collectively where these financial assets shared similar risk characteristics, such as similar past due status, and had not been individually assessed as impaired. Future cash flows for financial assets which were assessed for impairment collectively were based on historical loss experience for assets with credit risk characteristics similar to the collective group.

If in a subsequent period the amount of an impairment loss decreased and the decrease could be linked objectively to an event occurring after the impairment loss was recognised, the impairment loss was reversed through profit or loss. A reversal of an impairment loss was only recognised to the extent that it did not result in the asset's carrying amount exceeding that which would have been determined had no impairment loss been recognised in prior years.

### (n) 信用損失和資產減值(續)

#### (i) 金融工具和合同資產之信用損失(續)

(B) 政策於2018年1月1日前  
適用(續)

- 對於按攤餘成本列賬之應收賬款及其他流動應收款項及其他金融資產，減值虧損按該項資產帳面值與有關金融資產之原定的實際利率(即按最初確認該等資產計算出之實際利率)進行折現(倘折現影響屬重大)的預計未來現金流量的現值之間的差額計量。若金融資產擁有類似風險性質(如相近的過期未付情況)且沒有被個別評估為已減值，則按整體評估。金融資產的未來現金流量乃根據與被評估資產具有類似信用風險特徵資產的過往虧損經驗進行整體減值評估。

倘若減值虧損數額在其後的期間減少，而且客觀上與減值虧損確認後發生之事件有關，則應通過損益撥回減值虧損。減值虧損之撥回不應使資產之帳面金額超過其在以往年度沒有確認任何減值虧損而已應確定之數額。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

(B) Policy applicable prior to 1 January, 2018  
(Continued)

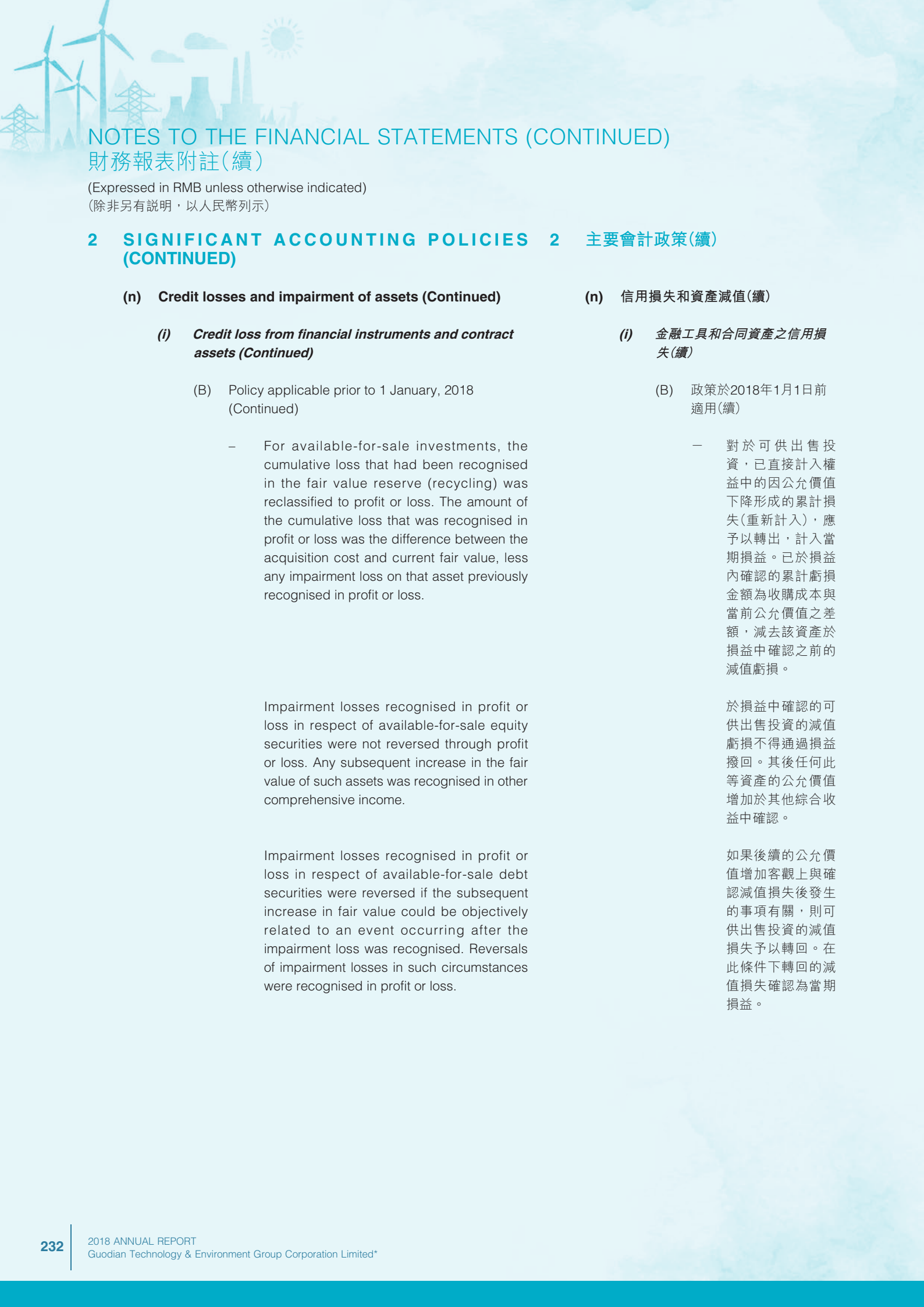
When the recovery of a trade debtor or other financial assets carried at amortised cost was considered doubtful but not remote, associated impairment losses were recorded using an allowance account. When the Group was satisfied that recovery was remote, the amount considered irrecoverable was written off against the gross carrying amount of those assets directly. Subsequent recoveries of amounts previously charged to the allowance account were reversed against the allowance account. Other changes in the allowance account and subsequent recoveries of amounts previously written off directly were recognised in profit or loss.

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

(B) 政策於2018年1月1日前  
適用(續)

當以攤餘成本計量的應收賬款或其他金融資產的可回收機會是被疑慮而非可能性極低時，呆壞賬的減值虧損則於撥備帳戶計提。當本集團認為收回機會渺茫，被視為不會收回的金額直接沖銷各自資產金額。當已計提在撥備賬中的金額已被收回，其將從撥備賬中撥回。其他在撥備賬內的變動及以往已直接撇銷而其後收回的數額則在損益中確認。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (n) Credit losses and impairment of assets (Continued)

##### (i) Credit loss from financial instruments and contract assets (Continued)

(B) Policy applicable prior to 1 January, 2018  
(Continued)

- For available-for-sale investments, the cumulative loss that had been recognised in the fair value reserve (recycling) was reclassified to profit or loss. The amount of the cumulative loss that was recognised in profit or loss was the difference between the acquisition cost and current fair value, less any impairment loss on that asset previously recognised in profit or loss.

Impairment losses recognised in profit or loss in respect of available-for-sale equity securities were not reversed through profit or loss. Any subsequent increase in the fair value of such assets was recognised in other comprehensive income.

Impairment losses recognised in profit or loss in respect of available-for-sale debt securities were reversed if the subsequent increase in fair value could be objectively related to an event occurring after the impairment loss was recognised. Reversals of impairment losses in such circumstances were recognised in profit or loss.

#### (n) 信用損失和資產減值(續)

##### (i) 金融工具和合同資產之信用損失(續)

(B) 政策於2018年1月1日前  
適用(續)

- 對於可供出售投資，已直接計入權益中的因公允價值下降形成的累計損失(重新計入)，應予以轉出，計入當期損益。已於損益內確認的累計虧損金額為收購成本與當前公允價值之差額，減去該資產於損益中確認之前的減值虧損。

於損益中確認的可供出售投資的減值虧損不得通過損益撥回。其後任何此等資產的公允價值增加於其他綜合收益中確認。

如果後續的公允價值增加客觀上與確認減值損失後發生的事項有關，則可供出售投資的減值損失予以轉回。在此條件下轉回的減值損失確認為當期損益。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

### 2 主要會計政策(續)

#### (n) Credit losses and impairment of assets (Continued)

#### (n) 信用損失和資產減值(續)

##### (ii) Impairment of other non-current assets

##### (ii) 其他非流動資產減值

Internal and external sources of information are reviewed at the end of each reporting period to identify indications that the following assets may be impaired or, except in the case of goodwill, an impairment loss previously recognised no longer exists or may have decreased:

在每個報告期末審閱內部和外來的資料，以確定下列資產有否出現減值跡象，或是以往確認的減值虧損不復存在或已經減少(商譽除外)：

- property, plant and equipment;
- investment properties;
- lease prepayments;
- intangible assets;
- goodwill; and
- investment in subsidiaries and associates in the Company's statement of financial position.

- 物業、廠房及設備；
- 投資性物業；
- 預付土地租賃款；
- 無形資產；
- 商譽；及
- 於本公司財務狀況表中對附屬公司和聯營公司的投資。

If any such indication exists, the asset's recoverable amount is estimated. In addition, for goodwill and intangible assets that are not yet available for use, the recoverable amount is estimated annually whether or not there is any indication of impairment.

倘出現任何有關跡象，則會估計該資產的可收回金額。此外，就商譽和尚未可使用的無形資產而言，無論是否出現減值的跡象，須每年估計可收回金額。

##### - Calculation of recoverable amount

##### - 計算可收回金額

The recoverable amount of an asset is the greater of its fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Where an asset does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the smallest group of assets that generates cash inflows independently (i.e. a cash-generating unit).

資產的可收回金額是其公允價值減去出售成本後的數值與使用價值兩者中較高者。在評估使用價值時，預計未來現金流量會按照能反映當時市場對貨幣時間價值和資產特定風險的評估的稅前折現率，折現至其現值。如果資產所產生的現金流入基本上並非獨立於其他資產所產生的現金流入，則以能產生獨立現金流入的最小資產類別(即現金產生單元)來確定可收回金額。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (n) Credit losses and impairment of assets (Continued)

##### (ii) Impairment of other non-current assets (Continued)

###### – Recognition of impairment losses

An impairment loss is recognised in profit or loss if the carrying amount of an asset, or the cash-generating unit to which it belongs, exceeds its recoverable amount. Impairment losses recognised in respect of cash-generating units are allocated first to reduce the carrying amount of any goodwill allocated to the cash-generating unit (or group of units) and then, to reduce the carrying amount of the other assets in the unit (or group of units) on a pro rata basis, except that the carrying value of an asset will not be reduced below its individual fair value less costs of disposal (if measurable), or value in use (if determinable).

###### – Reversals of impairment losses

In respect of assets other than goodwill, an impairment loss is reversed if there has been a favourable change in the estimates used to determine the recoverable amount. An impairment loss in respect of goodwill is not reversed.

A reversal of an impairment loss is limited to the asset's carrying amount that would have been determined had no impairment loss been recognised in prior years. Reversals of impairment losses are credited to profit or loss in the year in which the reversals are recognised.

#### (n) 信用損失和資產減值(續)

##### (ii) 其他非流動資產減值(續)

###### – 確認減值虧損

倘資產或其所屬現金產生單元的帳面值超過其可收回金額，則減值虧損於損益確認。在分配現金產生單元確認的減值虧損時，首先減少已分配至該現金產生單元(或該組單元)的商譽之帳面金額，然後按比例減少該單元(或該組單元)內其他資產的帳面金額；但資產的帳面值不得減少至低於其個別公允價值減去出售成本(如可衡量)後所得的金額或其使用價值(如能確定)。

###### – 減值虧損撥回

就商譽以外之資產而言，倘用以確定可收回金額的估計出現有利轉變，則減值虧損會被撥回。商譽減值虧損概不撥回。

減值虧損的撥回僅限於資產在以往年度內並無確認任何減值虧損的情況下的原應確定的帳面值。減值虧損的撥回在確認撥回的年度內計入損益。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (n) Credit losses and impairment of assets (Continued)

### (n) 信用損失和資產減值(續)

#### (iii) Interim financial reporting and impairment

#### (iii) 中期財務報告及減值

Under the Rules Governing the Listing of Securities on the Stock Exchange, the Group is required to prepare an interim financial report in compliance with IAS 34, Interim financial reporting, in respect of the first six months of the financial year. At the end of the interim period, the Group applies the same impairment testing, recognition, and reversal criteria as it would at the end of the financial year (see Notes 2(n)(i) and (ii)).

根據《聯合交易所有限公司證券上市規則》，本集團須根據《國際會計準則》第34號「中期財務報告」就財政年度首六個月編製中期財務報告。於中期期末，本集團應用的減值測試、確認及撥回標準與其於財政年度末所應用者相同(見附註2(n)(i)及(ii))。

Impairment losses recognised in an interim period in respect of goodwill are not reversed in a subsequent period. This is the case even if no loss, or a smaller loss, would have been recognised had the impairment been assessed only at the end of the financial year to which the interim period relates.

於中期期間就商譽的減值虧損並不會於往後期間撥回。即使在倘若減值評估僅於與中期期間相關財政年度結束時進行則將無需確認虧損或確認較少虧損的情況下亦然。

### (o) Inventories and other contract costs

### (o) 存貨及其他合同成本

#### (i) Inventories

#### (i) 存貨

Inventories are assets which are held for sale in the ordinary course of business, in the process of production for such sale or in the form of materials or supplies to be consumed in the production process or in the rendering of services.

存貨是指企業在日常活動中持有以備出售的產成品或商品、處在生產過程中的在產品、在生產過程或提供勞務過程中耗用的材料或物料。

Inventories are carried at the lower of cost and net realisable value.

存貨乃以成本與可變現淨值之較低者列賬。

Cost is calculated using the weighted average cost formula and comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

成本採用加權平均成本公式計算，並包括所有採購成本、加工成本及將存貨運至目前地點及達成現狀產生之其他成本。

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

可變現淨值乃以日常業務過程中的估計售價減估計完工成本及估計進行銷售所需的成本後所得數額。

When inventories are sold, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised.

存貨售出時，該等存貨之帳面金額於相關收入獲確認期間內確認為開支。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (o) Inventories and other contract costs (Continued)

#### (i) Inventories (Continued)

The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

#### (ii) Other contract costs

Other contract costs are either the incremental costs of obtaining a contract with a customer or the costs to fulfil a contract with a customer which are not capitalised as inventory (see Note 2(o)(i)), property, plant and equipment (see Note 2(k)) or intangible assets (see Note 2(l)).

Incremental costs of obtaining a contract are those costs that the Group incurs to obtain a contract with a customer that it would not have incurred if the contract had not been obtained e.g. an incremental sales commission. Incremental costs of obtaining a contract are capitalised when incurred if the costs relate to revenue which will be recognised in a future reporting period and the costs are expected to be recovered. Other costs of obtaining a contract are expensed when incurred.

Costs to fulfil a contract are capitalised if the costs relate directly to an existing contract or to a specifically identifiable anticipated contract; generate or enhance resources that will be used to provide goods or services in the future; and are expected to be recovered. Costs that relate directly to an existing contract or to a specifically identifiable anticipated contract may include direct labour, direct materials, allocations of costs, costs that are explicitly chargeable to the customer and other costs that are incurred only because the Group entered into the contract (for example, payments to sub-contractors). Other costs of fulfilling a contract, which are not capitalised as inventory, property, plant and equipment or intangible assets, are expensed as incurred.

### (o) 存貨及其他合同成本(續)

#### (i) 存貨(續)

任何由存貨撇減至可變現淨值之金額及所有存貨虧損，於撇減或虧損出現期間確認為開支。存貨撇減的任何撥回金額，於撥回期間作為存貨所確認的開支的扣減。

#### (ii) 其他合同成本

其他合同成本是指合同取得成本或者履約合同成本。這些成本未被資本化為存貨(見附註2(o)(i))，物業，廠房和設備(見附註2(k))以及無形資產(見附註2(l))。

合同取得成本是指與客戶簽訂合同所產生的成本。如果合同沒有簽訂，則不會產生相應的成本，例如增加的銷售佣金。如果主體預計能夠收回為取得客戶合同而發生的增量成本，則應將這些增量成本作資本化處理，否則應當在實際發生時費用化。

履約合同成本符合以下標準時將其確認為資產：這些成本直接與現有合同或特定的預期合同有關；這些成本產生或改良主體將來履行履約義務所使用的資源；以及主體預計能夠收回這些成本。直接與現有合同或特定的預期合同有關的成本可能包括直接人工、直接材料、與合同直接相關的 Costs 的分攤、合同中明確表示由客戶承擔的成本以及主體簽訂合同才發生的其他成本，例如分包成本。其他不能資本化為存貨、物業、廠房和設備及無形資產的履約合同成本，在實際發生時費用化。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (o) Inventories and other contract costs (Continued)

### (o) 存貨及其他合同成本(續)

#### (ii) Other contract costs (Continued)

#### (ii) 其他合同成本(續)

Capitalised contract costs are stated at cost less accumulated amortisation and impairment losses. Impairment losses are recognised to the extent that the carrying amount of the contract cost asset exceeds the net of (i) remaining amount of consideration that the Group expects to receive in exchange for the goods or services to which the asset relates, less (ii) any costs that relate directly to providing those goods or services that have not yet been recognised as expenses.

資本化合同成本按成本減累計攤銷及減值損失列示。當本集團合同成本資產的帳面價值超過(i)本集團預期就資產所關乎的貨品或服務而收取的對價餘額和(ii)與提供尚未確認為費用的商品或服務直接相關的費用的差額時，本集團應確認減值損失。

Amortisation of capitalised contract costs is charged to profit or loss when the revenue to which the asset relates is recognised. The accounting policy for revenue recognition is set out in Note 2(y).

資本化合同成本的攤銷在確認與資產相關的收入時計入損益。收入確認的會計政策載於附註2(y)。

### (p) Construction contracts

### (p) 建造合同

Construction contracts are contracts specifically negotiated with a customer for the construction of an asset or a group of assets, where the customer is able to specify the major structural elements of the design. The accounting policy for contract revenue is set out in Note 2(y)(ii). When the outcome of a construction contract can be estimated reliably, contract costs are recognised as an expense by reference to the stage of completion of the contract at the end of the reporting period. When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognised as an expense immediately. When the outcome of a construction contract cannot be estimated reliably, contract costs are recognised as an expense in the period in which they are incurred.

建造合同乃就建造一項或一組資產而與客戶具體商議的合約，客戶可指定設計的主要構造元素。建造合同收入之會計政策載於附註2(y)(ii)。倘能可靠估計建造合同的結果，則合同成本於報告期末按合同完工進度確認為開支。如總合同成本很可能超出總合同收入，則預期虧損立即確認為開支。倘無法可靠估計建造合同的結果，則合同成本於產生期間確認為開支。

### (q) Contract assets and contract liabilities

### (q) 合同資產和合同負債

A contract asset is recognised when the Group recognises revenue (see Note 2(y)) before being unconditionally entitled to the consideration under the payment terms set out in the contract. Contract assets are assessed for expected credit losses (ECL) in accordance with the policy set out in Note 2(n)(i) and are reclassified to receivables when the right to the consideration has become unconditional (see Note 2(r)).

在實現合約所載的付款條款無條件享有對價前，本集團將確認的收益計入合同資產(見附註2(y))。合同資產根據附註2(n)(i)所載政策評估預期信用損失，並於對價轉變為無條件時重分類至應收款項(見附註2(r))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (q) Contract assets and contract liabilities (Continued)

A contract liability is recognised when the customer pays non-refundable consideration before the Group recognises the related revenue (see Note 2(y)). A contract liability would also be recognised if the Group has an unconditional right to receive non-refundable consideration before the Group recognises the related revenue. In such cases, a corresponding receivable would also be recognised (see Note 2(r)).

For a single contract with the customer, either a net contract asset or a net contract liability is presented. For multiple contracts, contract assets and contract liabilities of unrelated contracts are not presented on a net basis.

When the contract includes a significant financing component, the contract balance includes interest accrued under the effective interest method (see Note 2(y)).

#### **Policy prior to 1 January 2018**

Construction contracts in progress at the end of the reporting period were recorded at the net amount of costs incurred plus recognised profit less recognised losses and progress billings, and were presented in the statement of financial position as the "Contract assets" (as an asset) or the "Contract liabilities" (as a liability), as applicable. Progress billings not yet paid by the customer were included under "Trade and bills receivables". Amounts received before the related work was performed were presented as "Receipts in advance" under "Other payables".

### (r) Trade and other receivables

A receivable is recognised when the Group has an unconditional right to receive consideration. A right to receive consideration is unconditional if only the passage of time is required before payment of that consideration is due. If revenue has been recognised before the Group has an unconditional right to receive consideration, the amount is presented as a contract asset (see Note 2(q)).

Receivables are stated at amortised cost using the effective interest method less allowance for credit losses (see Note 2(n) (i)).

### (q) 合同資產和合同負債(續)

當客戶在本集團確認相關收入前支付不可退還的對價時，集團確認合同負債(見附註2(y))。如果本集團在確認相關收入前擁有無條件接收不可退還對價的權利，也將確認合同負債。在這種情況下，本集團也將確認相應的應收款項(見附註2(r))。

對於與客戶的單一履約合同，應列示為淨合同資產或淨合同負債。對於多份合同，合同資產和無關合同的合同負債不得以淨額列報。

當合同包含重大融資成分時，合同餘額包括按實際利率法計算的利息(見附註2(y))。

#### **2018年1月1日之前適用的政策**

於報告期末的建造合同按所產生成本淨額加已確認利潤再減已確認虧損及進度款項於財務狀況表，並呈列為「合同資產」(作為資產)或「合同負債」(作為負債)(視情況而定)。客戶尚未支付的進度款項計入「應收賬款及票據」。於進行有關工程前收取的款項於「其他應付款項」下呈列為「預收款項」。

### (r) 應收賬款及其他應收款

應收款項於本集團有無條件享有獲取對價的權利時確認。如果在支付該對價到期之前只需要經過一段時間，則獲取對價的權利是無條件的。如果在本集團有無條件獲得代價的權利之前確認收入，則該金額作為合同資產列報(見附註2(q))。

應收款項採用實際利率法減去信貸損失準備，按攤餘成本列示(見附註2(n) (i))。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (s) Interest-bearing borrowings

Interest-bearing borrowings are measured initially at fair value less transaction costs. Subsequent to initial recognition, interest-bearing borrowings are stated at amortised cost using the effective interest method. Interest expense is recognised in accordance with the Group's accounting policy for borrowing costs (see Note 2(aa)).

#### (t) Trade and other payables

Trade and other payables are initially recognised at fair value. Except for financial guarantee liabilities measured in accordance with Note 2(x)(i), trade and other payables are subsequently stated at amortised cost unless the effect of discounting would be immaterial, in which case they are stated at cost.

#### (u) Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and on hand, demand deposits with banks and other financial institutions, and short-term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value, having been within three months of maturity at acquisition. Cash and cash equivalents are assessed for expected credit losses (ECL) in accordance with the policy set out in Note 2(n)(i).

#### (v) Employee benefits

##### (i) Short-term employee benefits and contributions to defined contribution retirement plans

Salaries, annual bonuses, contributions to defined contribution retirement plans and the cost of non-monetary benefits are accrued in the year in which the associated services are rendered by employees. Where payment or settlement is deferred and the effect would be material, these amounts are stated at their present values.

##### (ii) Termination benefits

Termination benefits are recognised at the earlier of when the Group can no longer withdraw the offer of those benefits and when it recognises restructuring costs involving the payment of termination benefits.

### 2 主要會計政策(續)

#### (s) 帶息借貸

帶息借貸乃初始按公允價值減交易成本確認。於初始確認後，帶息借貸使用實際利息法，按攤餘成本列賬。利息開支乃根據本集團的借貸成本會計政策確認(見附註2(aa))。

#### (t) 應付帳款及其他應付款

應付帳款及其他應付款項乃初始按公允價值確認。除根據附註2(x)(i)計量之財務擔保負債外，應付帳款及其他應付款項其後按攤餘成本列賬，惟貼現之影響輕微時則除外，於此情況乃按成本列賬。

#### (u) 現金及現金等價物

現金及現金等價物包括現金及銀行存款、存放在銀行及其他金融機構活期存款，以及隨時兌換為已知金額之現金，價值變動風險較小及在購入後三個月內到期的短期和高流動性的投資。現金及現金等價物按照附註2(n)(i)所載政策評估預期信用損失。

#### (v) 僱員福利

##### (i) 短期僱員福利及界定供款退休計劃供款

薪金、年度花紅、界定供款退休計劃作出供款及非貨幣性福利之成本乃於僱員提供有關服務年度內計提。倘延遲付款或結算而且其影響重大，則該等金額按現值列賬。

##### (ii) 辭退福利

辭退福利只會在本集團根據正式、具體，且不大可能撤回的計劃終止僱員合約或因僱員自願遣散而終止合約而做出補償時確認。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (w) Income tax

Income tax for the year comprises current tax and movements in deferred tax assets and liabilities. Current tax and movements in deferred tax assets and liabilities are recognised in profit or loss except to the extent that they relate to items recognised in other comprehensive income or directly in equity, in which case the relevant amounts of tax are recognised in other comprehensive income or directly in equity, respectively.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

Deferred tax assets and liabilities arise from deductible and taxable temporary differences respectively, being the differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets also arise from unused tax losses and unused tax credits.

Apart from certain limited exceptions, all deferred tax liabilities, and all deferred tax assets to the extent that it is probable that future taxable profits will be available against which the asset can be utilised, are recognised. Future taxable profits that may support the recognition of deferred tax assets arising from deductible temporary differences include those that will arise from the reversal of existing taxable temporary differences, provided those differences relate to the same taxation authority and the same taxable entity, and are expected to reverse either in the same period as the expected reversal of the deductible temporary difference or in periods into which a tax loss arising from the deferred tax asset can be carried back or forward. The same criteria are adopted when determining whether existing taxable temporary differences support the recognition of deferred tax assets arising from unused tax losses and credits, that is, those differences are taken into account if they relate to the same taxation authority and the same taxable entity, and are expected to reverse in a period, or periods, in which the tax loss or credit can be utilised.

### (w) 所得稅

本年度之所得稅包括即期稅項，以及遞延稅項資產及負債之變動。即期稅項及遞延稅項資產及負債之變動於損益中確認，惟倘涉及業務合併，或於其他綜合收益或直接於權益確認之專案除外，在此情況下，相關稅項金額分別於其他綜合收益或直接於權益確認。

當期稅項是根據年內應稅所得額，按報告期末已執行或實際已執行之稅率計算之預期應付稅項，以及過往年度的應付稅項的任何調整。

遞延所得稅資產與負債分別由可抵扣和應納稅暫時性差異產生。暫時性差異是指資產和負債在財務報表上的帳面金額與該等資產和負債的計稅基礎之間的差異。遞延稅項資產也可以由未使用稅項虧損和未使用稅項抵免產生。

除若干有限之例外情況外，所有遞延稅項負債及所有遞延稅項資產(惟以有可能用以抵扣未來很可能取得之應課稅利潤的部份為限)均予以確認。可支援確認可抵扣暫時性差異所產生遞延稅項資產的未來應課稅利潤包括轉回現有應納稅暫時性差異所產生的金額。為該等差異必須與同一稅務機關及同一課稅實體有關，並預期在預計轉回可抵扣暫時性差異之同一期間或遞延稅項資產所產生稅務虧損可予撥回或結轉之期間內轉回。在決定現有應納稅暫時性差異是否足以支援確認由未使用稅項虧損及稅項抵免所產生遞延稅項資產時，亦會採用同一準則，即須計及與同一稅務機關及同一應課稅實體有關，並預期在能夠運用稅項虧損或稅項抵免之間內轉回之該等差異。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (w) Income tax (Continued)

The limited exceptions to recognition of deferred tax assets and liabilities are those temporary differences arising from goodwill not deductible for tax purposes, the initial recognition of assets or liabilities that affect neither accounting nor taxable profit (provided they are not part of a business combination), and temporary differences relating to investments in subsidiaries to the extent that, in the case of taxable differences, the Group controls the timing of the reversal and it is probable that the differences will not reverse in the foreseeable future, or in the case of deductible differences, unless it is probable that they will reverse in the future.

The amount of deferred tax recognised is measured based on the expected manner of realisation or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the end of the reporting period. Deferred tax assets and liabilities are not discounted.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and is reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow the related tax benefit to be utilised. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profits will be available.

Current tax balances and deferred tax balances, and movements therein, are presented separately from each other and are not offset. Current tax assets are offset against current tax liabilities, and deferred tax assets against deferred tax liabilities, if the Company or the Group has the legally enforceable right to set off current tax assets against current tax liabilities and the following additional conditions are met:

- in the case of current tax assets and liabilities, the Company or the Group intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously; or

#### (w) 所得稅(續)

確認遞延稅項資產及負債之有限例外情況包括來自不可在稅務方面獲得扣減的商譽、不影響會計或應課稅利潤(如屬業務合併的一部份則除外)的資產或負債之初始確認，以及與對附屬公司投資有關之暫時性差異，如為應納稅差異，只限於本集團可以控制轉回時間而不太可能在可預見將來轉回之差額；或如屬可抵扣差異，則只限於可在將來轉回的差異。

已確認遞延稅額是按照資產與負債帳面金額的預期實現或結算方式，根據已執行或在報告期末實質上已執行的稅率計量。遞延稅項資產與負債均不折現計算。

遞延稅項資產之帳面值會於每個報告期末予以審閱，並減少不再可能有足夠之應課稅利潤以抵扣相關可使用的稅項利益之部份。如日後有可能有足夠之應課稅利潤，該減少金額將被撥回。

即期稅項結餘及遞延稅項結餘以及當中之變動乃各自分開呈列及不予抵銷。倘本公司或本集團擁有以即期稅項資產抵銷即期稅項負債之法律上可執行之權利，以及符合以下之額外條件時，即期稅項資產才會與即期稅項負債抵銷，而遞延稅項資產則與遞延稅項負債抵銷：

- 就即期稅項資產及負債而言，本公司或本集團計劃以淨額方式結算，或同時變現資產及償還負債；或

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續) (CONTINUED)

#### (w) Income tax (Continued)

- in the case of deferred tax assets and liabilities, if they relate to income taxes levied by the same taxation authority on either:
  - the same taxable entity; or
  - different taxable entities, which, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered, intend to realise the current tax assets and settle the current tax liabilities on a net basis or realise and settle simultaneously.

#### (x) Provisions and contingent liabilities

##### (i) Provisions and contingent liabilities

Provisions are recognised when the Group has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

##### (ii) Onerous contracts

An onerous contract exists when the Group has a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received from the contract. Provisions for onerous contracts are measured at the present value of the lower of the expected cost of terminating the contract and the net cost of continuing with the contract.

#### (w) 所得稅(續)

- 就遞延稅項資產及負債而言，如該資產及負債涉及之所得稅乃由同一個稅務機關向以下各方徵收：
  - 同一應課稅實體；或
  - 不同應課稅實體。該等實體計劃在日後每個預期有大額遞延稅項負債需要清算或大額遞延稅項資產可以收回的期間內，按淨額為基礎實現當期稅項資產和清算當期稅項負債，或同時變現該資產和清算該負債。

#### (x) 撥備及或有負債

##### (i) 撥備與或有負債

如果本集團須就已發生事件承擔法律或推定責任，而履行該責任很可能會導致經濟利益外流，並可作出可靠估計，便會確認撥備。如果貨幣時間價值重大，則按預計履行責任所需開支之現值計提撥備。

倘若致使經濟利益外流之機會不大，或無法對有關款項作出可靠估計，便會將該責任披露為或有負債，惟經濟利益外流之機會極低則除外。如果本集團的義務僅視乎一宗或多宗未來事件是否發生才能確定存在，該義務亦會披露為或有負債，惟經濟利益外流之機會極低則除外。

##### (ii) 預計虧損合同

當集團在履行合同義務時所產生的不可避免的成本超過了預期從合同中獲取的經濟利益，該合同被稱之為預計虧損合同。預計合同虧損以終止合同的預期成本和繼續履約所發生成本兩者中較低者的現值計量。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (y) Revenue and other income

Income is classified by the Group as revenue when it arises from the sale of goods, the provision of services or the use by others of the Group's assets under leases in the ordinary course of the Group's business.

Revenue is recognised when control over a product or service is transferred to the customer, or the lessee has the right to use the asset, at the amount of promised consideration to which the Group is expected to be entitled, excluding those amounts collected on behalf of third parties. Revenue excludes value added tax ("VAT") or other sales taxes and is after deduction of any trade discounts.

Where the contract contains a financing component which provides a significant financing benefit to the customer for more than 12 months, revenue is measured at the present value of the amount receivable, discounted using the discount rate that would be reflected in a separate financing transaction with the customer, and interest income is accrued separately under the effective interest method. Where the contract contains a financing component which provides a significant financing benefit to the Group, revenue recognised under that contract includes the interest expense accreted on the contract liability under the effective interest method. The Group takes advantage of the practical expedient in paragraph 63 of IFRS 15 and does not adjust the consideration for any effects of a significant financing component if the period of financing is 12 months or less.

Further details of the Group's revenue and other income recognition policies are as follows:

#### (i) Sale of goods

Revenue is recognised when the customer takes possession of and accepts the products. If the products are a partial fulfilment of a contract covering other goods and/or services, then the amount of revenue recognised is an appropriate proportion of the total transaction price under the contract, allocated between all the goods and services promised under the contract on a relative stand-alone selling price basis.

### 2 主要會計政策(續)

#### (y) 主營業務收入和其他收入

在本集團業務的日常業務過程中，本集團按其出售貨品、提供服務或其他人使用本集團的租賃資產所產生的收入分類為主營業務收入。


當產品或服務的控制權轉移給客戶，或承租人有權使用該資產時，本集團以預期有權獲得的承諾對價金額確認收入。該金額不包括本集團代替第三方收取的金額，亦不包括增值稅或其他銷售稅，並需扣除任何貿易折扣。

倘若合同中包含為客戶提供超過12個月的重大融資利益的融資成分，則收入按應收金額的現值計量，以與該客戶單獨融資交易中反映的貼現率進行貼現，利息收入則按實際利率法單獨計提。倘若合同中包含為本集團提供重大融資利益的融資成分，則根據該合約確認的收益包括按實際利率法計算的合約負債所產生的利息開支。本集團利用《國際財務報告準則》第15號第63段的實際權宜之計，如果融資期限為12個月或以下，則不會對重大融資成分的任何影響進行調整。

有關本集團主營業務收入及其他收入確認政策的進一步詳情如下：

#### (i) 銷售商品

商品銷售收入是在客戶佔有並接收商品時予以確認。如果提供的商品只是履行部分合同，則應按合同下交易總價的適當比例確認收入金額，在相對獨立的銷售價格基礎上於合同承諾的所有商品和服務之間分配。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續)

### (CONTINUED)

#### (y) Revenue and other income (Continued)

##### (i) Sale of goods (Continued)

In the comparative period, revenue from sales of goods was recognised when the goods were delivered to the customers' premises, which was taken to be the point in time when the customer had accepted the goods and the related risks and rewards of ownership. The change in accounting policy for sales of goods has no impact to opening balances as at 1 January 2018 (see Note 2(c)(ii)).

##### (ii) Construction contracts

A contract with a customer is classified by the Group as a construction contract when the contract relates to work on under the control of the customer and therefore the Group's construction activities create or enhance an asset under the customer's control.

When the outcome of a construction contract can be reasonably measured, revenue from the contract is recognised progressively over time using the cost-to-cost method, i.e. based on the proportion of the actual costs incurred relative to the estimated total costs.

The likelihood of the Group earning contractual bonuses for early completion or suffering contractual penalties for late completion are taken into account in making these estimates, such that revenue is only recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur.

When the outcome of the contract cannot be reasonably measured, revenue is recognised only to the extent of contract costs incurred that are expected to be recovered.

If at any time the costs to complete the contract are estimated to exceed the remaining amount of the consideration under the contract, then a provision is recognised in accordance with the policy set out in Note 2(x)(ii).

#### (y) 主營業務收入和其他收入(續)

##### (i) 銷售商品(續)

於可比期間(即上年)，商品銷售收入是在商品已付運至客戶經營場所即客戶已接收商品與所有權有關的風險和回報時確認。商品銷售會計政策的變動對2018年的期初餘額沒有影響(見附註2(c)(ii))。

##### (ii) 建造合同

當合同涉及客戶控制下的工作時，本集團將與客戶的合同劃分為建造合同。本集團的建造活動在客戶的控制下創建或新增資產。

當建造合同的成果可以被合理計量時，收入隨著時間的推移按照成本比例法逐漸確認，即基於實際發生的成本和預算總成本的比例進行計算。

在作出這些估計時，考慮到本集團因提前完成而獲得合同紅利或因延遲完成而遭受合同罰金的可能性，因此只有在很可能不會發生已確認累積收入金額的重大逆轉的情況下才確認收入。

當合同結果無法合理計量時，收入僅在預期可收回的合同成本範圍內確認。

如果在任何時候，完成合同的成本估計超過了合同下對價的剩餘金額，則根據附註2(x)(ii)中規定的政策確認準備金。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

#### (y) Revenue and other income (Continued)

##### (ii) Construction contracts (Continued)

Revenue for construction contracts was recognised on a similar basis in the comparative period under IAS 11 except for contract modification as described in Note 2(c)(ii).

##### (iii) Service concession revenue

Revenue related to construction services under a service concession arrangement is recognised based on the stage of completion of the work performed consistent with the Group's accounting policy on recognising revenue on construction contracts (see Note 2(y)(ii)). Operation or service revenue is recognised in the period in which the services are provided by the Group. Interest income on financial assets is recognised in accordance with Note 2(y)(vi). When the Group provides more than one service in a service concession arrangement, the consideration received is allocated by reference to the relative fair value of the services delivered when the amounts are separately identifiable.

##### (iv) Rental income from operating leases

Rental income receivable under operating leases is recognised in profit or loss in equal instalments over the periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the use of the leased asset. Lease incentives granted are recognised in profit or loss as an integral part of the aggregate net lease payments receivable. Contingent rentals are recognised as income in the accounting period in which they are earned.

##### (v) Dividends

- Dividend income from unlisted investments is recognised when the shareholder's right to receive payment is established.
- Dividend income from listed investments is recognised when the share price of the investment goes ex-dividend.

#### (y) 主營業務收入和其他收入(續)

##### (ii) 建造合同(續)

除附註2(c)(ii)所述的合約修改外，建造合同收入在《國際會計準則》第11號的比較期間以類似基礎確認。

##### (iii) 服務特許權收入

服務特許權協定項下的與施工相關的收入，按照本集團確認建造合同收入相一致的會計政策(見附註2(y)(ii))按工程完工進度確認。營運或服務收入在本集團提供服務的期間內確認。金融資產的利息收入按照附註2(y)(vi)的規定確認。當本集團在服務特許權協定提供的服務多於一項，且服務確認收入的公允價值能分別確定時，則參照所提供服務的相對公允價值對收取的對價進行分配。

##### (iv) 經營租賃的租金收入

除非有更代表使用租賃資產所產生的收益模式的其他基準之外，經營租賃之租金收入按該租期所涵蓋的年期以等額分期在損益中確認。所給予的租賃獎勵作為租賃淨付款應收額的組成部份在損益中確認。或有租金在該收入產生的會計期間確認收入。

##### (v) 股息

- 非上市權益投資的股息收入在股東收取款項的權利確立時確認。
- 上市股權投資的股息收入在投資專案的股價除息時確認。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (y) Revenue and other income (Continued)

#### (vi) Interest income

Interest income is recognised as it accrues under the effective interest method using the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to the gross carrying amount of the financial asset. For financial assets measured at amortised cost or FVOCI (recycling) that are not credit-impaired, the effective interest rate is applied to the gross carrying amount of the asset. For credit-impaired financial assets, the effective interest rate is applied to the amortised cost (i.e. gross carrying amount net of loss allowance) of the asset (see Note 2(n) (i)).

#### (vii) Government grants

Government grants are recognised in the statement of financial position initially when there is reasonable assurance that they will be received and that the Group will comply with the conditions attaching to them. Grants that compensate the Group for expenses incurred are recognised as income in profit or loss on a systematic basis in the same periods in which the expenses are incurred. Grants that compensate the Group for the cost of an asset are initially recognised as deferred income and are subsequently recognised in profit or loss over the useful life of the asset.

### (z) Translation of foreign currencies

Foreign currency transactions during the year are translated at the foreign exchange rates ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the foreign exchange rates ruling at the end of the reporting period. Exchange gains and losses are recognised in profit or loss.

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates. The transaction date is the date on which the Company initially recognises such non-monetary assets or liabilities.

### (y) 主營業務收入和其他收入(續)

#### (vi) 利息收入

利息收入按實際利率法下的累計額確認，實際利率是將金融資產預期壽命內的預計未來現金收入精確地折現為金融資產的總帳面金額。對於以攤餘成本或以公允價值計量且其變動計入其他綜合收益(重新計入)計量且未發生信用損失的金融資產，實際利率適用於該資產的總帳面金額。對於信用受損的金融資產，實際利率適用於該資產的攤餘成本(即總帳面金額減去損失準備金)(見附註2(n) (i))。

#### (vii) 政府補助

當本集團可以合理確認將會收到政府補助並符合相關附帶條件時，政府補助初始會在財務狀況表內確認。用作補償本集團開支的補助於開支產生的同一期間以有系統的基準在損益內確認為收入。用作補償本集團資產成本的補助，初步確認為遞延收入，並隨後於資產的使用年限內於損益中確認。

### (z) 外幣換算

年內的外幣交易按交易日的幣匯率換算。以外幣計價的貨幣資產與負債則按報告期末的幣匯率換算。匯兌損益在損益內確認。

以外幣計值並按歷史成本計量的非貨幣資產及負債以交易日期的匯率換算。交易日期是本公司最初確認該非貨幣性資產或負債的日期。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (z) Translation of foreign currencies (Continued)

The results of operations which have a functional currency other than RMB are translated into RMB at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Statement of financial position items are translated into RMB at the closing foreign exchange rates ruling at the end of the reporting period. The resulting exchange differences are recognised in other comprehensive income and accumulated separately in equity in the exchange reserve.

On disposal of a foreign operation, the cumulative amount of the exchange differences relating to the foreign operation is reclassified from equity to profit or loss when the profit or loss on disposal is recognised.

### (aa) Borrowing costs

Borrowing costs that are directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial period of time to get ready for its intended use or sale are capitalised as part of the cost of that asset. Other borrowing costs are expensed in the period in which they are incurred.

The capitalisation of borrowing costs as part of the cost of a qualifying asset commences when expenditure for the asset is being incurred, borrowing costs are being incurred and activities that are necessary to prepare the asset for its intended use or sale are in progress. Capitalisation of borrowing costs is suspended or ceases when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are interrupted or complete.

### (z) 外幣換算(續)

以人民幣以外貨幣為功能貨幣的業務業績乃按與於交易日適用的外幣匯率相近的匯率換算成人民幣。財務狀況表項目乃按於報告期末的收市外幣匯率換算為人民幣。所產生的匯兌差額乃於其他綜合收益內確認，並單獨累計在權益的匯兌儲備內。

在處置海外業務時，與該海外經營有關的匯兌差異累計金額在確認處置損益時，將從權益被重分類至當期損益。

### (aa) 借貸成本

與購置、建造或生產需要長時間才可以達到擬定可使用或可出售狀態的資產直接相關的借款費用資本化，作為資產的部份成本。其他借款費用於產生期間列為開支。

借款費用應在資產開支和借款費用產生時，並且在資產達到擬定可使用或可出售狀態所必須的準備工作進行期間開始予以資本化，以作為合格資產的成本的一部份，在使合格資產達到擬定可使用或可出售狀態所必須的幾乎全部準備工作中斷或完成時，即暫時中止或停止將借款費用資本化。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2 主要會計政策(續)

### (bb) Non-current assets held for sale and discontinued operations

#### (i) Non-current assets held for sale

A non-current asset (or disposal group) is classified as held for sale if it is highly probable that its carrying amount will be recovered through a sale transaction rather than through continuing use and the asset (or disposal group) is available for sale in its present condition. A disposal group is a group of assets to be disposed of together as a group in a single transaction, and liabilities directly associated with those assets that will be transferred in the transaction.

When the Group is committed to a sale plan involving loss of control of a subsidiary, all the assets and liabilities of that subsidiary are classified as held for sale when the above criteria for classification as held for sale are met, regardless of whether the Group will retain a non-controlling interest in the subsidiary after the sale.

Immediately before classification as held for sale, the measurement of the non-current assets (and all individual assets and liabilities in a disposal group) is brought up-to-date in accordance with the accounting policies before the classification. Then, on initial classification as held for sale and until disposal, the non-current assets (except for certain assets as explained below), or disposal groups, are recognised at the lower of their carrying amount and fair value less costs to sell. The principal exceptions to this measurement policy so far as the financial statements of the Group are concerned are deferred tax assets, assets arising from employee benefits, financial assets (other than investments in subsidiaries, associates and joint ventures). These assets, even if held for sale, would continue to be measured in accordance with the policies set out elsewhere in Note 2.

Impairment losses on initial classification as held for sale, and on subsequent remeasurement while held for sale, are recognised in profit or loss. As long as a non-current asset is classified as held for sale, or is included in a disposal group that is classified as held for sale, the non-current asset is not depreciated or amortised.

### (bb) 持有待售的非流動資產及已終止經營業務

#### (i) 持有待售的非流動資產

如果非流動資產(或出售組別)的帳面金額很可能通過銷售交易而非通過持續使用而收回，且該非流動資產(或出售組別)可按現況出售，則分類為持有待售用途。出售組別是指於單一交易中一併出售的一組資產及與該等於交易中轉移的資產直接相關的負債。

當本集團承諾進行涉及喪失一家附屬公司控制權的出售計劃時，不論本集團是否將於出售後保留該附屬公司的非控股權益，該附屬公司的所有資產及負債於符合上述有關劃歸為持有待售的條件時會劃歸為持有待售用途。

在分類為持有待售用途前，非流動資產(及於一出售組別中的所有個別資產和負債)按分類前的會計政策計量。在初始分類為持有待售類別至售出時，非流動資產(除以下所述的部份資產外)或出售組別以帳面金額和公允價值減去出售成本兩者中的孰低者確認。在本集團財務報表中不使用這項計量政策的主要專案包括遞延稅項資產、僱員福利產生的資產和金融資產(除對附屬公司、聯營公司和合營企業的投資外)。該等資產即使為持有待售用途，也會繼續按附註2其他部份所載的政策計量。

於初始分類為持有待售用途及其後於列作持有待售用途的期間重新計量的減值損失在損益內確認。當非流動資產被歸類為持有待售用途，或被包括在分類為持有待售的出售組別，該非流動資產不予折舊或攤銷。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

## 2 主要會計政策(續)

### (bb) Non-current assets held for sale and discontinued operations (Continued)

### (bb) 持有待售的非流動資產及已終止經營業務(續)

#### (ii) Discontinued operations

#### (ii) 已終止經營業務

A discontinued operation is a component of the Group's business, the operations and cash flows of which can be clearly distinguished from the rest of the Group and which represents a separate major line of business or geographical area of operations, or is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations, or is a subsidiary acquired exclusively with a view to resale.

已終止經營業務是本集團業務組成部份，運營及現金流量可與本集團其他業務清楚區分，且代表一項按業務或地區劃分的獨立主要業務；或作為出售一項按業務或地區劃分的獨立主要業務的單一統籌計劃之其中一部分，或為一間純粹為轉售而收購的附屬公司。

Classification as a discontinued operation occurs upon disposal or when the operation meets the criteria to be classified as held for sale (see (i) above), if earlier. It also occurs if the operation is abandoned.

倘若業務被出售或符合列為持有待售的項目(詳見上文(i)的準則(如較早發生))，則分類為已終止經營業務。撤出業務時，有關業務亦會分類為已終止經營業務。

Where an operation is classified as discontinued, a single amount is presented on the face of the statement of profit or loss, which comprises:

當某項業務被分類為已終止經營時，於損益表中將僅以單一數額列示，包括：

- the post-tax profit or loss of the discontinued operation; and
- the post-tax gain or loss recognised on the measurement to fair value less costs to sell, or on the disposal, of the assets or disposal group(s) constituting the discontinued operation.

- 已終止經營業務的稅後溢利或虧損；及
- 就已終止經營業務之資產或出售組別，計算其公允價值，並扣除有關出售之成本後之除稅後溢利或虧損。

### (cc) Related parties

### (cc) 關聯方

- (a) A person, or a close member of that person's family, is related to the Group if that person:
- (i) has control or joint control over the Group;
  - (ii) has significant influence over the Group; or
  - (iii) is a member of the key management personnel of the Group or the Group's parent.

- (a) 某一個人或與該個人關係密切的家庭成員應被視為與本集團有關聯，如果該個人：
- (i) 控制或共同控制本集團
  - (ii) 對本集團具有重大影響；或
  - (iii) 作為本集團或本集團母公司關鍵管理人員。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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## 2 SIGNIFICANT ACCOUNTING POLICIES 2 主要會計政策(續)

### (CONTINUED)

#### (cc) Related parties (Continued)

(b) An entity is related to the Group if any of the following conditions applies:

- (i) The entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
- (ii) One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
- (iii) Both entities are joint ventures of the same third party.
- (iv) One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
- (v) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group.
- (vi) The entity is controlled or jointly controlled by a person identified in (a).
- (vii) A person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity).
- (viii) The entity, or any member of a group of which it is a part, provides key management personnel services to the Group or the Group's parent.

Close members of the family of a person are those family members who may be expected to influence, or be influenced by, that person in their dealings with the entity.

#### (cc) 關聯方(續)

(b) 在滿足任何以下條件的情況下，某一實體應被視為與本集團有關聯的實體：

- (i) 該實體和本集團均屬於同一集團的成員(即各母公司、附屬公司和同系附屬公司彼此相互關聯)。
- (ii) 一間實體是另間實體的聯營公司或合營企業(或另一實體為成員公司之集團旗下成員公司之聯營公司或合營企業)。
- (iii) 兩間實體均為同一第三方的合營企業。
- (iv) 一間實體為第三方實體的合營企業，另一實體為該第三方實體的聯營公司。
- (v) 該實體為本集團或與本集團有關連的實體就僱員福利而設的離職後福利計劃。
- (vi) 由(a)所述的個人控制或共同控制的實體。
- (vii) 受上述(a)(i)中定義的個人重大影響的實體或該個人為實體(或該實體的母公司)的關聯管理人員。
- (viii) 該實體或其所屬集團的任何成員公司，向本集團或本集團母公司提供關鍵管理人員服務。

與個關係密切的家庭成員是指預期該等在與實體的交易中，可能會影響該名個人或受其影響的家屬。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 2 SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### (dd) Segment reporting

Operating segments, and the amounts of each segment item reported in the financial statements, are identified from the financial information provided regularly to the Group's most senior executive management for the purposes of allocating resources to, and assessing the performance of, the Group's various lines of business.

Individually material operating segments are not aggregated for financial reporting purposes unless the segments have similar economic characteristics and are similar in respect of the nature of products and services, the nature of production processes, the type or class of customers, the methods used to distribute the products or provide the services, and the nature of the regulatory environment. Operating segments which are not individually material may be aggregated if they share a majority of these criteria.

### 3 ACCOUNTING JUDGEMENT AND ESTIMATES

The Group's financial condition and results of operations are sensitive to accounting methods, assumptions and estimates that underlie the preparation of these financial statements. The Group bases the assumptions and estimates on historical experience and on various other assumptions that the Group believes to be reasonable and which form the basis for making judgements about matters that are not readily apparent from other sources. Actual results may differ from those estimates as facts, circumstances and conditions change.

The selection of critical accounting policies, the judgements and other uncertainties affecting application of those policies and the sensitivity of reported results to changes in conditions and assumptions are factors to be considered when reviewing these financial statements. The principal accounting policies are set forth in Note 2. The Group believes the following critical accounting policies involve the most significant judgements and estimates used in the preparation of these financial statements.

### 2 主要會計政策(續)

#### (dd) 分部報告

本集團為了分配資源予本集團各項業務以及評估各項業務的業績，而定期向本集團最高級行政管理層提供的財務資料。從該等資料中，可找出在財務報表中報告的經營分部 and 每一分部項目的金額。

個別而言屬於重大的經營分部不會在財務報告中予以匯總，除非該等分部擁有相若的經濟特性，而且其產品及服務的性質、生產流程性質、客戶的類型或類別、用以分銷產品或提供服務的方法以及監管環境的性質均相若。如果個別而言並非屬於重大的經營分部擁有以上大部份特徵可予以匯總成同一分部列示。

### 3 會計政策判斷和估計

本集團的財務狀況和經營業績對編製財務資訊時所採用的會計方法、假設及估計而言屬敏感。本集團的有關假設及估計乃基於以往經驗及本集團相信屬合理的各種其他假設而做出。本集團亦按該等假設及估計為基準，對不能明顯地從其他來源確定的事項做出判斷。實際結果可能因事實，情況及條件的改變而與估計有異。

對重大會計政策的選擇、影響該等政策的應用的判斷及其他不確定因素以及報告的結果對條件及假設發生變化的敏感度均為審閱財務資訊時應予以考慮的因素。主要會計政策已載列於附註2。本集團認為，在編製財務資訊時，下列重大會計政策涉及至為重要的判斷及估計。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 3 ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 3 會計政策判斷和估計(續)

#### (a) Impairment losses for non-current assets

In considering the impairment losses that may be required for certain of the Group's assets which include property, plant and equipment, investment properties, lease prepayments, intangible assets, investments in associates and unquoted equity investments, recoverable amount of the asset needs to be determined. The recoverable amount is the greater of the fair value less costs to sell and the value in use. It is difficult to precisely estimate selling price because quoted market prices for these assets may not be readily available. In determining the value in use, expected cash flows generated by the asset are discounted to their present value, which requires significant judgement relating to items such as level of sales volume, selling price and amount of operating costs. The Group uses all readily available information in determining an amount that is a reasonable approximation of recoverable amount, including estimates based on reasonable and supportable assumptions and projections of items such as sales volume, selling price and amount of operating costs.

#### (b) Impairment losses for receivables and contract assets

The management maintains a loss allowance for receivables and contract assets for estimated losses resulting from the inability of the customers and other debtors to make the required payments. The management bases the estimates on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors and an assessment of both the current and forecast general economic conditions. If the financial condition of the customers and debtors were to deteriorate, actual write-offs would be higher than estimated.

In the comparative period, the Group estimated impairment losses for bad and doubtful debts resulting from the inability of the customers and other debtors to make the required payments. The Group based the estimates on the ageing of the receivable balance, debtors' credit-worthiness, and historical write-off experience. If the financial condition of the customers and debtors were to deteriorate, actual write-offs would be higher than estimated.

#### (a) 非流動資產減值虧損

當考慮對本集團若干資產(包括物業、廠房及設備、投資性物業、預付土地租賃款、無形資產、對聯營公司的投資及非上市權益投資)計提減值虧損時，則須確定該等資產之可收回金額。可收回金額為公允價值減銷售成本或使用價值之較高者。由於並未取得該等資產之市場報價，因此難以準確估計售價。於確定使用價值時，該資產產生之預期現金流量將折現至其現值，而此需對銷量水準、售價以及營運成本金額等專案作出重大判斷。本集團以所有現有資料確定可收回金額之合理近似金額，包括根據合理及有證據支援的假設及預測對銷量、售價及營運成本金額進行估計。

#### (b) 呆壞賬及合同資產減值虧損

對於因客戶和其他債務人無力支付所需款項而導致的預計損失，管理層對客戶應收賬款和合同資產保留損失準備金。管理層基於本集團的歷史信貸損失經驗，根據特定於債務人的因素進行調整，並對當前和預測的一般經濟狀況進行評估。如果客戶和債務人的財務狀況惡化，實際核銷額將高於估計值。

在比較期間，本集團對因客戶及其他債務人無法按規定付款而造成的呆壞賬減值虧損進行估計。本集團的估計乃基於應收結餘的賬齡、債務人的信用及以往的呆壞賬沖銷經驗而作出。倘客戶及債務人的財政狀況惡化，實際的沖銷金額可能高於估計數字。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 3 ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED)

#### (c) Construction contracts

As explained in accounting policies set out in Notes 2(q) and (y)(ii), revenue and profit recognition on an uncompleted project is dependent on estimating the total outcome of the construction contract, as well as the work done to date. Based on the Group's recent experience and the nature of the construction activity undertaken by the Group, the Group makes estimates of the point at which it considers the work is sufficiently advanced such that the costs to complete and revenue can be reliably estimated. As a result, until this point is reached the contract assets as disclosed in Note 23 will not include profit which the Group may eventually realise from the work done to date. In addition, actual outcomes in terms of total cost or revenue may be higher or lower than estimated at the end of the reporting period, which would affect the revenue and profit recognised in future years as an adjustment to the amounts recorded to date.

#### (d) Provision for warranty

The Group provides warranties for its products for 2 to 5 years for defects and/or 10 to 25 years for guaranteed performance after sales have taken place. The Group estimates warranty costs based on the Group's historical cost data, industry data and an assessment of the Group's competitors' accrual. The warranty obligation of the Group will be affected not only by the product failure rates, but also by costs incurred to repair or replace failed products. If the actual product failure rates and cost of replacement or repairing of failed products differ from the estimates, the Group will need to prospectively revise the provision for warranty costs which would affect profit or loss in future years.

#### (e) Recognition of deferred tax assets

Deferred tax assets in respect of unused tax losses and tax credit carried forward and deductible temporary differences are recognised and measured based on the expected manner of realisation or settlement of the carrying amount of the assets, using tax rates enacted or substantively enacted at the end of the reporting period. In determining the carrying amounts of deferred assets, expected taxable profits are estimated which involves a number of assumptions relating to the operating environment of the Group and requires a significant level of judgement exercised by the directors. Any change in such assumptions and judgement would affect the carrying amounts of deferred tax assets to be recognised and hence the net profit in future years.

### 3 會計政策判斷和估計(續)

#### (c) 建造合同

誠如附註2(q)和(y)(ii)所載之會計政策所釋述，確認未完成項目之收入及利潤取決於估計建造合同之總結果及迄今已完成之工程。根據本集團近期經驗及本集團所進行工程活動之性質，本集團於其認為工程已進展至足以可靠地估計完成成本及收入時做出估計。因此，直至此時點之前，附註23所披露的合同資產不會計入本集團迄今已完成工程最終可能實現的利潤。此外，按總成本或收入計算的實際結果可能高於或低於報告期末之估計金額，並透過對迄今記錄金額作出調整而影響於未來年度確認之收入及利潤。

#### (d) 質保金撥備

產品銷售後，本集團產品提供2-5年的缺陷質保，和/或10-25年的性能質保。本集團根據其歷史成本資料、行業資料及其競爭對手的應計項目評估其保修成本。質保金撥備不僅受產品故障率的影響，同樣也受修復或替換故障產品成本之影響。倘若實際的產品故障率及修復或替換故障產品的成本與估算有異，本集團則須修訂未來的質保成本撥備，從而影響未來年度的損益。

#### (e) 確認遞延稅項資產

有關已結轉未被使用的稅項虧損和稅項減免以及可抵扣暫時性差異的遞延稅項資產，會運用於報告期末已實行或實質上已實行的稅率，按照資產帳面金額的預期實現或結算方式確認及計量。在確定遞延稅項資產的帳面值時，會對預期應課稅利潤作出估計，當中涉及多項有關本集團經營環境的假設，並要求董事作出大量判斷。當有關假設及判斷出現任何變動，將會影響將予確認的遞延稅項資產的帳面值，從而影響未來年度的淨利潤。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 3 ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 3 會計政策判斷和估計(續)

#### (f) Depreciation

Property, plant and equipment and investment properties are depreciated on a straight-line basis over the estimated useful lives of the assets, after taking into account the estimated residual value. The Group reviews the estimated useful lives of the assets regularly. The useful lives are based on the Group's historical experience with similar assets and taking into account anticipated technological changes. The depreciation expense for future periods is adjusted if there are significant changes from previous estimates.

#### (g) Income tax

The Group files income taxes with numerous tax authorities. Judgement is required in determining the provision for taxation as there are many transactions and calculations for which the ultimate tax determinations are uncertain during the ordinary course of business. For preferential tax treatments available for approved High and New Technology Enterprises, in determining the applicable tax rates for calculations of current income tax and deferred income tax, after passed the substantive approvals, the Group uses the expected tax rates that are probably be approved by tax authorities according to the tax rules and regulations enacted at the end of the reporting period. Where the final tax outcomes of these matters are different from the amounts originally recorded, the differences may impact on the current income tax and deferred income tax provisions in the periods in which the final tax outcomes became available.

#### (h) Contingent liabilities

Management judgement is required in the area of contingent liabilities particularly in assessing the outcome of possible obligations arising from the transactions as detailed in Note 39. Management reassesses the likelihood of the outcome of these possible obligations at the end of the reporting period. Where a change in the probability that an outflow of economic resources will be required to settle the obligation, a provision will be recognised in the period in which such determination is made.

#### (f) 折舊

物業、廠房及設備和投資性物業在扣除估計殘值之後，在資產的預計可使用期限內按直線法計提折舊。本集團定期審閱資產的預計可使用期限。可使用期限乃按本集團類似資產的以往經驗，並考慮預期的技術發展因素而確定。如果之前的預估發生了重大改變，則對未來期間的折舊開支進行調整。

#### (g) 所得稅

本集團須向多個稅務機關繳付所得稅，由於在日常業務過程中很多交易和計算的最終稅項並不確定，在確定稅項撥備時須作出判斷。就已獲取的已批准高新技術企業的稅務優惠而言，在獲得實質性的批准後，本集團於報告期末使用根據相關稅務規則及法規很可能獲稅務機關批准的稅率來確定即期稅項和遞延稅項的適用稅率。當有關事項的最終稅務結果有別於初始記錄金額時，有關差異可能影響取得最終稅務結果期間的即期所得稅和遞延所得稅撥備。

#### (h) 或有負債

管理層須對或有負債作出判斷，尤其是評估附註39所詳述交易所產生的可能責任之結果。管理層會於每個報告期末重新評估該等可能責任結果之可能性。倘經濟資源流出之可能性發生變動而將需結付債務，則於作出該項決定之期間確認撥備。



# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 3 ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED)

#### (i) Write-down of inventories

The Group reviews the carrying amounts of inventories at the end of the reporting period to determine whether the inventories are carried at lower of cost and net realisable value in accordance with the accounting policy set out in Note 2(o). Management estimates the net realisable value based on all available information, including the current market price of the finished goods and raw materials, and historical costs. Any change in the assumptions would increase or decrease the amount of inventories write-down or the related reversals of write-down and affect the Group's profit.

#### (j) Classification of non-current assets and disposal groups held for sale

Management judgement is required in the area of classification of non-current assets and disposal groups held for sale particularly in assessing the possibility of the sale. The Group classifies a disposal group or non-current asset as held for sale if its carrying amount will be recovered principally through a sale transaction rather than through continuing use and the sale must be highly probable. The Group reviews the possibility of the sale at the end of each reporting period.

### 4 REVENUE AND SEGMENT REPORTING

#### (a) Revenue

The Group is principally engaged in manufacturing and sale of wind turbines, ignition equipment, solar cells and modules and other related electric equipment for power plants, construction engineering of desulphurisation, denitrification, water treatment, solar energy and other environmental protection and energy conservation projects, rental of desulphurisation, denitrification facilities and provision of integrated services relating to environmental protection, energy conservation and renewable energy businesses.

Revenue represents the sales value of goods supplied to customers, revenues from construction contracts, rendering of services, service concession arrangement and rental income. Revenue is presented net of VAT, if any.

As disclosed in Note 11, the revenue generated by solar power products and services segment is presented as discontinued operation.

### 3 會計政策判斷和估計(續)

#### (i) 存貨撇減

本集團於每一報告期末對於存貨的帳面價值進行審閱，以確定存貨是否如附註2(o)中所述的會計政策以其成本及可變現淨值孰低者列賬。管理層根據全部能獲取資訊，包括產成品及原材料的市場價格，以及歷史成本評估其可變現淨值。相關假設的任何變動會增加或減少存貨撇減或相關撇減轉回的金額，因而影響本集團的損益。

#### (j) 非流動資產和持有待售處置組的分類

在區分非流動資產和持有待售的處置組時需要管理層判斷，尤其是在評估出售可能性時。當一個處置組或非流動資產帳面價值的恢復主要通過出售方式而不是繼續使用，且該交易很可能發生時，本集團會將其劃分至持有待售。本集團每個報告期末覆核銷售可能性。

### 4 收入及分部報告

#### (a) 收入

本集團主要從事風力發電機、等離子體點火裝置、太陽能電池和元件及發電廠其他相關電氣設備的製造和銷售、以及脫硫、脫硝、水處理、太陽能和其他環保和節能工程的建造施工、脫硫脫硝設備租賃及提供與環保、節能和可再生能源業務相關的綜合服務。

收入指向客戶出售的商品銷售價值、建造合同、提供服務及服務特許權協定取得的收入和租賃收入。收入以扣除增值稅(如有)後的金額列示。

如附註11所示，來自於太陽能產品和服務分部的收入已被重分類至已終止經營業務列示。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING 4 收入及分部報告(續) (CONTINUED)

#### (a) Revenue (Continued)

##### (i) Disaggregation of revenue

The amount of each significant category of revenue from continuing operations and discontinued operation recognised during the year is as follows:

	Continuing operations		Discontinued operation		Total		
	持續經營業務		已終止經營業務		總計		
	2018	2017	2018	2017	2018	2017	
	(Note)				(Note)		
	(附註)				(附註)		
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	
	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	
<b>Revenue from contracts with customers within the scope of IFRS15</b>	<b>《國際財務報告準則》第15號範圍內的客戶合同收入</b>						
Disaggregated by major products or service lines	按項目的主要產品或服務分類						
- sales of goods	- 銷售商品	4,884,111	5,649,973	-	-	4,884,111	5,649,973
- revenue from construction contracts	- 建造合同收入	4,852,242	4,567,766	-	-	4,852,242	4,567,766
- rendering of services	- 提供服務	468,206	346,732	-	1,632	468,206	348,364
- service concession arrangement revenue (Note 41)	- 服務特許權協議收入 (附註41)	271,080	261,239	-	-	271,080	261,239
		10,475,639	10,825,710	-	1,632	10,475,639	10,827,342
<b>Revenue from other sources</b>	<b>其他財務報告準則範圍內的收入</b>						
- rental income from operating leases (Note (i))	- 經營租賃的租賃收入 (附註(i))	936,141	877,292	-	-	936,141	877,292
		11,411,780	11,703,002	-	1,632	11,411,780	11,704,634
<b>Disaggregated by geographical location of customers</b>	<b>按客商地理位置分類</b>						
- Mainland China	- 中國大陸	11,411,780	11,703,002	-	1,632	11,411,780	11,704,634

Note: The Group has initially applied IFRS 15 using the cumulative effect method. Under this method, the comparative information is not restated and was prepared in accordance with IAS 18 and IAS 11 (see Note 2(c)(ii)).

#### (a) 收入(續)

##### (i) 收入分類

本年內確認的持續經營業務及已終止經營業務的各重大類別收入的金額列舉如下：

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號。根據選擇的過渡方法，由於初次應用，對比數據並未重述，遵循《國際會計準則》第18號和《國際會計準則》第11號(見附註2(c)(ii))。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING (CONTINUED) 4 收入及分部報告(續)

#### (a) Revenue (Continued)

##### (i) Disaggregation of revenue (Continued)

Notes:

- (i) The amount mainly represents income related to service arrangements entered into by the Group with power plants to operate the desulphurisation and denitrification facilities for the treatment of sulphur dioxide and nitrogen oxide generated by power plants during their electricity generation. The Group acquires or constructs the facilities and then maintains and operates the facilities to provide pollutant treatment services to power plants during the useful lives of power plants. The service charge is based on the volume of electricity sold by the power plant and a tariff determined by the National Development and Reform Commission of the PRC. These arrangements are not in the legal form of leases, but are deemed as operating leases based on their terms and conditions.
- (ii) Revenue expected to be recognised in the future arising from contracts with customers in existence at the reporting date

As at 31 December 2018, the aggregated amount of the transaction price allocated to the remaining performance obligations under the Group's existing contracts is RMB2,667,556,000. This amount represents revenue expected to be recognised in the future from construction contracts entered into by the customers with the Group. The Group will recognise the expected revenue in future when or as the work is completed, which is expected to occur over the next 12 to 36 months.

The Group has applied the practical expedient in paragraph 121 of IFRS 15 to its sales contracts for products such that the above information does not include information about revenue that the Group will be entitled to when it satisfies the remaining performance obligations under the contracts for sales of products that had an original expected duration of one year or less.

The above amount also does not include any amounts of completion bonuses that the Group may earn in the future by meeting the conditions set out in the Group's construction contracts with customers, unless at the reporting date it is highly probable that the Group will satisfy the conditions for earning those bonuses.

#### (a) 收入(續)

##### (i) 收入分類(續)

附註：

- (i) 該金額主要為與本集團與電廠簽訂的負責脫硫及脫硝設施的運行工作以在發電過程中處理電廠生成的二氧化硫及氮氧化物之服務安排所相關的收入。本集團購買或建造設施，之後在電廠運行期負責運行設施以向電廠提供污染物處理服務。根據電廠售出的電量以及國家發展和改革委員會制定的收費標準收取服務費用。此等安排雖並不是法律形式上的租賃，但根據其條款與條件被視同為經營租賃。
- (ii) 預期將於報告日後與客戶簽訂的合同而確認的收入

於2018年12月31日，本集團現有合約下剩餘履約義務的交易價格總額為人民幣2,667,556,000元。該金額為客戶與本集團訂立的建造合同預期會在未來確認的收益。本集團將於未來項目完工時確認收入，完工時點預計於未來12至36個月內完成。

本集團已將國際財務報告準則第15號第121段的實際執行方法應用於其產品銷售合約，因此上述資料不涉及本集團於滿足銷售合約項下剩餘履約義務時有權獲得的收入，該部分收入預計將在一年或更短的時間內確認。

上述金額亦不包括本集團日後可能通過滿足本集團與客戶的建造合同所載條件賺取的任何獎勵金額，除非於報告日時本集團極有可能滿足條件賺取這些獎金。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 4 REVENUE AND SEGMENT REPORTING (CONTINUED) 4 收入及分部報告(續)

##### (b) Segment reporting

The Group manages its businesses by subsidiaries, which are organised by business lines (products and services). In a manner consistent with the way in which information is reported internally to the Group's most senior executive management for the purposes of resource allocation and performance assessment, the Group has presented the following four reportable segments.

- Environmental protection segment: this segment provides environmental protection products and services which mainly consists of sulphur oxide control technologies, nitrogen oxide control technologies, rental of desulphurisation and denitrification facilities, ash removal with filter bag, water treatment related technologies and products.
- Energy conservation solutions segment: this segment provides energy saving products and services which mainly consists of plasma ignition and micro-oil ignition equipment and gas turbine improvement services and construction of energy-efficient power plants.
- Wind power products and services segment: this segment produces and sells wind turbine and its components, provides related system solutions and services to wind power operators.
- Solar power products and services segment: this segment produces and sells solar cells, solar modules and other solar products, constructs solar power stations and provides related system solutions and services to solar power operators. During the year ended 31 December 2015, the Group discontinued the operation of this segment. Please refer to Note 11 for further details.
- The Group combined other business activities that are not reportable in "All others". Revenue included in this category is mainly from the wind and solar power generation and sale of other electric power control system related products.

##### (b) 分部報告

本集團以附屬公司管理其業務，該等附屬公司以經營項目(產品和服務)組織。本集團按照分配資源、評估業績用途而向本集團最高級行政管理人員進行內部匯報所一致的方式列報以下四個可呈報分部。

- 環保分部：本分部提供環保產品和服務，主要包括脫硫技術、脫硝技術、脫硫脫硝設備租賃服務、濾袋式除塵、水處理相關技術和產品。
- 節能解決方案分部：本分部提供節能產品及服務，主要包括等離子點火、微油點火設備、汽輪機改造服務及節能電站之建造。
- 風電產品及服務分部：本分部生產和銷售風機及其組件，向風電運營商提供相關系統解決方案和服務。
- 太陽能產品及服務分部：本分部生產及銷售太陽能電池、太陽能組件及其他太陽能產品、建造太陽能電站及向太陽能運營商提供相關系統解決方案及服務。截至2015年12月31日止年度，本集團終止了該分部的經營活動。詳情請見附註11。
- 本集團將未呈報的其他經營業務歸為「所有其他」。在此類別中的收入主要源於風力、太陽能發電及銷售其他電力控制系統相關產品。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING (CONTINUED) 4 收入及分部報告(續)

#### (b) Segment reporting (Continued)

##### (i) Segment results, assets and liabilities

For the purposes of assessing segment performance and allocating resources between segments, the Group's senior executive management monitors the results, assets and liabilities attributable to each reportable segment on the following bases:

Segment assets include all assets with the exception of interests in associates, other equity investments, tax recoverable, deferred tax assets and other corporate assets. Segment liabilities include all liabilities with the exception of income tax payable, deferred tax liabilities and other corporate liabilities.

Revenue and expenses are allocated to the reportable segments with reference to revenue generated by those segments and the expenses incurred by those segments.

The measure used for reporting segment profit is the gross profit. In addition to receiving segment information concerning the gross profit, management is also provided with segment information concerning depreciation and amortisation, interest income, finance costs, impairment of assets, inventory write-down and additions to segment non-current assets.

#### (b) 分部報告(續)

##### (i) 分部業績、資產及負債

為評估分部業績、在分部間分配資源，本集團高級行政管理人員按以下基準對各可呈報分部的應佔業績、資產和負債進行監控：

分部資產包括所有資產，對聯營公司的投資、其他權益投資、可收回稅項、遞延稅項資產和其他行政資產除外。分部負債包括所有負債，應付所得稅、遞延稅項負債和其他行政負債除外。

收入和費用乃參考各可呈報分部產生的收入和發生的開支分配給各可呈報分部。

用於衡量可呈報分部利潤的指標為毛利。除了收到有關毛利的分部資訊外，管理人員還收到有關折舊及攤銷、利息收入、財務成本、資產減值和存貨撇減和添置分部非流動資產的分部資訊。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING 4 收入及分部報告(續)

#### (b) Segment reporting (Continued)

##### (i) Segment results, assets and liabilities (Continued)

Information regarding the Group's reportable segments as provided to the Group's most senior executive management for the purposes of resource allocation and assessment of segment performance for the years ended 31 December 2018 and 2017 is set out below:

#### (b) 分部報告(續)

##### (i) 分部業績、資產及負債(續)

提供給本集團最高級行政管理人員用作進行資源配置並對截至2018年和2017年12月31日止年度的分部業績作出評估的關於本集團可呈報分部的資訊如下：

		2018					
		Continuing operations 持續經營業務				Discontinued operation 已終止經營業務	Total 總計
		Environmental protection 環保	Energy conservation solutions 節能解決方案	Wind power products and services 風電產品及服務	All others 所有其他	Solar power products and services 太陽能產品及服務	
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
<b>Disaggregated by time of revenue recognition</b>	<b>按收入確認時點分類</b>						
Point in time	在單個時點確認	438,598	360,895	3,771,142	313,476	-	4,884,111
Over time	在一段時間確認	4,774,180	1,640,278	97,729	15,482	-	6,527,669
<b>Revenue from external customers</b>	<b>外部客戶收入</b>	<b>5,212,778</b>	<b>2,001,173</b>	<b>3,868,871</b>	<b>328,958</b>	<b>-</b>	<b>11,411,780</b>
Inter-segment revenue	分部間收入	(1,855)	51,065	21,817	46,828	-	117,855
<b>Reportable segment revenue</b>	<b>可呈報分部收入</b>	<b>5,210,923</b>	<b>2,052,238</b>	<b>3,890,688</b>	<b>375,786</b>	<b>-</b>	<b>11,529,635</b>
<b>Reportable segment profit/(loss) (gross profit/(loss))</b>	<b>可呈報分部利潤/(虧損) (毛利/(毛虧))</b>	<b>1,055,720</b>	<b>267,431</b>	<b>1,193,529</b>	<b>152,180</b>	<b>(12,732)</b>	<b>2,656,128</b>
Depreciation and amortisation	折舊及攤銷	240,231	25,707	135,269	103,129	570	504,906
Impairment of property, plant and equipment	物業、廠房及設備減值	116,286	-	-	-	28,828	145,114
Impairment/(reversal of impairment) of contract assets	合同資產減值計提/(轉回)	27,733	(50)	-	-	-	27,683
Inventory write-down	存貨撇減	21,718	1,170	-	-	7,368	30,256
Impairment/(reversal of impairment) of trade and other receivables	應收賬款及其他應收款項減值計提/(轉回)	49,338	(31,958)	206,046	5,817	(47,671)	181,572
Impairment/(reversal of impairment) of other non-current assets	其他非流動資產減值/(減值轉回)	14,753	(578)	37,473	-	(160,462)	(108,814)
Interest income	利息收入	54,042	15,356	3,919	608	247	74,172
Finance costs	財務成本	92,443	4,915	167,601	73	4,716	269,748
<b>Reportable segment assets</b>	<b>可呈報分部資產</b>	<b>12,237,742</b>	<b>3,635,364</b>	<b>12,569,856</b>	<b>2,291,276</b>	<b>589,180</b>	<b>31,323,418</b>
Additions to reportable segment non-current assets during the year	年內添置可呈報分部非流動資產	204,194	15,556	195,859	19,823	1,828	437,260
<b>Reportable segment liabilities</b>	<b>可呈報分部負債</b>	<b>8,992,225</b>	<b>1,829,343</b>	<b>9,912,219</b>	<b>513,719</b>	<b>687,971</b>	<b>21,935,477</b>

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING 4 收入及分部報告(續)

#### (b) Segment reporting (Continued)

#### (b) 分部報告(續)

##### (i) Segment results, assets and liabilities (Continued)

##### (i) 分部業績、資產及負債(續)

		2017					
		Continuing operations 持續經營業務			Discontinued operation 已終止經營業務	Total (Note) 總計(附註)	
		Environmental protection 環保	Energy conservation solutions 節能解決方案	Wind power products and services 風電產品及服務	All others 所有其他	Solar power products and services 太陽能產品及服務	
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
Revenue from external customers	外部客戶收入	4,618,951	1,953,012	4,750,393	380,646	1,632	11,704,634
Inter-segment revenue	分部間收入	20,661	2,639	12,741	39,923	-	75,964
<b>Reportable segment revenue</b>	<b>可呈報分部收入</b>	<b>4,639,612</b>	<b>1,955,651</b>	<b>4,763,134</b>	<b>420,569</b>	<b>1,632</b>	<b>11,780,598</b>
<b>Reportable segment profit/(loss) (gross profit/(loss))</b>	<b>可呈報分部利潤/(虧損) (毛利/(毛虧))</b>	<b>982,371</b>	<b>313,309</b>	<b>1,397,577</b>	<b>163,144</b>	<b>(7,944)</b>	<b>2,848,457</b>
Depreciation and amortisation	折舊及攤銷	266,262	26,080	141,981	97,035	1,349	532,707
Impairment of property, plant and equipment	物業、廠房及設備減值	42,552	-	4,461	-	58,098	105,111
Impairment of intangible assets	無形資產減值	-	31,969	-	-	-	31,969
Inventory write-down	存貨撇減	229	1,383	-	-	-	1,612
Impairment/(reversal of impairment) of trade and other receivables	應收賬款及其他應收款項減值計提/(轉回)	137,330	(8,128)	129,892	(2,654)	22,244	278,684
Impairment of other non-current assets	其他非流動資產減值	-	-	-	-	171,175	171,175
Interest income	利息收入	25,564	30,752	2,194	3,417	887	62,814
Finance costs	財務成本	81,269	6,188	145,748	698	6,895	240,798
<b>Reportable segment assets</b>	<b>可呈報分部資產</b>	<b>12,362,153</b>	<b>3,843,546</b>	<b>13,143,815</b>	<b>2,398,087</b>	<b>1,571,028</b>	<b>33,318,629</b>
Additions to reportable segment non-current assets during the year	年內添置可呈報分部非流動資產	193,606	6,377	87,795	5,903	54	293,735
<b>Reportable segment liabilities</b>	<b>可呈報分部負債</b>	<b>8,618,070</b>	<b>2,554,920</b>	<b>10,237,558</b>	<b>555,814</b>	<b>998,585</b>	<b>22,964,947</b>

*Note:* The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

*附註:* 本集團於2018年1月1日起應用《國際財務報告準則第15號》及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING 4 收入及分部報告(續)

#### (CONTINUED)

#### (b) Segment reporting (Continued)

##### (ii) Reconciliations of reportable segment revenues, profit or loss, assets and liabilities

#### (b) 分部報告(續)

##### (ii) 可呈報分部收入、利潤、資產和負債的調節

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2018	2017	2018	2017	2018	2017
			(Note)		(Note)		(Note)
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
<b>Revenue</b>	<b>收入</b>						
Reportable segment revenue	可呈報分部收入	11,529,635	11,778,966	-	1,632	11,529,635	11,780,598
Elimination of inter-segment revenue	分部間收入抵銷	(117,855)	(75,964)	-	-	(117,855)	(75,964)
Consolidated revenue	合併收入	11,411,780	11,703,002	-	1,632	11,411,780	11,704,634
<b>Profit/(loss)</b>	<b>利潤/(虧損)</b>						
Reportable segment profit/(loss)	可呈報分部利潤/(虧損)	2,668,860	2,856,401	(12,732)	(7,944)	2,656,128	2,848,457
Elimination of inter-segment profit	分部間利潤抵銷	(868)	(800)	-	-	(868)	(800)
Reportable segment profit/(loss) derived from the Group's external customers	取自集團外的可呈報分部利潤/(虧損)	2,667,992	2,855,601	(12,732)	(7,944)	2,655,260	2,847,657
Other revenue	其他收入	331,668	355,111	37,493	13,062	369,161	368,173
Other net income	其他收益淨額	42,278	560,218	(3,389)	108,509	38,889	668,727
Selling and distribution expenses	銷售及分銷開支	(653,816)	(945,493)	9,383	9,022	(644,433)	(936,471)
Administrative expenses	行政開支	(1,929,154)	(1,720,956)	129,020	(470,012)	(1,800,134)	(2,190,968)
Finance costs	財務成本	(580,062)	(563,800)	(4,716)	(6,895)	(584,778)	(570,695)
Share of profits less losses of associates	應佔聯營公司利潤減虧損	61,433	86,734	-	-	61,433	86,734
Consolidated (loss)/profit before taxation	合併稅前(虧損)/利潤	(59,661)	627,415	155,059	(354,258)	95,398	273,157

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING (CONTINUED)      4 收入及分部報告(續)

#### (b) Segment reporting (Continued)

##### (ii) Reconciliations of reportable segment revenues, profit or loss, assets and liabilities (Continued)

#### (b) 分部報告(續)

##### (ii) 可呈報分部收入、利潤、資產和負債的調節(續)

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
<b>Assets</b>	資產		(Note) (附註)
Reportable segment assets	可呈報分部資產	<b>31,323,418</b>	33,318,629
Inter-segment elimination	分部間抵銷	<b>(377,790)</b>	(389,189)
		<b>30,945,628</b>	32,929,440
Interests in associates	對聯營公司的投資	<b>396,682</b>	419,952
Other equity investments	其他權益投資	<b>858,415</b>	162,187
Tax recoverable	可收回稅項	<b>176,299</b>	132,988
Deferred tax assets	遞延稅項資產	<b>911,188</b>	724,191
Unallocated head office and corporate assets	未分配總部及行政資產	<b>869,202</b>	1,239,492
Consolidated total assets	合併資產總額	<b>34,157,414</b>	35,608,250
<b>Liabilities</b>	負債		
Reportable segment liabilities	可呈報分部負債	<b>21,935,477</b>	22,964,947
Inter-segment elimination	分部間抵銷	<b>(368,273)</b>	(389,189)
		<b>21,567,204</b>	22,575,758
Income tax payable	應付所得稅	<b>48,565</b>	44,312
Deferred tax liabilities	遞延稅項負債	<b>153,949</b>	207,269
Unallocated head office and corporate liabilities	未分配總部及行政負債	<b>4,644,524</b>	4,847,646
Consolidated total liabilities	合併負債總額	<b>26,414,242</b>	27,674,985

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 4 REVENUE AND SEGMENT REPORTING (CONTINUED) 4 收入及分部報告(續)

#### (b) Segment reporting (Continued)

##### (iii) Geographical information

The Group did not have significant business operations outside the PRC, therefore no geographic segment information is presented.

##### (iv) Major customers

Revenues from China Energy and related parties under China Energy amounted to RMB7,509,251,000 (2017: RMB7,988,340,000 from Guodian and related parties under Guodian).

#### (b) 分部報告(續)

##### (iii) 地區資訊

本集團並無於中國境外經營的重大業務，因此並無呈報地區分部資訊。

##### (iv) 主要客戶

從國家能源集團及國家能源集團下屬的關聯方取得的收入金額為人民幣7,509,251,000元(2017年：人民幣7,988,340,000元，從國電及國電下屬的關聯方取得。

### 5 OTHER REVENUE AND OTHER NET INCOME

### 5 其他收入及其他收益淨額

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2018	2017	2018	2017	2018	2017
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
<b>Other revenue</b>	<b>其他收入</b>						
Government grants	政府補助	122,792	131,275	-	-	122,792	131,275
Interest income	利息收入	96,805	118,755	247	887	97,052	119,642
Dividend income from unquoted equity investments	非上市權益投資股息收入	18,115	16,700	-	-	18,115	16,700
Others	其他	93,956	88,381	37,246	12,175	131,202	100,556
		<b>331,668</b>	<b>355,111</b>	<b>37,493</b>	<b>13,062</b>	<b>369,161</b>	<b>368,173</b>

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 5 OTHER REVENUE AND OTHER NET INCOME (CONTINUED)      5 其他收入及其他收益淨額(續)

		Continuing operations 持續經營業務		Discontinued operation 已終止經營業務		Total 總計	
		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元	2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元	2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Other net income</b>	<b>其他收益淨額</b>						
Net gain/(loss) on sales of raw materials	原材料銷售收益/(虧損)淨額	6,890	7,290	-	(13)	6,890	7,277
Net gain on disposals of subsidiaries and interest in an associate	出售附屬及聯營公司收益淨額	8,453	463,186	-	98,268	8,453	561,454
Net gain on debt settlement	債務清償收益淨額	-	-	-	10,718	-	10,718
Net gain on disposals of property, plant and equipment and intangible assets	出售物業、廠房、設備及無形資產收益淨額	1,301	4,925	-	-	1,301	4,925
Net foreign exchange gain/(loss)	匯兌收益/(虧損)淨額	8,281	(14,936)	-	2,536	8,281	(12,400)
Others	其他	17,353	99,753	(3,389)	(3,000)	13,964	96,753
		<b>42,278</b>	<b>560,218</b>	<b>(3,389)</b>	<b>108,509</b>	<b>38,889</b>	<b>668,727</b>

### 6 FINANCE COSTS      6 財務成本

		Continuing operations 持續經營業務		Discontinued operation 已終止經營業務		Total 總計	
		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元	2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元	2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
Interests on bank loans and other borrowings	銀行及其他借款利息	582,819	566,518	4,716	6,895	587,535	573,413
Less: interest expenses capitalised into property, plant and equipment and construction contracts	減：資本化在物業、廠房及設備及建造合同中的利息開支	(2,757)	(2,718)	-	-	(2,757)	(2,718)
		<b>580,062</b>	<b>563,800</b>	<b>4,716</b>	<b>6,895</b>	<b>584,778</b>	<b>570,695</b>

The borrowing costs have been capitalised at a rate of 4.49% per annum (2017: 4.45%).

借款成本已按年利率4.49%(2017年: 4.45%)作資本化。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 7 (LOSS)/PROFIT BEFORE TAXATION

(Loss)/profit before taxation is arrived at after charging/(crediting):

##### (a) Staff costs<sup>#</sup>

	Continuing operations		Discontinued operation		Total	
	持續經營業務		已終止經營業務		總計	
	2018	2017	2018	2017	2018	2017
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Salaries, wages and other benefits	1,044,793	1,050,074	11,812	18,005	1,056,605	1,068,079
Contributions to defined contribution retirement plan (Note)	112,095	94,934	1,017	2,036	113,112	96,970
	1,156,888	1,145,008	12,829	20,041	1,169,717	1,165,049

Note:

Pursuant to the relevant labour rules and regulations in the PRC, the Company and its PRC Subsidiaries participated in defined contribution retirement schemes (the "PRC Schemes") organised by the relevant local government authorities for its employees. The Group is required to make contributions to the PRC Schemes at 15% to 20% of basic salaries of the employees. The local government authorities are responsible for the entire pension obligations payable to retired employees. In addition, certain subsidiaries and its staff participate in a retirement plan managed by China Energy on a voluntary basis to supplement the above-mentioned schemes and the Group is required to make contributions at 5% to 8% of total salaries of the employees. The Group has no other material obligation to make payments in respect of pension benefits associated with these schemes and supplementary retirement plan other than the annual contributions described above.

#### 7 稅前(虧損)/利潤

稅前(虧損)/利潤已扣除/(計入):

##### (a) 員工成本<sup>#</sup>

附註:

根據中國相關勞動法律法規，本公司及其中國附屬公司為其員工參加了有關地方政府機關組織的界定供款退休計劃(「中國計劃」)。本集團須對中國計劃繳納員工基本薪金的15%到20%的供款。當地政府機關負責全部應付離退休職工的養老金。此外，若干附屬公司及其職工可自願參加國家能源集團管理的退休計劃作為對上述計劃的補充，本集團須繳納員工總薪金的5%到8%的供款。除上述年度供款以外，本集團沒有其他就退休福利須向這些計劃與補充退休計劃支付款項的重大責任。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 7 (LOSS)/PROFIT BEFORE TAXATION 7 稅前(虧損)/利潤(續)

#### (b) Other items

#### (b) 其他項目

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2018	2017	2018	2017	2018	2017
			(Note)				(Note)
			(附註)				(附註)
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Amortisation*	攤銷*						
- lease prepayments	- 預付土地租賃款	7,850	7,253	-	-	7,850	7,253
- intangible assets	- 無形資產	74,915	70,569	296	947	75,211	71,516
Depreciation*	折舊*						
- investment properties	- 投資性物業	8,916	8,886	-	-	8,916	8,886
- property, plant and equipment	- 物業、廠房及設備	412,655	444,650	274	402	412,929	445,052
Impairment/(reversal of impairment)	減值虧損/(減值轉回)						
- property, plant and equipment	- 物業、廠房及設備	116,286	47,013	28,828	58,098	145,114	105,111
- intangible assets	- 無形資產	-	31,969	-	-	-	31,969
- trade and other receivables	- 應收賬款及其他應收款項	229,243	256,440	(47,671)	22,244	181,572	278,684
- assets held for sale	- 持有待售資產	-	(401)	-	18,369	-	17,968
- other non-current assets	- 其他非流動資產	51,648	-	(160,462)	171,175	(108,814)	171,175
- inventory	- 存貨	22,888	1,612	7,368	-	30,256	1,612
- contract assets	- 合同資產	27,683	-	-	-	27,683	-
Auditors' remuneration	審計師酬金						
- annual audit services	- 年度審計服務	9,560	11,455	-	-	9,560	11,455
- interim review services	- 中期審閱服務	4,050	3,500	-	150	4,050	3,650
Operating lease charges*	經營租賃費用*						
- hire of plant and equipment	- 廠房及設備租賃	29,010	27,834	-	-	29,010	27,834
- hire of properties	- 物業租賃	22,751	26,399	230	41	22,981	26,440
Research and development costs	研發成本	239,699	181,942	-	-	239,699	181,942
Provision/(reversal of provision) for warranty	質保金撥備/(轉回)	80,106	97,840	(10,430)	(12,267)	69,676	85,573
Rental receivables from investment properties	投資性物業的應收租金	(45,742)	(45,697)	(35,219)	(11,610)	(80,961)	(57,307)
Direct outgoings of investment properties	投資性物業的直接開支	11,519	10,502	420	2,695	11,939	13,197
Cost of inventories* (Note 22(b))	存貨成本*(附註22(b))	3,421,964	3,949,605	-	-	3,421,964	3,949,605

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 7 (LOSS)/PROFIT BEFORE TAXATION 7 稅前(虧損)/利潤(續) (CONTINUED)

#### (b) Other items (Continued)

- # Cost of inventories includes staff costs, depreciation and amortisation expenses and operating lease charges, which amount is also included in the respective total amounts disclosed separately above or in Note 7(a) for each of these types of expenses.

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

#### (b) 其他項目(續)

- # 存貨成本包括員工成本、折舊及攤銷費用以及經營租賃費用，這些費用的金額亦已計入在上文單獨披露或附註7(a)的各項總金額中。

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

### 8 INCOME TAX IN THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS 8 合併損益表內的所得稅

#### (a) Taxation in the consolidated statement of profit or loss represents:

#### (a) 合併損益表的稅項指：

		Continuing operations 持續經營業務		Discontinued operation 已終止經營業務		Total 總計	
		2018	2017 (Note) (附註)	2018	2017	2018	2017 (Note) (附註)
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
<b>Current tax</b>	<b>本期稅額</b>						
Provision for the year	本年度撥備	167,609	220,747	-	-	167,609	220,747
Under-provision in respect of prior years	以往年度撥備不足	16,254	69,398	-	1,451	16,254	70,849
		183,863	290,145	-	1,451	183,863	291,596
<b>Deferred tax (Note 32(b))</b>	<b>遞延稅項(附註32(b))</b>						
Origination and reversal of temporary differences	暫時性差異的產生及轉回	(200,828)	(109,209)	-	-	(200,828)	(109,209)
		(16,965)	180,936	-	1,451	(16,965)	182,387

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 8 INCOME TAX IN THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS (CONTINUED)

#### (a) Taxation in the consolidated statement of profit or loss represents: (Continued)

Notes:

- (i) The charge for PRC enterprise income tax for the Group's subsidiaries established in the PRC is calculated at the statutory rate of 25% (2017: 25%) on the estimated assessable profit of the period determined in accordance with relevant enterprise income tax rules and regulations, except for certain subsidiaries of the Group, which are tax exempted or taxed at a preferential rate of 12.5% or 15% (2017: 12.5% or 15%) and a subsidiary of the Group which is a small-scale enterprise and is subject to enterprise income tax at 20% (2017: 20%).
- (ii) A subsidiary of the Group is subject to Hong Kong Profits Tax at 16.5% (2017: 16.5%). Taxation for other overseas subsidiaries is charged at the appropriate rate of taxation ruling in the relevant jurisdiction.

### 8 合併損益表內的所得稅(續)

#### (a) 合併損益表的稅項指：(續)

附註：

- (i) 本集團於中國成立的附屬公司之企業所得稅支出是以根據相關企業所得稅法規規定的期間估計應繳稅利潤按法定稅率25%(2017年：25%)計算，本集團若干免稅或按12.5%或15%(2017年：12.5%或15%)優惠稅率徵稅的附屬公司，以及一家屬於小型企業並按20%(2017年：20%)徵收企業所得稅的附屬公司除外。
- (ii) 本集團有一家附屬公司按16.5%(2017年：16.5%)徵香港利得稅。其他海外附屬公司根據相關地域的適用稅率繳納稅款。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 8 INCOME TAX IN THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS (CONTINUED) 8 合併損益表內的所得稅(續)

#### (b) Reconciliations between tax expense and accounting (loss)/profit at applicable tax rates:

#### (b) 稅項開支與會計(虧損)/利潤按照適用稅率計算的調節：

		2018	2017 (Note) (附註)
		<i>RMB'000</i> 人民幣千元	<i>RMB'000</i> 人民幣千元
(Loss)/profit before taxation	稅前(虧損)/利潤		
– continuing operations	– 持續經營業務	<b>(59,661)</b>	627,415
– discontinued operation	– 已終止經營業務	<b>155,059</b>	(354,258)
		<b>95,398</b>	273,157
Notional tax on (loss)/profit before taxation at PRC statutory tax rate	稅前利潤按照中國法定稅率計算的名義稅項	<b>23,848</b>	68,289
Effect on non-deductible expenses	不可扣減開支的影響	<b>18,586</b>	12,974
Effect of non-taxable income	非應稅收入的影響	<b>(4,829)</b>	(4,469)
Effect of research and development bonus deductions	研發開支加計扣除的影響	<b>(12,637)</b>	(12,269)
Effect of share of profits less losses of associates	應佔聯營公司利潤減虧損的影響	<b>(15,358)</b>	(21,683)
Effect of PRC tax concessions	中國稅務優惠的影響	<b>(72,727)</b>	(92,292)
Tax effect of unused tax losses and temporary differences not recognised	未確認的未使用稅務虧損及暫時性差異的稅項影響	<b>125,246</b>	255,194
Tax effect of unused tax losses and temporary differences not recognised in previous year but utilised or recognised in current year	本年使用或確認以往年度未確認的未使用稅務虧損及暫時性差異的稅項影響	<b>(101,017)</b>	(89,787)
Tax effect of unused tax losses and temporary differences recognised in previous year but derecognised in current year	本年終止確認以往年度確認的未使用稅務虧損及暫時性差異的稅項影響	<b>6,298</b>	–
Under provision in respect of prior years	以往年度撥備	<b>16,254</b>	70,849
Others	其他	<b>(629)</b>	(4,419)
Actual tax expense	實際稅項開支	<b>(16,965)</b>	182,387

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 9 DIRECTORS' AND SUPERVISORS' EMOLUMENTS 9 董事及監事的薪酬

Directors' and supervisors' emoluments disclosed pursuant to section 383(1) of Hong Kong Companies Ordinance and Part 2 of the Companies (Disclosure of Information about Benefits of Directors) Regulation are as follows:

根據《香港公司條例》第3節、第8(1)節以及《公司(披露董事利益資料)規例》第2部份規定披露的董事和監事薪金如下：

		Directors' and supervisors' fees	Salaries, allowances and benefits in kind	Discretionary bonuses	Retirement scheme contributions	2018 Total
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
<b>Directors</b>	<b>董事</b>					
Mr. Chen, Dongqing ( <i>Chairman</i> )	陳冬青先生( <i>董事長</i> )	-	679	260	119	1,058
Mr. Zhang, Jun	張軍先生	-	641	260	119	1,020
Mr. Tang, Chaoxiong	唐超雄先生	-	523	221	106	850
Mr. Wang, Zhongqu	王忠渠先生	-	-	-	-	-
Mr. Zhang, Wenjian	張文建先生	-	-	-	-	-
Mr. Gu, Yuchun	顧玉春先生	-	-	-	-	-
Mr. Yan, Andrew Y	閻焱先生	-	-	-	-	-
<b>Independent non-executive directors</b>	<b>獨立非執行董事</b>					
Mr. Shen, Xiaoliu	申曉留先生	150	-	-	-	150
Mr. Qu, Jiuhui	曲久輝先生	150	-	-	-	150
Mr. Xie, Qiuye	謝秋野先生	150	-	-	-	150
Mr. Yang, Zhida	楊志達先生	250	-	-	-	250
<b>Supervisors</b>	<b>監事</b>					
Mr. Luan, Baoxing	樂寶興先生	-	-	-	-	-
Mr. Xu, Xingzhou	許興洲先生	-	-	-	-	-
Mr. Yang, Xiangbin	楊向斌先生	-	-	-	-	-
Ms. He, Lili	何麗麗女士	-	583	221	111	915
Mr. Li, Wei	李偉先生	-	364	158	98	620
		700	2,790	1,120	553	5,163

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 9 DIRECTORS' AND SUPERVISORS' EMOLUMENTS 9 董事及監事的薪酬(續)

##### (CONTINUED)

		Directors' and supervisors' fees	Salaries, allowances and benefits in kind	Discretionary bonuses	Retirement scheme contributions	2017 Total
		董事費及 監事費	工資、補貼及 實物福利	酌情花紅	退休金供款	2017總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
<b>Directors</b>		<b>董事</b>				
Mr. Chen, Dongqing ( <i>Chairman</i> )	陳冬青先生(董事長)	-	746	255	84	1,085
Mr. Yang Guang (Resigned in August 2017)	陽光先生(2017年8月辭職)	-	437	69	27	533
Mr. Zhang, Jun (Appointed in August 2017)	張軍先生(2017年8月任職)	-	369	147	57	573
Mr. Feng Shuchen (Resigned in August 2017)	馮樹臣先生(2017年8月辭職)	-	-	-	-	-
Mr. Tang, Chaoxiong	唐超雄先生	-	577	227	77	881
Mr. Wang, Zhongqu	王忠渠先生	-	-	-	-	-
Mr. Zhang, Wenjian	張文建先生	-	-	-	-	-
Mr. Gu, Yuchun (Appointed in August 2017)	顧玉春先生(2017年8月任職)	-	-	-	-	-
Mr. Yan, Andrew Y	閻焱先生	-	-	-	-	-
<b>Independent non-executive directors</b>		<b>獨立非執行董事</b>				
Mr. Fan, Renda (Resigned in August 2017)	范仁達先生(2017年8月辭職)	88	-	-	-	88
Mr. Shen, Xiaoliu	申曉留先生	150	-	-	-	150
Mr. Qu, Jiuhui	曲久輝先生	150	-	-	-	150
Mr. Xie, Qiuye	謝秋野先生	150	-	-	-	150
Mr. Yang, Zhida (Appointed in August 2017)	楊志達先生(2017年8月任職)	104	-	-	-	104
<b>Supervisors</b>		<b>監事</b>				
Mr. Luan, Baoxing	樂寶興先生	-	-	-	-	-
Mr. Xu, Xingzhou	許興洲先生	-	-	-	-	-
Mr. Yang, Xiangbin	楊向斌先生	-	-	-	-	-
Ms. He, Lili	何麗麗女士	-	591	269	79	939
Mr. Li, Wei	李偉先生	-	371	144	72	587
		642	3,091	1,111	396	5,240

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 10 INDIVIDUALS WITH HIGHEST EMOLUMENTS

Of the five individuals with the highest emoluments, two (2017: two) are directors and supervisors whose emoluments are disclosed in Note 9. The aggregate of the emoluments in respect of the other three (2017: three) individuals are as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Salaries and other emoluments	工資及其他薪酬	1,966	2,055
Discretionary bonuses	酌情花紅	567	720
Retirement scheme contributions	退休金供款	323	231
		<b>2,856</b>	<b>3,006</b>

The emoluments of the three (2017: three) individuals with the highest emoluments are within the following bands:

		2018 <b>Number of individuals</b> 人數	2017 Number of individuals 人數
Nil to HKD1,000,000	零至港幣1,000,000元	1	-
HKD1,000,000 to HKD2,000,000	港幣1,000,000元至港幣2,000,000元	2	3

薪酬最高的五位個人中，其中兩位(2017年：兩位)為董事，其薪酬在附註9中進行了披露。其他三位(2017年：三位)個人的總薪酬如下：

這三位(2017年：三位)具有最高薪酬的個人的薪酬範圍如下：

### 11 DISCONTINUED OPERATION

During the year ended 31 December 2015, management decided to abandon all of the Group's operations under the solar power products and services segment, which constitute a major line of business of the Group, due to the challenging market conditions in the solar industry. As such, the results of the Group's operations under the solar power products and services segment were presented as discontinued operation in the consolidated financial statements.

The Company entered into a sale and purchase agreement with certain counter-party during the year ended 31 December 2016, pursuant to which the Company proposed to dispose of the main assets/liabilities of solar power products and services segment. Such assets and liabilities were presented as non-current assets and disposal groups held for sale in the consolidated financial statements as at 31 December 2017. The disposal of aforementioned assets/liabilities has been completed during the year ended 31 December 2018 (see Note 42(i)).

### 11 已終止經營業務

於截至2015年12月31日止年度，由於太陽能行業嚴峻的市場環境，管理層決定終止太陽能產品和服務分部的所有經營業務，該分部是本集團的一個主要經營業務。因此，本集團在太陽能產品及服務分部的經營成果在合併財務報表中列示為已終止經營業務。

截至2016年12月31日止本公司與部分交易方簽署了買賣協定，提議處置太陽能產品及服務分部的主要資產／負債。於2017年12月31日截止的報告期末該部分資產及負債在合併財務報表中以持有待售的非流動資產及出售組別列示。截至2018年12月31日止已完成上述資產／負債的處置(見附註42(i))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 11 DISCONTINUED OPERATION (CONTINUED)

#### 11 已終止經營業務(續)

		Note 附註	2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Revenue</b>	收入	4	–	1,632
Cost of sales	銷售成本		<b>(12,732)</b>	(9,576)
<b>Gross loss</b>	毛虧		<b>(12,732)</b>	(7,944)
Other revenue	其他收入	5	<b>37,493</b>	13,062
Other net (losses)/income	其他(虧損)/收益淨額	5	<b>(3,389)</b>	108,509
Selling and distribution expenses	銷售及分銷開支		<b>9,383</b>	9,022
Administrative expenses	行政開支		<b>129,020</b>	(470,012)
<b>Profit/(loss) from operation</b>	經營利潤/(虧損)		<b>159,775</b>	(347,363)
Finance costs	財務成本	6	<b>(4,716)</b>	(6,895)
<b>Profit/(loss) before taxation from a discontinued operation</b>	已終止經營業務的稅前利潤/(虧損)	7	<b>155,059</b>	(354,258)
Income tax	所得稅	8	–	(1,451)
<b>Profit/(loss) for the year from a discontinued operation</b>	已終止經營業務的本年度利潤/(虧損)		<b>155,059</b>	(355,709)
<b>Attributable to:</b>	歸屬於：			
Equity shareholders of the Company	本公司權益股東		<b>155,059</b>	(353,730)
Non-controlling interests	非控股權益		–	(1,979)
<b>Profit/(loss) for the year from a discontinued operation</b>	已終止經營業務的本年度利潤/(虧損)		<b>155,059</b>	(355,709)

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 11 DISCONTINUED OPERATION (CONTINUED)

The net cash flows incurred by the discontinued operation are as follows:

	2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Net cash generated from/(used in) operating activities 經營活動中產生/(使用)的淨現金	<b>228,525</b>	(46,012)
Net cash generated from investing activities 投資活動中產生的淨現金	-	40,452
Net cash (used in)/generated from financing activities 融資活動中(使用)/產生的淨現金	<b>(221,099)</b>	983
Net cash inflow/(outflow) 淨現金流入/(流出)	<b>7,426</b>	(4,577)

### 12 EARNINGS/(LOSS) PER SHARE

The calculation of basic earnings per share is based on the profit attributable to ordinary equity shareholders of the Company of RMB114,087,000 (2017: RMB43,703,000) and the weighted average of 6,063,770,000 ordinary shares (2017: 6,063,770,000 ordinary shares) in issue during the year ended 31 December 2018.

There were no dilutive potential ordinary shares in existence during the years ended 31 December 2018 and 2017.

Profit/(loss) attributable to ordinary equity shareholders of the Company used in the basic and diluted earnings/(loss) per share calculations:

	2018 <i>RMB'000</i> 人民幣千元	2017 (Note) (附註) <i>RMB'000</i> 人民幣千元
From continuing operations 持續經營業務	<b>(40,972)</b>	397,433
From a discontinued operation (Note 11) 已終止經營業務(附註11)	<b>155,059</b>	(353,730)
	<b>114,087</b>	43,703

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

### 11 已終止經營業務(續)

已終止經營業務產生的淨現金流如下：

### 12 每股收益/(虧損)

每股基本收益的計算依據為歸屬於本公司普通股股東的收益人民幣114,087,000元(2017年：人民幣43,703,000元)以及截至2018年12月31日止年度發行在外普通股的加權平均數為6,063,770,000股(2017年：6,063,770,000股普通股)。

於截至2018年及2017年12月31日止年度內，本公司不存在稀釋性潛在普通股。

在計算基本和攤薄每股收益/(虧損)時使用的歸屬於本公司的普通股股東的盈利/(虧損)為：

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 13 PROPERTY, PLANT AND EQUIPMENT

### 13 物業、廠房及設備

		Land, buildings and structures 土地、樓宇及 建築物 RMB'000 人民幣千元	Machinery and equipment 機器及設備 RMB'000 人民幣千元	Motor vehicles 汽車 RMB'000 人民幣千元	Furniture, fixtures and others 傢俱裝置及 其他 RMB'000 人民幣千元	Construction in progress 在建工程 RMB'000 人民幣千元	Total 總計 RMB'000 人民幣千元
<b>Cost:</b>	<b>成本：</b>						
At 1 January 2017 (restated)	於2017年1月1日(重述)	2,869,203	4,887,991	175,618	387,158	147,358	8,467,328
Additions	增加	2,418	1,620	247	33,123	128,065	165,473
Transfer from construction in progress	在建工程轉入	10,849	78,413	-	-	(89,262)	-
Transfer from investment properties (Note 14)	轉出自投資性物業(附註14)	1,839	-	-	-	-	1,839
Disposals	出售	-	(343)	(8,257)	(2,464)	(2,905)	(13,969)
Reclassified as assets held for sale	重分類至持有待售資產	-	(721)	(2,203)	(1,711)	-	(4,635)
At 31 December 2017 and 1 January 2018	於2017年12月31日及2018年1月1日	2,884,309	4,966,960	165,405	416,106	183,256	8,616,036
Additions	增加	6,018	27,784	2,764	45,213	266,772	348,551
Transfer from construction in progress	在建工程轉入	13,510	15,477	-	-	(28,987)	-
Disposals	出售	(1,555)	(2,369)	(2,943)	(3,958)	-	(10,825)
Reclassified as assets held for sale	重分類至持有待售資產	-	(1,361,679)	-	-	(2,352)	(1,364,031)
At 31 December 2018	於2018年12月31日	2,902,282	3,646,173	165,226	457,361	418,689	7,589,731
<b>Accumulated Depreciation:</b>	<b>累計折舊：</b>						
At 1 January 2017 (restated)	於2017年1月1日(重述)	719,274	2,493,556	139,810	250,244	3,978	3,606,862
Depreciation charge for the year	本年度折舊費	133,109	265,713	8,524	37,706	-	445,052
Impairment loss (Note (ii))	減值損失(附註(ii))	-	100,650	-	-	4,461	105,111
Transfer to investment properties (Note 14)	轉作投資性物業(附註14)	(117)	-	-	-	-	(117)
Written back on disposals	因出售而撥回	-	(327)	(8,252)	(2,248)	-	(10,827)
Reclassified as assets held for sale	重分類至持有待售資產	-	(264)	(1,047)	(933)	-	(2,244)
At 31 December 2017 and 1 January 2018	於2017年12月31日及2018年1月1日	852,266	2,859,328	139,035	284,769	8,439	4,143,837
Depreciation charge for the year	本年度折舊費	119,061	246,838	8,454	38,576	-	412,929
Impairment loss (Note (ii))	減值損失(附註(ii))	30	113,631	-	42	31,411	145,114
Written back on disposals	因出售而撥回	-	(1,831)	(2,810)	(3,921)	-	(8,562)
Reclassified as assets held for sale	重分類至持有待售資產	-	(1,352,420)	-	-	(1,988)	(1,354,408)
At 31 December 2018	於2018年12月31日	971,357	1,865,546	144,679	319,466	37,862	3,338,910
<b>Net book value:</b>	<b>帳面淨值：</b>						
At 31 December 2018	於2018年12月31日	1,930,925	1,780,627	20,547	137,895	380,827	4,250,821
At 31 December 2017	於2017年12月31日	2,032,043	2,107,632	26,370	131,337	174,817	4,472,199

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 13 PROPERTY, PLANT AND EQUIPMENT (CONTINUED)

Notes:

- (i) The Group's plants and buildings are located in the PRC.
- (ii) During the year ended 31 December 2018, due to the continuous depressed solar power products and services business in the PRC, the directors of the Company concluded further impairment losses on the machinery and equipment related to the Group's solar power products and services segment are required. The directors of the Company determined recoverable amount of the solar power products and serviced segment on the basis of fair value less cost of disposal. Accordingly, impairment loss of RMB26,840,000 (2017: RMB58,098,000) on the Group's property, plant and equipment were recognised.

During the year ended 31 December 2018, certain subsidiaries of the Group recorded a significant decrease in revenue or were loss making due to various market, economic and political factors, which included severe market competition, delays in operations influenced by government policies and decreases in market demand. The Group assessed the recoverables amounts by using value in use model or fair value less cost of disposal model, and recognised impairment losses on property, plant and equipment with an aggregate amount of RMB118,274,000 (2017: RMB47,013,000).

### 14 INVESTMENT PROPERTIES

### 13 物業、廠房及設備(續)

附註：

- (i) 本集團的廠房及樓宇均位於中國。
- (ii) 截至2018年12月31日止的年度，由於中國太陽能產品和服務業務持續低迷，本公司董事要求進一步計提本集團太陽能產品和服務分部機械設備的減值損失。本公司董事以公允價值減去處置成本後的價值為基礎，確定了太陽能產品和服務分部的可收回金額。因此，截至2018年12月31日止的年度，本集團物業、廠房及設備確認減值虧損26,840,000元(2017年：58,098,000元)。

截至2018年12月31日止年度，由於各種市場、經濟及政治因素，包括嚴重的市場競爭，受政府政策和需求市場下行所影響的營運延遲，本集團若干附屬公司收入大幅減少甚至產生了虧損。本集團採用使用價值模式或公允價值減去處置成本模型對可收回金額進行評估，並確認物業、廠房和設備的減值損失，合計金額為人民幣118,274,000元(2017年：人民幣47,013,000元)。

### 14 投資性物業

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Cost:</b>	<b>成本：</b>		
At 1 January	於1月1日	<b>321,138</b>	322,977
Transfer to property, plant and equipment	轉作物業、廠房及設備	-	(1,839)
At 31 December	於12月31日	<b>321,138</b>	321,138
<b>Accumulated depreciation:</b>	<b>累計折舊：</b>		
At 1 January	於1月1日	<b>85,941</b>	76,938
Depreciation charge for the year	本年度折舊費	<b>8,916</b>	8,886
Transfer from property, plant and equipment	轉出自物業、廠房及設備	-	117
At 31 December	於12月31日	<b>94,857</b>	85,941
<b>Net book value</b>	<b>帳面淨值</b>	<b>226,281</b>	235,197

All the investment properties owned by the Group are located in the PRC.

本集團所有的投資性物業均位於中國。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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#### 14 INVESTMENT PROPERTIES (CONTINUED)

##### (a) Investment properties leased out under operating lease

The Group lease out investment properties under operating leases. The leases typically run for an initial period of 1 to 10 years, with an option to renew the lease after that date at which time all terms are re-negotiated. Lease payments are usually adjusted upon the expiry of lease terms to reflect market rentals. None of the leases includes contingent rentals.

The Group's total future minimum lease payments under non-cancellable operating leases are receivable as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Within 1 year	1年內	14,707	12,211

##### (b) Fair values of investment properties

###### (i) Fair value hierarchy

The following table presents the fair value of the Group's investment properties measured at the end of the reporting period on a recurring basis for disclosure purpose, categorised into the three-level fair value hierarchy as defined in IFRS 13, *Fair value measurement*. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2 valuations: Fair value measured using Level 2 inputs i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available.
- Level 3 valuations: Fair value measured using significant unobservable inputs.

#### 14 投資性物業(續)

##### (a) 根據經營租賃出租的投資性物業

本集團以經營租賃租出投資性物業。一般初始租賃期均為1-10年，到期之後可以續租，屆時雙方將就所有租賃條款重新談判。租期到期之後一般根據市場租金進行調整。所有租賃合同均不存在或有租金。

在不可解除的經營租賃項下，本集團未來應收的最低租賃付款總額如下：

##### (b) 投資性物業公允價值

###### (i) 公允價值等級

下表提供了本集團於報告期末為披露之目的重複計量的投資性物業的公允價值，並按《國際財務報告準則第13號》/《公允價值計量》中所定義分為三個公允價值層級。公允價值計量層級是根據評估方法中使用的輸入資料的可觀察性和重要性來確定劃分的，具體如下：

- 第1層級估值：僅使用1級輸入資料進行計量的公允價值，即計量之日相同資產或負債的活躍市場中未經調整的報價。
- 第2層級估值：使用2級輸入資料進行計量的公允價值，即不符合1級要求且未使用不可觀察的重要輸入資料的可觀察輸入資料。不可觀察輸入資料是不存在市場資料的輸入資料。
- 第3層級估值：使用不可觀察的重要輸入資料進行計量的公允價值。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 14 INVESTMENT PROPERTIES (CONTINUED)

### 14 投資性物業(續)

#### (b) Fair values of investment properties (Continued)

#### (b) 投資性物業公允價值(續)

##### (i) Fair value hierarchy (Continued)

##### (i) 公允價值等級(續)

		Fair value measurement as at 31 December 2018 categorised into 於2018年12月31日公允價值計量並分為：			
		Fair value at 31 December 2018 於2018年 12月31日 公允價值 RMB'000 人民幣千元	Level 1 第一層級 RMB'000 人民幣千元	Level 2 第二層級 RMB'000 人民幣千元	Level 3 第三層級 RMB'000 人民幣千元
<b>Recurring fair value measurements</b>	重複的公允價值計量				
Investment properties	投資性物業	1,011,934	-	1,011,934	-

		Fair value measurement as at 31 December 2017 categorised into 於2017年12月31日公允價值計量並分為：			
		Fair value at 31 December 2017 於2017年 12月31日 公允價值 RMB'000 人民幣千元	Level 1 第一層級 RMB'000 人民幣千元	Level 2 第二層級 RMB'000 人民幣千元	Level 3 第三層級 RMB'000 人民幣千元
<b>Recurring fair value measurements</b>	重複的公允價值計量				
Investment properties	投資性物業	923,240	-	923,240	-

##### (ii) Valuation techniques and inputs used in Level 2 fair value measurements

##### (ii) 在第2層級公允價值計量中採用的評估方法和輸入資料

The fair value of investment properties is determined using market comparison approach by reference to recent sales price of comparable properties on a price per square meter basis using market data which is publicly available.

投資性物業的公允價值是通過參考公開的市場資料中可比物業以每平方米價格為基礎之最近售價，按市場比較法來確定。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 15 LEASE PREPAYMENTS

#### 15 預付土地租賃款

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
<b>Cost:</b>	<b>成本：</b>		
At 1 January	於1月1日	<b>366,418</b>	380,018
Reclassified as assets held for sale	重分類至持有待售資產	-	(13,600)
At 31 December	於12月31日	<b>366,418</b>	366,418
<b>Accumulated amortisation and impairment losses:</b>	<b>累計攤銷及減值損失：</b>		
At 1 January	於1月1日	<b>56,535</b>	49,282
Amortisation for the year	本年度攤銷費	<b>7,850</b>	7,253
At 31 December	於12月31日	<b>64,385</b>	56,535
<b>Net book value</b>	<b>帳面淨值</b>	<b>302,033</b>	309,883

Notes:

- (i) Lease prepayments mainly represent prepayments for rights to use land, which is all located in the PRC, for own use properties with lease periods of 25 to 50 years. There were no unpaid lease prepayments as at 31 December 2018 and 2017.
- (ii) As at 31 December 2018, the Group was in the process of applying for registration of the ownership certificates for certain of its land use rights. The aggregate carrying value of such land use rights of the Group as at 31 December 2018 is approximately RMB11,264,000 (2017: RMB14,500,000). The directors of the Company are of the opinion that the Group is entitled to lawfully occupy or use these land.

附註：

- (i) 預付土地租賃款主要是土地使用權預付款，所有使用土地均位於中國，作為自用物業，租賃期為25-50年。於2018年及2017年12月31日，均不存在未支付的預付土地租賃款。
- (ii) 於2018年12月31日，本集團正在為若干土地使用權辦理產權證。於2018年12月31日，本集團的此等土地所有權總價值約為人民幣11,264,000元(2017年：人民幣14,500,000元)。董事們認為，本集團有權合法地佔有或使用此等土地。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 16 INTANGIBLE ASSETS

### 16 無形資產

		Concession asset 特許權資產 RMB'000 人民幣千元	Technical know-how 專業技術 RMB'000 人民幣千元	Development costs 開發成本 RMB'000 人民幣千元	Software and others 軟件及其他 RMB'000 人民幣千元	Total 總計 RMB'000 人民幣千元
<b>Cost:</b>	<b>成本：</b>					
At 1 January 2017 (restated)	於2017年1月1日(重述)	1,033,026	92,587	408,785	73,936	1,608,334
Additions	增加	20,513	-	32,287	21,932	74,732
Disposals	出售	-	-	(17,424)	-	(17,424)
Reclassified as assets held for sale	重分類至持有待售資產	-	-	-	(362)	(362)
At 31 December 2017 and 1 January 2018	於2017年12月31日及 2018年1月1日	1,053,539	92,587	423,648	95,506	1,665,280
Additions	增加	<b>3,761</b>	<b>50</b>	<b>59,019</b>	<b>25,942</b>	<b>88,772</b>
Disposals	出售	-	<b>(28,110)</b>	-	<b>(5,111)</b>	<b>(33,221)</b>
At 31 December 2018	於2018年12月31日	<b>1,057,300</b>	<b>64,527</b>	<b>482,667</b>	<b>116,337</b>	<b>1,720,831</b>
<b>Accumulated amortisation and impairment losses:</b>	<b>累計攤銷及減值損失：</b>					
At 1 January 2017 (restated)	於2017年1月1日(重述)	184,515	79,933	113,150	33,618	411,216
Amortisation (Note (iii))	攤銷(附註(iii))	21,780	1,629	38,777	9,330	71,516
Disposals	出售	-	-	(13,270)	-	(13,270)
Impairment loss	減值損失	31,969	-	-	-	31,969
Reclassified as assets held for sale	重分類至持有待售資產	-	-	-	(72)	(72)
At 31 December 2017 and 1 January 2018	於2017年12月31日及 2018年1月1日	238,264	81,562	138,657	42,876	501,359
Amortisation (Note (iii))	攤銷(附註(iii))	<b>24,096</b>	<b>1,330</b>	<b>38,562</b>	<b>11,223</b>	<b>75,211</b>
Disposals	出售	-	<b>(10,118)</b>	-	<b>(5,111)</b>	<b>(15,229)</b>
Impairment loss	減值損失	-	<b>(17,992)</b>	-	-	<b>(17,992)</b>
At 31 December 2018	於2018年12月31日	<b>262,360</b>	<b>54,782</b>	<b>177,219</b>	<b>48,988</b>	<b>543,349</b>
<b>Net book value:</b>	<b>帳面淨值：</b>					
At 31 December 2018	於2018年12月31日	<b>794,940</b>	<b>9,745</b>	<b>305,448</b>	<b>67,349</b>	<b>1,177,482</b>
At 31 December 2017	於2017年12月31日	815,275	11,025	284,991	52,630	1,163,921

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 16 INTANGIBLE ASSETS (CONTINUED)

Notes:

- (i) Concession assets represent the rights the Group received for the usage of the concession water treatment plants for the treatment of water. The concession assets are amortised over the operating period of the service concession projects.
- (ii) The amortisation charges of RMB28,005,000 (2017: RMB25,147,000), RMB46,910,000 (2017: RMB45,958,000) and RMB296,000 (2017: RMB411,000) are included in "cost of sales", "administrative expenses" and "loss for the year from a discontinued operation" in the consolidated statement of profit or loss respectively.
- (iii) As at 31 December 2018, certain of the Group's interest-bearing bank loans and other borrowings were secured by concession assets (see Note 29), which had an aggregate net book value of RMB599,851,000 (2017: RMB613,961,000).

### 16 無形資產(續)

附註：

- (i) 特許權資產指本集團享有的特許經營權，即污水處理的經營權。特許權資產在特許經營項目經營期間進行攤銷。
- (ii) 合併損益表中的「銷售成本」、「行政開支」和「終止經營的年度虧損」專案下分別包括無形資產攤銷費用人民幣28,005,000元(2017年：人民幣25,147,000元)、人民幣46,910,000元(2017年：人民幣45,958,000元)及人民幣296,000元(2017年：人民幣411,000元)。
- (iii) 於2018年12月31日，本集團的若干帶息銀行貸款及其他借款以特許權資產作抵押(見附註29)，其帳面淨值總額為人民幣599,851,000元(2017年：人民幣613,961,000元)。

### 17 GOODWILL

### 17 商譽

	2018 <b>RMB'000</b> 人民幣千元	2017 <b>RMB'000</b> 人民幣千元
At 1 January 2017, 31 December 2017 and 31 December 2018		
於2017年1月1日、2017年12月31日及2018年12月31日	<b>57,591</b>	57,591

Goodwill is allocated to the Group's cash-generating units identified according to operation and operating segment as follows:

商譽分配到根據下列業務及經營分部劃分的本集團現金產生單元：

	2018 <b>RMB'000</b> 人民幣千元	2017 <b>RMB'000</b> 人民幣千元
Environmental protection	<b>57,591</b>	57,591

The recoverable amounts of CGUs are determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets approved by management covering a five-year period. Cash flows beyond the five-year period are extrapolated using zero growth rate. The cash flows are discounted using discount rates ranging from 8.9% to 9.8% (2017: 8.9% to 9.8%). The discount rates used are pre-tax and reflect specific risks relating to the relevant segment.

現金產生單元的可收回數額乃按使用價值計算而確定。有關價值的計算根據本公司管理層批覆之五年期間的財務預算的現金流預測。超過五年期的現金流量採用零增長率推算。現金流量預測計算採用由8.9%至9.8%的折現率(2017年：12.9%至16.0%)。所採用的折現率為稅前折現率，並反映相關分部的特定風險。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 18 INVESTMENTS IN SUBSIDIARIES

The following list contains only the particulars of subsidiaries as at 31 December 2018 which principally affected the results, assets or liabilities of the Group. All of the PRC subsidiaries are limited liability companies.

#### 18 對附屬公司的投資

於2018年12月31日，對本集團業績、資產或負債具有主要影響的附屬公司的詳情列舉如下。所有中國附屬公司均為有限責任公司。

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Beijing Guodian Longyuan Environmental Engineering Co., Ltd. 北京國電龍源環保工程有限公司	The PRC 中國	RMB1,613,000,000 人民幣1,613,000,000	100%	100%	-	Provision of desulphurisation and other environmental protection engineering services 提供脫硫及其他環保工程服務
Jiangsu Deke Environmental Equipment Co., Ltd. 江蘇德克環保設備有限公司	The PRC 中國	RMB80,000,000 人民幣80,000,000	67.46%	-	67.46%	Production and sale of environmental protection equipment 環保設備的生產與銷售
Bengbu Guodian Longyuan Environmental Development Co., Ltd. 蚌埠國電龍源環保發展有限公司	The PRC 中國	RMB30,000,000 人民幣30,000,000	100%	-	100%	Operation of environmental protection facilities 環保設施的經營
Jiangsu Longyuan Catalyst Co., Ltd. 江蘇龍源催化劑有限公司	The PRC 中國	RMB50,000,000 人民幣50,000,000	100%	-	100%	Production and sale of selective catalytic reduction catalyst 選擇性催化還原催化劑的生產與銷售
Nanjing Longyuan Environmental Co., Ltd. 南京龍源環保有限公司	The PRC 中國	RMB101,000,000 人民幣101,000,000	60%	-	60%	Provision of environmental protection engineering services 提供環保工程服務
Puyang Guodian Longyuan Water Treatment Co., Ltd. 濮陽國電龍源水務有限公司	The PRC 中國	RMB10,000,000 人民幣10,000,000	70%	-	70%	Operation of water treatment projects 水處理項目的經營
Hanchuan Longyuan Boqi Environmental Technology Co., Ltd. 漢川龍源博奇環保科技有限公司	The PRC 中國	RMB110,000,000 人民幣110,000,000	70%	-	70%	Operation of environmental protection facilities 環保設備的經營
Guodian Technology & Environment Group Hong Kong Corporation Limited (Note (i)) (附註(i))	Hong Kong 香港	22,000,000 ordinary shares 22,000,000普通股	100%	100%	-	Sale of desulphurisation equipment 脫硫設備的銷售
Beijing Lucency Environment and Technology Co., Ltd. 北京朗新明環保科技有限公司	The PRC 中國	RMB500,000,000 人民幣500,000,000	100%	100%	-	Construction and operation of water treatment projects 水處理專案的施工與經營

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 18 INVESTMENTS IN SUBSIDIARIES (CONTINUED)

#### 18 對附屬公司的投資(續)

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Dalian Delang Water Treatment Co., Ltd. 大連德朗水務有限公司	The PRC 中國	RMB20,000,000 人民幣20,000,000	51%	–	51%	Operation of water treatment projects 水處理項目的經營
Shanxi Xinyuan Environment Protection Resources Development Co., Ltd. 山西新源環保資源開發有限責任公司	The PRC 中國	RMB13,000,000 人民幣13,000,000	51%	–	51%	Construction and operation of water treatment projects 水處理專案的施工與經營
Taiyuan Lucency Sewage Treatment Co., Ltd. 太原朗新明污水處理有限公司	The PRC 中國	RMB102,000,000 人民幣102,000,000	80%	–	80%	Design and installation of sewage treatment equipment 污水處理設備的設計與安裝
Dalian Economic and Technical Development Zone Drain Management Co., Ltd. 大連經濟技術開發區排水管理有限公司	The PRC 中國	RMB53,442,000 人民幣53,442,000	50%	–	50%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water Corporation Limited 國電銀河水務股份有限公司	The PRC 中國	300,000,000 shares of RMB1 each 300,000,000股 每股人民幣1元	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Shanxian) Co., Ltd. 國電銀河水務(單縣)有限公司	The PRC 中國	RMB15,000,000 人民幣15,000,000	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Shouguang) Co., Ltd. 國電銀河水務(壽光)有限公司	The PRC 中國	RMB60,000,000 人民幣60,000,000	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Dezhou) Co., Ltd. 國電銀河水務(德州)有限公司	The PRC 中國	RMB21,409,200 人民幣21,409,200	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Changle) Co., Ltd. 國電銀河水務(昌樂)有限公司	The PRC 中國	RMB32,550,000 人民幣32,550,000	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Caoxian) Co., Ltd. 國電銀河水務(曹縣)有限公司	The PRC 中國	RMB12,000,000 人民幣12,000,000	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Galaxy Water (Tengzhou Mushi) Co., Ltd. 銀河水務(滕州木石)有限公司	The PRC 中國	RMB13,250,000 人民幣13,250,000	70%	–	100%	Construction and operation of water treatment projects 水處理專案的施工與經營

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 18 INVESTMENTS IN SUBSIDIARIES (CONTINUED)

### 18 對附屬公司的投資(續)

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Guodian Galaxy Water (Qingdao Development Zone) Co., Ltd. 國電銀河水務(青島開發區)有限公司	The PRC 中國	RMB72,000,000 人民幣72,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Jining Galaxy Water Treatment Co., Ltd. 濟寧銀河水務有限公司	The PRC 中國	RMB51,710,400 人民幣51,710,400	70%	-	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian Galaxy Water (Tengzhou) Co., Ltd. 國電銀河水務(滕州)有限公司	The PRC 中國	RMB47,000,000 人民幣47,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Zhucheng Galaxy Water Treatment Co., Ltd. 諸城銀河水處理有限公司	The PRC 中國	RMB50,000,000 人民幣50,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理專案的施工與經營
Guodian United Power Technology Co., Ltd. 國電聯合動力技術有限公司	The PRC 中國	RMB2,137,527,100 人民幣2,137,527,100	70%	70%	-	Research and development and sale of wind turbine technology 風力機技術的研發與銷售
Guodian United Power Technology (Baoding) Co., Ltd. 國電聯合動力技術(保定)有限公司	The PRC 中國	RMB220,000,000 人民幣220,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Guodian United Power Technology (Lianyungang) Co., Ltd. 國電聯合動力技術(連雲港)有限公司	The PRC 中國	RMB150,000,000 人民幣150,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Guodian United Power Technology (Chifeng) Co., Ltd. 國電聯合動力技術(赤峰)有限公司	The PRC 中國	RMB115,000,000 人民幣115,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Guodian Solar System Technology (Shanghai) Co., Ltd. 國電太陽能系統科技(上海)有限公司	The PRC 中國	RMB20,000,000 人民幣20,000,000	50%	-	50%	Construction of solar power generation system 太陽能發電系統的施工建設
Guodian Longyuan Power Technology and Engineering Co., Ltd. 國電龍源電力技術工程有限責任公司	The PRC 中國	RMB244,727,000 人民幣244,727,000	100%	100%	-	Provision of energy conservation engineering services 提供節能工程服務
Guodian Longyuan Energy Saving Technology Co., Ltd. 國電龍源節能技術有限公司	The PRC 中國	RMB178,000,000 人民幣178,000,000	100%	100%	-	Provision of energy conservation engineering services 提供節能工程服務

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 18 INVESTMENTS IN SUBSIDIARIES (CONTINUED)

#### 18 對附屬公司的投資(續)

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Beijing Long Wei Power Generation Technology Co., Ltd. 北京龍威發電技術有限公司	The PRC 中國	RMB40,000,000 人民幣40,000,000	60%	-	60%	Production and sale of steam turbine 汽輪機的生產與銷售
Yantai Longyuan Power Technology Co., Ltd. (Note (ii)) 煙台龍源電力技術股份有限公司(附註(ii))	The PRC 中國	RMB513,216,000 人民幣513,216,000	23.25%	23.25%	-	Production and sale of thermal energy equipment 熱能設備的生產與銷售
Guodian Longyuan Technologies USA Corporation (Note (i))(附註(i))	United States 美國	USD2,000,000 美元2,000,000	23.25%	-	100%	Production and sale of igniters and other electric equipment 點火器及其他電氣設備的生產與銷售
Beijing Huadian Tianren Power Controlling Technology Co., Ltd. 北京華電天仁電力控制技術有限公司	The PRC 中國	RMB143,823,113 人民幣143,823,113	90%	90%	-	Production and sale of variable-pitch control system for wind turbine 風力發電機組變漿控制系統
Guodian Longyuan Electrical Co., Ltd. 國電龍源電氣有限公司	The PRC 中國	RMB134,932,900 人民幣134,932,900	100%	100%	-	Production and sale of wind turbine components 風力機的生產與銷售
Beijing Guodian Zhishen Control Technology Co., Ltd. 北京國電智深控制技術有限公司	The PRC 中國	RMB53,900,000 人民幣53,900,000	53.15%	53.15%	-	Production and sale of electric power related products 電力及相關產品的生產及銷售
Beijing Guodian Technology New Energy and Technology Co., Ltd. 北京國電科環新能源科技有限公司	The PRC 中國	RMB1,000,000 人民幣1,000,000	100%	100%	-	Research and development of technology 技術研發
Beijing Guodian Lantian Energy Saving Science and Technology Development Co., Ltd. 北京國電藍天節能科技開發有限公司	The PRC 中國	RMB30,000,000 人民幣30,000,000	100%	-	100%	Provision of energy conservation engineering services 環保設備的生產與銷售



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 18 INVESTMENTS IN SUBSIDIARIES (CONTINUED)

Notes:

- (i) Except for Guodian Technology & Environment Group Hong Kong Corporation Limited and Guodian Longyuan Technologies USA Corporation, the English translation of the names of other entities is for identification only. The official names of these entities are in Chinese.
- (ii) The Company is the biggest equity owner of this company and no other equity owners individually or in the aggregate had the power to control this company according to the AOA. Historically, the Company controlled the operation of this company by appointing senior management, approving annual budget and determining the remuneration of employees, etc. The Company has agreements with certain shareholders of this company, whereby such equity owners have agreed to vote in concert with the Company since the establishment of this company. The PRC lawyer of the Company confirmed that these agreements are valid under relevant PRC laws. Considering the above mentioned factors, the directors are of the opinion that the Company controlled this company during the years presented.
- (iii) The following table lists out the information relating to subsidiaries of the Group which have material non-controlling interests ("NCI"). The summarised financial information presented below presents the amounts before any inter-company elimination.

### 18 對附屬公司的投資(續)

附註：

- (i) 除Guodian Technology & Environment Group Hong Kong Corporation Limited, Guodian Longyuan Technologies USA Corporation的英文名稱之外，其餘英文名稱僅用於識別之用，該等公司的正式名稱為中文名稱。
- (ii) 本公司是該公司最大的權益所有者，根據該公司的公司章程，不存在個別地或集體地有能力控制該公司的其他權益所有者。在該公司歷史上，本公司通過任命高級管理人員、年度預算審批及確定僱員薪酬等，一直對該公司的經營享有控制權。自該公司成立以來，本公司與該公司的若干股東簽訂了協定，根據協定規定，此等股東同意與本公司投出一致的投票。本公司的中國律師確認，此等協議在中國法律項下具有效力。鑒於上述因素，董事們認為，在報告年限內，本公司對該公司具有控制權。
- (iii) 下表對本集團重大非控股權益的附屬公司相關資訊進行了列明。下表列明的概要財務資訊為公司間賬項抵銷前的金額。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 18 INVESTMENTS IN SUBSIDIARIES (CONTINUED)

#### 18 對附屬公司的投資(續)

		Guodian United Power Technology Co., Ltd. (Note) 國電聯合動力技術有限公司(附註)		Yantai Longyuan Power Technology Co., Ltd. 煙台龍源電力技術股份有限公司		Hanchuan Longyuan Boqi Environmental Technology Co., Ltd. 漢川龍源博奇環保科技有限公司	
		2018	2017	2018	2017	2018	2017
			(Note)		(Note)		(Note)
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
NCI percentage	非控股權益比例	30.00%	30.00%	76.75%	76.75%	30.00%	30.00%
Current assets	流動資產	8,976,490	9,726,808	2,088,450	2,167,066	108,459	83,274
Non-current assets	非流動資產	3,471,244	3,064,406	231,821	244,542	378,722	413,840
Current liabilities	流動負債	(8,208,610)	(8,306,241)	(350,026)	(455,911)	(230,603)	(238,146)
Non-current liabilities	非流動負債	(1,339,496)	(1,336,038)	(16,968)	(18,503)	(16,000)	(26,000)
Net assets	資產淨額	2,899,628	3,148,935	1,953,277	1,937,194	240,578	232,968
Carrying amount of NCI	非控股權益帳面金額	815,598	960,319	1,497,909	1,462,780	72,173	69,890
Revenue	收入	3,511,759	4,424,818	455,967	586,825	248,997	211,270
(Loss)/profit and total comprehensive income for the year	本年度(虧損)/利潤與綜合收益總額	(127,569)	6,071	25,325	14,321	102,691	102,691
(Loss)/profit allocated to NCI	分配予非控股權益的(虧損)/利潤	(48,905)	2,407	18,006	10,092	30,807	30,807
Dividend paid to NCI	支付予非控股權益的股息	7,500	-	-	-	-	-
Cash in/(out) flows from operating activities	經營活動的現金流入/(出)	164,678	(402,209)	83,297	(74,875)	191,072	153,308
Cash (out)/in flows from investing activities	投資活動的現金流(出)/入	(44,609)	335,567	25,307	582,058	(12,450)	(45,793)
Cash (out)/in flows from financing activities	融資活動的現金流(出)/入	(163,971)	(85,663)	-	-	(142,822)	(74,749)

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

Note:

The summarised financial information presents consolidated financial information of Guodian United Power Technology Co., Ltd.

附註：本集團已於2018年1月1日初步應用國際財務報告準則第15號及國際財務報告準則第9號。根據所選擇的過渡方法，比較資訊並無因首次應用而進行重述(見附註2(c))。

附註：

以上財務資訊包含了國電聯合動力技術有限公司的合併財務資訊。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 19 INTERESTS IN ASSOCIATES

### 19 對聯營公司投資

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
Share of net assets	應佔資產淨值	395,482	418,752
Amounts due from associates	聯營公司之欠款	1,200	1,200
		<b>396,682</b>	419,952

The following list contains only the particulars of material associates, all of which are unlisted corporate entities whose quoted market price is not available and established in the PRC, which principally affected the results or assets of the Group as at 31 December 2018:

下表僅列出了對本集團2018年12月31日的業績或資產具有主要影響的重大聯營公司的詳情，所有這些公司均為沒有市場報價的未掛牌上市公司，並成立於中國：

Name of the company 公司名稱	Place of establishment/ incorporation 成立地	Issued and fully paid-up capital 已發行且全部 繳足的資本	Group's effective interest 集團的有 效權益	Proportion of ownership interest 所有者權益比例		
				Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	Principal activities 主營業務
Guizhou Longyuan Wongfu Environment Technology Co., Ltd. ("Guizhou Longyuan") (Note (ii)) 貴州龍源壹福環保科技有限公司(貴州龍源)(附註(ii))	The PRC 中國	RMB250,000,000 人民幣250,000,000	55%	-	55%	Operation of environmental protection facilities 環保設施運行
Guodian Longyuan Environmental Taizhou Co, Ltd. ("Longyuan Taizhou") 國電龍源環保泰州有限公司(龍源泰州)	The PRC 中國	RMB180,000,000 人民幣180,000,000	45%	-	45%	Operation of environmental protection facilities 環保設施運行

Notes:

附註：

- (i) The English translation of the names is for identification only. The official names of these entities are in Chinese.
- (ii) According to the AOA of Guizhou Longyuan, the resolutions in relation to material financial and operating decisions have to be passed by three-fourth of directors. As the Company only has rights to appoint fewer than three-fourth of directors of Guizhou Longyuan, the Company does not have power to control the financial and operating policies of Guizhou Longyuan although the Company owns more than half of equity interests and voting power in Guizhou Longyuan.

- (i) 英文名稱僅用於識別之用，這些公司的正式名稱均為中文名稱。
- (ii) 根據貴州龍源的公司章程，有關重大財務和經營決策的決議必須由四分之三的董事通過。雖然本公司擁有貴州龍源一半以上股權和表決權，但由於本公司僅有權委任貴州龍源不足四分之三的董事，故本公司對貴州龍源重大財務和經營政策無控制權。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 19 INTERESTS IN ASSOCIATES (CONTINUED)

Summarised financial information of the material associates, adjusted for any differences in accounting policies, and reconciled to the carrying amounts in the consolidated financial statements, are disclosed below:

#### 19 對聯營公司的投資(續)

重大聯營公司的概要財務資訊(已因應會計政策的差異進行了調整，並調節至合併財務報表的帳面金額)披露如下：

		Guizhou Longyuan Wengfu Environment Technology Co., Ltd. 貴州龍源羣福環保科技有限公司		Guodian Longyuan Environmental Taizhou Co., Ltd. 國電龍源環保泰州有限公司	
		2018	2017	2018	2017
		RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元
<b>Gross amounts of the associates:</b>	<b>聯營公司總額：</b>				
Current assets	流動資產	131,488	179,511	71,795	116,351
Non-current assets	非流動資產	445,357	463,825	553,705	605,685
Current liabilities	流動負債	(1,495,649)	(1,449,500)	(112,959)	(54,723)
Non-current liabilities	非流動負債	–	–	(43,999)	(165,261)
Equity	權益	(918,804)	(806,164)	468,542	502,052
Revenue	收入	360	8,102	399,049	445,635
(Loss)/profit and total comprehensive income for the year	本年度(虧損)/利潤與綜合收益總額	(112,640)	(572,859)	152,716	206,919
Dividend received from the associates	已收聯營公司之股息	–	–	83,802	80,389
<b>Reconciled to the Group's interests in the associates:</b>	<b>調節至本集團對聯營公司的投資：</b>				
Gross amounts of net assets of the associates	聯營公司淨資產總額	(918,804)	(806,164)	468,542	502,052
Group's effective interest	本集團實際權益	55%	55%	45%	45%
Group's share of net (liabilities)/assets of the associates	本集團應佔聯營公司淨(負債)/淨資產	(505,342)	(443,390)	210,844	225,923
Unrecognised share of losses	未確認的虧損	505,342	443,390	–	–
Elimination of unrealised profits on downstream sales	順流交易未實現利潤的抵銷	–	–	(9,747)	(8,845)
Carrying amount in the consolidated financial statements	於合併財務報表的帳面金額	–	–	201,097	217,078

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 19 INTERESTS IN ASSOCIATES (CONTINUED)

Aggregate information of associates that are not individually material:

### 19 對聯營公司的投資(續)

個別非重大聯營公司合計金額資訊：

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Aggregate carrying amount of individually immaterial associates in the consolidated financial statements	在合併財務報表中個別非重大聯營公司的合計帳面金額	<b>194,386</b>	201,673
Aggregate amounts of the Group's share of those associates loss and total comprehensive income	本集團應佔此等聯營公司的合計金額虧損	<b>(7,289)</b>	(6,380)

Four associates of the Group are loss making and the Group's share of the accumulated losses of those associates has exceeded its interest in the associates. In accordance with the accounting policy set out in Note 2(f), the Group discontinued to recognise its share of losses of the associates. The current year unrecognised share of losses of associates equals or exceeds its interest in the associates is RMB61,952,000 (2017: RMB474,080,000). The accumulated unrecognised share of losses of associates as at the end of the reporting period is RMB864,339,000 (2017: RMB802,387,000).

本集團四家聯營公司目前處於虧損狀態，本集團應佔該聯營公司的累積虧損已超過本集團對該聯營公司的投資。根據附註2(f)中列明的會計政策，本集團已不再確認其在該聯營公司中的虧損份額。本年度對該聯營公司的未確認虧損份額超過或等於對該聯營公司的投資的金額為人民幣61,952,000元(2017年：人民幣474,080,000元)。於報告期末累計對該聯營公司的未確認虧損份額為人民幣864,339,000元(2017年：人民幣802,387,000元)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 20 OTHER EQUITY INVESTMENTS

#### 20 其他權益投資

		<b>31 December 2018</b>	1 January 2018	31 December 2017
		<b>2018年 12月31日</b>	2018年 1月1日	2017年 12月31日
		<b>RMB'000</b>	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元
<b>Equity securities designated at FVOCI (non-recycling) (Note (i))</b>	使用公允價值計量且其變動計入其他綜合收益的權益證券投資(不重新計入) (附註(i))			
Listed equity securities	上市權益證券	<b>607,198</b>	-	-
Unlisted equity securities (Note (ii))	非上市權益證券 (附註(ii))	<b>251,217</b>	173,669	-
		<b>858,415</b>	173,669	-
<b>Available-for-sale financial assets</b>	可供出售金融資產			
Unlisted equity securities (Note (ii))	非上市權益證券 (附註(ii))	-	-	162,187
		<b>858,415</b>	173,669	162,187

Notes:

- (i) The Group designated its investments in equity securities at FVOCI (non-recycling), as the investments are held for strategic purposes.
- (ii) Equity securities were designated at FVOCI (non-recycling) upon the initial application of IFRS 9 at 1 January (see Note 2(c)(i)).

附註：

- (i) 因其投資乃策略性持有，本集團指定其權益性投資使用公允價值計量且其變動計入其他綜合收益(不重新計入)。
- (ii) 在1月1日首次適用國際財務報告準則第9號時(見附註2(c)(i))，股權證券被指定適用公允價值計量且其變動計入其他綜合收益(不重新計入)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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#### 21 OTHER NON-CURRENT ASSETS

#### 21 其他非流動資產

		31 December 2018 2018年12月31日 RMB'000 人民幣千元	1 January 2018 2018年1月1日 RMB'000 人民幣千元	31 December 2017 2017年12月31日 RMB'000 人民幣千元
Long-term trade receivables due from: (Note (i))	長期應收賬款(附註(i)):			
- related parties under China Energy (Note (ix))	- 國家能源集團下屬關聯方(附註(ix))	281,149	454,750	454,750
- third parties	- 第三方	106,468	109,451	109,451
Less: current portion of long-term trade receivables	減: 長期應收款的即期部分	(181,666)	(168,295)	(168,295)
		<b>205,951</b>	395,906	395,906
Long-term service concession receivables due from third parties (Note (ii))	應收第三方服務特許權長期應收款項(附註(ii))	1,113,234	1,114,173	1,114,173
Less: current portion of long-term service concession receivables	減: 服務特許權長期應收款項的即期部分	(55,475)	(49,475)	(49,475)
		<b>1,057,759</b>	1,064,698	1,064,698
Long-term receivables from third parties (Note (iii))	長期應收第三方款項(附註(iii))	983,428	385,714	385,714
Less: current portion of long-term advance	減: 長期應收第三方款項即期部分	(245,714)	(110,019)	(110,019)
		<b>737,714</b>	275,695	275,695
Long-term retention receivables due from: (Note (iv))	長期應收質保金款項(附註(iv))			
- related parties under China Energy (Note (ix))	- 國家能源集團下屬的關聯方(附註(ix))	641,697	606,434	606,434
- third parties	- 第三方	1,026,200	1,039,992	1,039,992
		<b>1,667,897</b>	1,646,426	1,646,426
Long-term loan to a third party (Note (v))	提供給第三方的長期貸款(附註(v))	14,926	14,926	14,926
Non-current financial assets	非流動金融資產	3,684,247	3,397,651	3,397,651
Long-term prepayments	長期預付款	3,062	4,777	4,777
Deductible VAT (Note (vi))	可抵扣增值稅(附註(vi))	139,820	74,853	74,853
		<b>3,827,129</b>	3,477,281	3,477,281
Less: loss allowance (Note (x))	減: 壞賬準備(附註(x))	(473,518)	(180,371)	(171,175)
		<b>3,353,611</b>	3,296,910	3,306,106

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 21 OTHER NON-CURRENT ASSETS (CONTINUED)

Notes:

- (i) Long-term trade receivables represent trade receivables of certain construction contracts which are repayable by instalments over a 3 to 8 years period.
- (ii) Long-term service concession receivables due from third parties represent the amounts contractually and unconditionally receivables in connection with construction services under concession arrangements (Note 41).
- (iii) The balances represented:
  - Receivables from a former associate, disposed during the year ended 31 December 2018. The receivables are interest-free and repayable before 2023; and
  - Receivables from a former subsidiary, disposed during the year ended 31 December 2017. The receivables are interest-free and repayable before 2020.
- (iv) Long-term retention receivables represent retentions of sales of wind turbines which will be received when the retention period elapses.
- (v) Long-term loan to a third party represents an unsecured interest-free loan to a third party which is repayable by instalments from 2018 to 2034.
- (vi) Deductible VAT represents the input VAT in excess of output VAT. Input VAT is recognised for the purchase of manufacturing raw materials and components and acquisitions of machinery and equipment used for operation. Input VAT will be deductible from output VAT payable for goods to be sold in subsequent years.
- (vii) All non-current financial assets of the Group are not past due.
- (viii) As at 31 December 2018, long-term service concession receivables of the Group amounting to RMB504,664,000 (2017: RMB540,110,000) and long-term trade receivables of the Group amounting to RMB30,209,000 were pledged as collateral for bank loans (see Note 29).
- (ix) The compared figures represented amounts due from related parties under Guodian.
- (x) Upon the adoption of IFRS 9, an opening adjustment as at 1 January 2018 was made to recognise additional ECLs on long-term trade receivables (see Note 2(c)(i)).

#### 21 其他非流動資產(續)

附註：

- (i) 長期應收賬款指在3-8年期內分期償付的若干建造合同項下的應收賬款。
- (ii) 應收第三方服務特許權長期應收款項指與特許經營安排下的建造服務相關之約定及無條件應收款項(附註41)。
- (iii) 餘額代表：
  - 截至2018年12月31日止年度處置的前附屬公司的應收款項。應收款項為免息，且於2023年前償還；和
  - 截至2017年12月31日止年度處置的前附屬公司的應收款項。應收款項為免息，且2020年前償還。
- (iv) 長期應收質保金款項指質保期滿之後將收回的風力機銷售質保金款項。
- (v) 向第三方提供的長期貸款是指向第三方提供的無擔保無息貸款，可從2018年至2034年分期償還。
- (vi) 可抵扣增值稅指進項增值稅超過銷項增值稅的部分。進項增值稅於購買生產用原材料和部件以及購買經營用機器及設備時確認。進項增值稅可從後續年度出售貨物應支付的銷項增值稅中抵扣。
- (vii) 本集團的所有非流動金融資產均未到期。
- (viii) 於2018年12月31日，本集團的服務特許權長期應收款項約為人民幣504,664,000元(2017：人民幣540,110,000元)。約人民幣30,209,000元的長期應收款已作為銀行借款的抵押物(見附註29)。
- (ix) 比較金額為應收國電下屬關聯方。
- (x) 本集團採用國際財務報告準則第9號，對長期應收賬款2018年1月1日的餘額按照預期信用損失模型補充確認壞賬(見附註2(c)(i))。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 22 INVENTORIES

(a) Inventories in the consolidated statement of financial position comprises:

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
Raw materials	原材料	<b>1,085,010</b>	1,179,231
Work in progress	在產品	<b>846,388</b>	493,186
Finished goods	產成品	<b>1,069,022</b>	1,456,821
Spare parts	備件	<b>16,987</b>	16,176
		<b>3,017,407</b>	3,145,414

(b) The analysis of the amount of inventories recognised as an expense and included in the consolidated statement of profit or loss is as follows:

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
Carrying amount of inventories sold	售出存貨的帳面金額	<b>3,391,708</b>	3,947,993
Write down of inventories	存貨撇減	<b>30,256</b>	1,612
		<b>3,421,964</b>	3,949,605

#### 22 存貨

(a) 合併財務狀況表中的存貨包括：

(b) 在合併損益表中確認為費用的存貨金額如下：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 23 CONTRACT ASSETS/LIABILITIES

#### 23 合同資產／負債

		<b>31 December 2018</b>	1 January 2018	31 December 2017
		<b>2018年12月31日</b>	2018年1月1日	2017年12月31日
		<b>RMB'000</b>	RMB'000	RMB'000
		<b>人民幣千元</b>	人民幣千元	人民幣千元
Contract costs incurred plus recognised profits less recognised losses in connection with construction contracts in progress	在建中建造合同已發生合同成本加已確認利潤減已確認的損失	<b>34,724,511</b>	28,750,847	28,783,474
Less: progress billings	減：工程進度款	<b>(33,691,776)</b>	(28,235,270)	(28,235,270)
		<b>1,032,735</b>	515,577	548,204
Contract assets ( <i>Notes (ii), (iii) and (v)</i> )	合同資產(附註(ii)、(iii)及(v))	<b>1,698,723</b>	1,438,175	1,470,802
Contract liabilities ( <i>Note (iv)</i> )	合同負債(附註(iv))	<b>(665,988)</b>	(922,598)	(922,598)
		<b>1,032,735</b>	515,577	548,204
Less: loss allowance ( <i>Note (vi)</i> )	減：壞賬準備(附註(vi))	<b>(179,959)</b>	(152,276)	(146,545)
		<b>852,776</b>	363,301	401,659

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 23 CONTRACT ASSETS/LIABILITIES (CONTINUED)

Notes:

- (i) Contract assets represent unbilled revenue for construction contract work and are presented as assets in the consolidated statement of financial position. Contract liabilities represent the amounts billed in advance of the construction contract work delivered and are presented as liabilities in the consolidated statement of financial position.
- (ii) The contract assets of the Group include amounts of RMB1,003,854,000 due from related parties under China Energy and associates (2017: RMB809,042,000 due from related parties under Guodian and an associate).
- (iii) As at 31 December 2018, except for amounts of RMB58,970,000 (2017: RMB77,897,000) which are payable to the Group after the retention period of construction contracts, all of the remaining contract assets of the Group are expected to be recovered within one year.
- (iv) Included in the contract liabilities are amounts of RMB350,926,000 due to related parties under China Energy and associates (2017: RMB603,916,000 due to related parties under Guodian and associates).
- (v) Upon the adoption of IFRS 15, an opening adjustment as at 1 January 2018 was made to reflect the effect of change in timing of revenue recognition (see Note 2(c)(ii)).
- (vi) Upon the adoption of IFRS 9, an opening adjustment as at 1 January 2018 was made to recognise additional ECLs on contract assets (see Note 2(c)(i)).
- (vii) Upon the adoption of IFRS 15, "Gross amounts due from customers for contract work" and "Gross amounts due to customers for contract work" were renamed to "Contract assets" and "Contract liabilities" at 1 January 2018 respectively.

### 23 合同資產／負債(續)

附註：

- (i) 合同資產指建造合同工程項下未發帳單的收入，在合併財務狀況表列為資產。合同負債指已發帳單金額多於已完成建造工程的金額，在合併財務狀況表內列為負債。
- (ii) 本集團合同資產包括應從國家能源集團下屬的關聯方及聯營公司收取的款額約為人民幣1,003,854,000元(2017年：人民幣809,042,000元應從國電集團下屬的關聯方及聯營公司收取)。
- (iii) 於2018年12月31日，除建造合同項下的質保期滿之後應付給本集團的約為人民幣58,970,000元(2017年：人民幣77,897,000元)之外，本集團合同資產的所有剩餘賬款，預計將在一年之內收回。
- (iv) 包括在合同負債之內的應支付給國家能源集團下屬的關聯方及聯營公司的款項約為人民幣350,926,000元(2017年：人民幣603,916,000元應支付給國電集團下屬的關聯方及聯營公司)。
- (v) 本集團採用國際財務報告準則第15號，對2018年1月1日的餘額調整以反映收入確認試點的變化所帶來的影響(見附註2(c)(ii))。
- (vi) 本集團採用國際財務報告準則第9號，對合同資產2018年1月1日的餘額按照預期信用損失模型補充確認壞賬(見附註2(c)(i))。
- (vii) 採用國際財務報告準則第15號後，「應收客戶合同工程款總額」及「應付客戶合同工程款總額」於2018年1月1日分別更名為「合同資產」及「合同負債」。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)

(除非另有說明，以人民幣列示)

#### 24 TRADE AND BILLS RECEIVABLES

#### 24 應收賬款及票據

		31 December 2018 2018年12月31日 RMB'000 人民幣千元	1 January 2018 2018年1月1日 RMB'000 人民幣千元	31 December 2017 2017年12月31日 RMB'000 人民幣千元
Trade receivables for contract work due from:	合同工程的應收賬款：			
– related parties under China Energy (Note (iii))	– 國家能源集團下屬的關聯方(附註(iii))	2,962,972	1,991,821	1,991,821
– associates	– 聯營公司	5,667	14,018	14,018
– third parties	– 第三方	3,122,049	3,005,343	3,005,343
		<b>6,090,688</b>	5,011,182	5,011,182
Bills receivable for contract work due from:	合同工程的應收票據：			
– related parties under China Energy (Note (iii))	– 國家能源集團下屬的關聯方(附註(iii))	821,660	693,548	693,548
– associates	– 聯營公司	8,822	–	–
– third parties	– 第三方	210,197	209,639	209,639
		<b>1,040,679</b>	903,187	903,187
Trade receivables for operating leases due from:	經營租賃的應收賬款：			
– related parties under China Energy (Note (iii))	– 國家能源集團下屬的關聯方(附註(iii))	68,136	76,066	76,066
– associates	– 聯營公司	3,263	–	–
– third parties	– 第三方	8,199	24,576	24,576
		<b>79,598</b>	100,642	100,642
Trade receivables for sale of goods and rendering of services due from:	銷售商品及提供服務的應收賬款：(附註(ii))			
– China Energy (Note (iii))	– 國家能源集團(附註(iii))	1,900	2,908	2,908
– related parties under China Energy (Note (iii))	– 國家能源集團下屬的關聯方(附註(iii))	2,531,606	2,302,395	2,302,395
– associates	– 聯營公司	53,581	38,439	38,439
– third parties	– 第三方	3,618,782	4,676,340	4,676,340
		<b>6,205,869</b>	7,020,082	7,020,082
Bills receivable for sale of goods and rendering of services due from:	銷售商品及提供服務的應收票據：			
– related parties under China Energy (Note (iii))	– 國家能源集團下屬的關聯方(附註(iii))	522,369	800,179	800,179
– associates	– 聯營公司	1,000	–	–
– third parties	– 第三方	629,019	1,023,246	1,023,246
		<b>1,152,388</b>	1,823,425	1,823,425
Less: loss allowance (Note (iv))	減：壞賬撥備(附註(iv))	<b>14,569,222</b> <b>(2,081,805)</b>	14,858,518 (2,131,077)	14,858,518 (2,015,720)
		<b>12,487,417</b>	12,727,441	12,842,798

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 24 TRADE AND BILLS RECEIVABLES (CONTINUED)

Notes:

- (i) Trade and bills receivables of the Group include bills discounted to banks or endorsed to suppliers and factored trade receivables with recourse totalling RMB119,911,000 (2017: RMB253,423,000). These receivables were not derecognised as the Group remains exposed to the credit risk of these receivables. The carrying amount of the associated bank loans and trade payables amounted to RMB119,911,000 (2017: RMB253,423,000). As at 31 December 2018, the fair value of the transferred assets and the associated liabilities is the same as their carrying amount with the net position of RMBNil (2017: RMBNil).
- (ii) As at 31 December 2018, trade receivables of the Group amounting to RMB94,033,000 (2017: RMB84,110,000) were pledged as collateral for interest-bearing bank loans and other borrowings (see Note 29).
- (iii) The compared figures represented amounts due from Guodian and related parties under Guodian.
- (iv) Upon the adoption of IFRS 9, an opening adjustment as at 1 January 2018 was made to recognise additional ECLs on trade and bills receivables (see Note 2(c)(i)).

All trade and bills receivables (net of loss allowance) of the Group are expected to be recovered within one year.

### 24 應收賬款及票據(續)

附註：

- (i) 本集團的應收賬款及票據包括貼現給銀行或背書轉讓給供應商的票據，以及帶追索權的應收賬款保理，總額約為人民幣119,911,000元(2017年：人民幣253,423,000元)。這些應收賬款和票據未被中止確認，因為本集團仍對這些應收賬款和票據具有信用風險。相關銀行貸款及應付帳款的帳面金額約為人民幣119,911,000元(2017年：人民幣253,423,000元)。於2018年12月31日，轉讓資產的公允價值及關聯負債與其帳面金額相同，淨差額為人民幣零元(2017年：人民幣零元)。
- (ii) 於2018年12月31日，本集團作為帶息銀行及其他借款押物而質押的應收賬款約為人民幣94,033,000元(2017年：人民幣84,110,000元)(見附註29)。
- (iii) 對比資料為國電及國電下屬關聯方相關的金額。
- (iv) 本集團採用國際財務報告準則第9號，對應收賬款與票據2018年1月1日的餘額按照預期信用損失模型補充確認壞賬(見附註2(c)(i))。

本集團所有應收賬款與票據(扣除壞賬撥備)預計將於一年之內收回。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 24 TRADE AND BILLS RECEIVABLES (CONTINUED) 24 應收賬款及票據(續)

##### (a) Ageing analysis

As of the end of the reporting period, the ageing analysis of trade and bills receivables, based on invoice date (or date of revenue recognition, if earlier) and net of loss allowance of the Group is as follows:

		2018	2017
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
Within 1 year	1年內	7,492,657	8,554,641
Between 1 to 2 years	1至2年內	2,996,401	2,156,939
Between 2 to 3 years	2至3年內	922,804	1,862,106
Over 3 years	3年以上	1,075,555	269,112
		<b>12,487,417</b>	12,842,798

Trade receivables are required to be settled in accordance with contracted terms and are generally due immediately without credit upon the issuance of invoice. Further details on the Group's credit policy and credit risk arising from trade debtors are set out in Note 37(a).

*Note:* The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, the comparative information is not restated due to the initial application (see Note 2(c)).

##### (a) 賬齡分析

於報告期末，本集團基於開立發票日期(或收入確認日，兩者孰早)的應收賬款及票據(扣除壞賬撥備)的賬齡分析如下：

應收賬款按照合同條款支付，一般不設信用限期並於出具發票當日立即到期。關於本集團信用政策和銷售客戶的信用風險的詳細說明，見附註37(a)。

*附註：* 本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 25 DEPOSITS, PREPAYMENTS AND OTHER RECEIVABLES      25 按金、預付款項及其他應收款項

		31 December 2018 2018年 12月31日 RMB'000 人民幣千元	1 January 2018 2018年 1月1日 RMB'000 人民幣千元	31 December 2017 2017年 12月31日 RMB'000 人民幣千元
Deposits for construction contracts' bidding or performance (Note (ii))	建造合同的投標或履約保證金 (附註(ii))			
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	61,094	47,987	47,987
– third parties	– 第三方	95,396	71,113	71,113
Other deposits	其他按金	4,184	4,442	4,442
Advances to staff	給員工的墊款	11,983	10,683	10,683
Advances to	墊款			
– associates (Note (iii))	– 聯營公司(附註(iii))	18,411	230,877	230,877
– third parties	– 第三方	127,522	261,006	261,006
Consideration receivables for the disposals of subsidiaries from	應收處置附屬公司及聯營公司的對價			
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	266,264	266,264	266,264
– a third party	– 第三方	96,401	96,401	96,401
Consideration receivables for the disposals of property, plant and equipment	應收出售物業、廠房及設備的款項			
– an associate	– 聯營公司	373,259	381,260	381,260
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	189,952	189,952	189,952
Interest receivables	應收利息自			
– associates	– 聯營公司	113,741	117,184	117,184
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	–	19,836	19,836
Dividends receivables	應收股息自			
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	17,298	4,500	4,500
Current portion of other non-current assets (Note 21(iii))	其他非流動資產的即期部分 (附註21(iii))	245,714	110,019	110,019
Others	其他	203,170	84,234	84,234
		<b>1,824,389</b>	1,895,758	1,895,758
Less: loss allowance (Note (v))	減：壞賬撥備(附註(v))	<b>(771,059)</b>	(810,726)	(777,916)
Financial assets measured at amortised cost	以攤餘成本計量的金融資產	<b>1,053,330</b>	1,085,032	1,117,842
Prepayments to sub-contractors (Note (iv))	支付給分包商的預付款(附註(iv))			
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	44,400	40,114	40,114
– third parties	– 第三方	528,826	722,787	722,787
Prepayments for purchase of inventories	採購存貨的預付款			
– related parties under China Energy (Note (i))	– 國家能源集團下屬的關聯方 (附註(i))	5,427	144	144
– third parties	– 第三方	68,844	120,311	120,311
		<b>1,700,827</b>	1,968,388	2,001,198



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 25 DEPOSITS, PREPAYMENTS AND OTHER RECEIVABLES (CONTINUED)

Notes:

- (i) The compared figures represented amounts due from related parties under Guodian.
- (ii) The balances represent deposits placed with customers for contracts bidding or performance of contracts in progress. The deposits will be released to the Group upon the completion of the related bidding or contract work, where applicable.
- (iii) Advances to an associate of RMB18,353,000 (2017: RMB17,504,000) as at 31 December 2018 are unsecured, bear interest rates from 4.80% to 6.60% (2017: from 4.80% to 6.60%) per annum, and are repayable within one year.

All other advances to associates are unsecured, interest-free and repayable on demand.

- (iv) The balances represent prepayments to the sub-contractors in connection with the Group's construction contracts. The prepayments will be settled upon the delivery of goods and services by the sub-contractors.
- (v) Upon the adoption of IFRS 9, an opening adjustment as at 1 January 2018 was made to recognise additional ECLs on other receivables (see Note 2(c)(i)).

#### 25 按金、預付款項及其他應收款項(續)

附註：

- (i) 對比資料為國電下屬關聯方相關的金額。
- (ii) 該款項是關於合同投標或合同履約而支付給客戶的保證金。相關投標或合同工程完工之後，該保證金則將返還給本集團。
- (iii) 於2018年12月31日，給聯營公司的墊款約為人民幣18,353,000元(2017年：人民幣17,504,000元)，年息率為4.80%至6.60%(2017年：4.80%至6.60%)，無抵押，要求在一年內償還。

除此之外，所有其他給聯營公司的墊款均無抵押、不帶息且提出要求之後即應立即還款。

- (iv) 該款項是關於集團建造合同支付分包商的預付款項。預付款將在分包商交付貨物和提供服務時結算。
- (v) 本集團採用國際財務報告準則第9號，對其他應收賬款2018年1月1日的餘額按照預期信用損失模型補充確認壞賬(見附註2(c)(i))。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 26 RESTRICTED DEPOSITS

Restricted deposits mainly represent guarantee deposits, cash pledged as collateral for bills payable and loans and blocked deposits. All of deposits are expected to be released within one year.

### 26 受限制存款

受限制存款主要為保證金存款、應付票據和貸款的抵押現金以及凍結存款。所有受限制存款預計會在一年內解除限制。

### 27 CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION

#### (a) Cash and cash equivalents comprise:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Cash in hand	庫存現金	–	55
Cash at bank	銀行存款	<b>292,285</b>	392,637
Cash at related parties under China Energy (Note)	於國家能源集團下屬的關聯方存放的現金(附註)	<b>3,144,174</b>	3,912,382
		<b>3,436,459</b>	4,305,074
Representing:	包括：		
– cash and cash equivalents	– 現金及現金等價物	<b>3,436,459</b>	3,994,074
– deposits with banks over three months of original maturity	– 初始到期日三個月以上的銀行存款	–	311,000
		<b>3,436,459</b>	4,305,074

Note: The compared figures represented balances at related parties under Guodian.

#### (a) 現金及現金等價物組成

附註：對比資料為國電下屬關聯方相關的金額。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 27 CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION (CONTINUED)

#### 27 銀行存款、庫存現金及其他現金流量信息(續)

##### (b) Reconciliation of liabilities arising from financing activities

##### (b) 融資活動產生負債調節表

		Bank loans, other borrowings and interest payables 銀行貸款、 其他借款及 應付利息 RMB'000 人民幣千元 (Notes 29 and 31) (附註29及31)	Private placement notes 私人配售 債務融資工具 RMB'000 人民幣千元 (Note 29) (附註29)	Corporate bonds 公司債券 RMB'000 人民幣千元 (Note 29) (附註29)	Total 總計 RMB'000 人民幣千元
<b>At 1 January 2018</b>	<b>於2018年1月1日</b>	<b>7,283,944</b>	<b>2,448,470</b>	<b>2,035,361</b>	<b>11,767,775</b>
<b>Changes from financing cash flows:</b>	<b>融資現金流變化：</b>				
Proceeds from bank loans and other borrowings	銀行貸款及其他借款所得	9,879,000	-	-	9,879,000
Proceeds from issuance of private placement notes	發行私人配售債務融資工具所得	-	1,000,000	-	1,000,000
Repayment of bank loans and other borrowings	償還銀行貸款及其他借款	(9,908,876)	-	-	(9,908,876)
Repayment of private placement notes	償還私人配售債務融資工具	-	(1,000,000)	-	(1,000,000)
Interest paid	支付利息	(373,982)	(104,994)	(103,000)	(581,976)
Total changes from financing cash flows	融資現金流變化總計	(403,858)	(104,994)	(103,000)	(611,852)
<b>Other changes:</b>	<b>其他費用：</b>				
Interest expenses (Note 6)	利息支出(附註6)	371,164	110,182	103,432	584,778
Capitalised borrowing costs (Note 6)	資本化貸款成本(附註6)	2,757	-	-	2,757
Total other changes	其他費用總計	373,921	110,182	103,432	587,535
<b>At 31 December 2018</b>	<b>於2018年12月31日</b>	<b>7,254,007</b>	<b>2,453,658</b>	<b>2,035,793</b>	<b>11,743,458</b>

Note: Bank loans, other borrowings and interest payables consist of bank loans, other loans from financial institutions, China Energy and related parties under China Energy and interest payables as disclosed in Notes 29 and 31.

附註：銀行貸款、其他借款和應付利息包括銀行貸款，來自金融機構的其他貸款，來自國家能源集團及國家能源集團下屬關聯方的其他貸款和應付利息，見附註29和31。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 27 CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION (CONTINUED)

### 27 銀行存款、庫存現金及其他現金流量資訊(續)

#### (b) Reconciliation of liabilities arising from financing activities (Continued)

#### (b) 融資活動產生負債調節表(續)

		Bank loans, other borrowings and interest payables 銀行貸款、 其他借款及 應付利息 RMB'000 人民幣千元 (Notes 29 and 31) (附註29及31)	Private placement notes 私人配售債務 融資工具 RMB'000 人民幣千元 (Note 29) (附註29)	Corporate bonds 公司債券 RMB'000 人民幣千元 (Note 29) (附註29)	Total 總計 RMB'000 人民幣千元
<b>At 1 January 2017</b>	<b>於2017年1月1日</b>	8,330,621	2,441,370	2,843,245	13,615,236
<b>Changes from financing cash flows:</b>	<b>融資現金流變化：</b>				
Proceeds from bank loans and other borrowings	銀行貸款及其他借款所得	8,248,231	-	-	8,248,231
Repayment of bank loans and other borrowings	償還銀行貸款及其他借款	(9,288,100)	-	-	(9,288,100)
Repayment of corporate bonds	償還公司債券	-	-	(800,000)	(800,000)
Interest paid	支付利息	(340,224)	(103,700)	(140,200)	(584,124)
<b>Total changes from financing cash flows</b>	<b>融資現金流變化總計</b>	<b>(1,380,093)</b>	<b>(103,700)</b>	<b>(940,200)</b>	<b>(2,423,993)</b>
<b>Other changes:</b>	<b>其他費用：</b>				
Interest expenses (Note 6)	利息支出(附註6)	327,579	110,800	132,316	570,695
Capitalised borrowing costs (Note 6)	資本化貸款成本(附註6)	2,718	-	-	2,718
Disposal of a subsidiary	處置附屬公司	3,119	-	-	3,119
<b>Total other changes</b>	<b>其他費用總計</b>	<b>333,416</b>	<b>110,800</b>	<b>132,316</b>	<b>576,532</b>
<b>At 31 December 2017</b>	<b>於2017年12月31日</b>	<b>7,283,944</b>	<b>2,448,470</b>	<b>2,035,361</b>	<b>11,767,775</b>

Note: Bank loans, other borrowings and interest payables consist of bank loans, other loans from financial institutions, Guodian and a related party under Guodian and interest payables as disclosed in Notes 29 and 31.

附註：銀行貸款、其他借款和應付利息包括銀行貸款，來自金融機構的其他貸款，來自國電及國電下屬關聯方的其他貸款和應付利息，見附註29和31。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 28 NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE

##### (a) Assets and liabilities of non-current assets and disposal groups held for sale

At 31 December 2018, the non-current assets and disposal groups held for sale were stated at the lower of carrying amount and fair value less costs to sell, comprising the following assets and liabilities:

		2018 <b>RMB'000</b> 人民幣千元	2017 RMB'000 人民幣千元
Property, plant and equipment	物業、廠房及設備	<b>9,623</b>	500,699
Lease prepayments	預付租賃款項	-	224,112
Other non-current assets	其他非流動資產	-	74,949
Trade and other receivables	應收及其他應收款項	-	31,957
Other current assets	其他流動資產	<b>1,684</b>	2,458
Less: inter-company receivables eliminated in the consolidated financial statements	減：於綜合財務報表中對銷的公司間應收款項	-	(21,716)
<b>Assets held for sale</b>	<b>持有待售之資產</b>	<b>11,307</b>	812,459
Trade and other payables	應付及其他應付款項	-	62,320
Other non-current liabilities	其他非流動負債	-	10,284
Less: inter-company payables eliminated in the consolidated financial statements	減：於綜合財務報表中對銷的公司間應付款項	-	(1,925)
<b>Liabilities held for sale</b>	<b>持有待售之負債</b>	<b>-</b>	70,679
<b>Net assets held for sale</b>	<b>持有待售之淨資產</b>	<b>11,307</b>	741,780

#### 28 劃分為持有待售的非流動資產和處置組

##### (a) 劃分為持有待售的非流動資產和處置組的資產和負債

於2018年12月31日，劃分為持有待售的非流動資產和處置組以帳面金額和公允價值減去出售成本兩者中的孰低者確認，由以下資產及負債組成：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 28 NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE (CONTINUED)

#### 28 劃分為持有待售的非流動資產和處置組(續)

(b) The movements of assets and liabilities of non-current assets and disposal groups held for sale during the year are as follows:

(b) 本年持有待售非流動資產和處置組資產及負債的變動如下顯示：

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Assets</b>			
	<b>資產</b>		
As at 1 January	於1月1日	812,459	2,699,889
Transfer into assets held for sale during the year	轉入持有待售資產	11,307	34,613
Net decrease after reclassified as assets held for sale	重分類至持有待售後的淨減少	-	(22,997)
Decrease through disposals of subsidiaries and associates (Note 42(i))	出售附屬公司和聯營公司所產生的損失(附註42(i))	(812,459)	(1,881,078)
Impairment loss	減值損失	-	(17,968)
As at 31 December	於12月31日	11,307	812,459
<b>Liabilities</b>			
	<b>負債</b>		
As at 1 January	於1月1日	70,679	1,196,294
Transfer into liabilities held for sale during the year	轉入持有待售負債	-	8,556
Net decrease after reclassified as liabilities held for sale	重分類至持有待售後的淨減少	-	(15,797)
Decrease through disposals of subsidiaries and associates (Note 42(i))	出售附屬公司和聯營公司所產生的損失(附註42(i))	(70,679)	(1,118,374)
As at 31 December	於12月31日	-	70,679

During the year ended 31 December 2018, the Company completed the disposal of 90% of equity interest in Guodian Solar Co., Ltd. ("Guodian Solar") to Tianjin Zhonghuan Semiconductor Co., Ltd. ("Zhonghuan Semiconductor") (see Note 42(i)).

於2018年，本公司完成其對國電光伏有限公司(「國電光伏」)的90%股權出售予天津中環半導體股份有限公司(「中環股份」)(見附註42(i))。

The disposal group was measured at the lower of its carrying value and fair value less costs to sell. The fair value less costs to sell as at 31 December 2018 RMB13,116,000 was determined with reference to the appraised value evaluated by an independent valuer.

以處置組的帳面價值及公允價值減去銷售成本孰低者確認。公允價值參照獨立估值師評估的評估價值確定，於2018年12月31日約為人民幣13,116,000元。

The above non-recurring fair value measurement for the non-current assets and disposal groups classified as held for sale as at 31 December 2018 has been categorised into Level 3 valuations with fair values hierarchy.

上述提及的在2018年12月31日被劃分為非流動資產和持有待售的處置資產的非經常性公允價值的計量被歸類為第三層級的公允價值。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 28 NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE (CONTINUED)

##### (c) Cumulative income or expenses include in other comprehensive income

There are no cumulative income or expenses included in other comprehensive income relating to the above non-current assets and disposal groups held for sale.

#### 28 劃分為持有待售的非流動資產和處置組(續)

##### (c) 計入其他綜合收益的累計收入或費用

本公司並無與此非流動資產和持有待售的處置組相關的計入其他綜合收益的累計收入或費用。

#### 29 BORROWINGS

##### (a) The long-term interest-bearing borrowings comprise:

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
Bank loans	銀行貸款		
– secured ( <i>Note (i)</i> )	– 抵押( <i>附註(i)</i> )	279,500	269,500
– unsecured	– 無抵押	59,200	160,200
Other loans from financial institutions (secured)	來自金融機構的其他貸款(抵押)	360,055	436,432
Other loans from a related party under China Energy (secured) ( <i>Note (iv)</i> )	來自國家能源集團下屬的關聯方的其他貸款(抵押)( <i>附註(iv)</i> )	171,526	186,526
Other loans from related parties under China Energy (unsecured)	來自國家能源集團下屬的關聯方的其他貸款(無抵押)( <i>附註(iv)</i> )	260,000	–
Private placement notes (unsecured) ( <i>Note (iii)</i> )	私人配售債務融資工具(無抵押)( <i>附註(iii)</i> )	2,453,658	2,448,470
Corporate bonds ( <i>Note (ii)</i> )	公司債券( <i>附註(ii)</i> )	2,035,793	2,035,361
		<b>5,619,732</b>	5,536,489
Less: current portion of long-term borrowings	減：長期借款的即期部分	<b>(1,926,414)</b>	(1,482,784)
		<b>3,693,318</b>	4,053,705

#### 29 借款

##### (a) 長期帶息借款包括：

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 29 BORROWINGS (CONTINUED)

#### (a) The long-term interest-bearing borrowings comprise: (Continued)

##### Notes

- (i) Secured long-term interest-bearing borrowings as at 31 December 2018 were secured by concession assets (Note 16), trade and bills receivables (Note 24) and long-term service concession receivables (Note 21).
- (ii) In August 2012, the Company issued corporate bonds of RMB4,000,000,000, which comprise 3-year corporate bonds of RMB1,200,000,000 issued at par and with a coupon rate of 4.30% per annum, 5-year corporate bonds of RMB800,000,000 issued at par and with a coupon rate of 4.65% per annum and 10-year corporate bonds of RMB2,000,000,000 issued at par and with a coupon rate of 5.15% per annum. All corporate bonds are guaranteed by Guodian. The effective interest rates of the bonds are 4.52%, 4.85% and 5.24% per annum respectively. The Company repaid the 3-year corporate bonds of RMB1,200,000,000 in August 2015 and 5-year corporate bonds of RMB800,000,000 in August 2017.
- (iii) In November 2015, the Company issued private placement notes with total face value of RMB1,000,000,000. The coupon and effective interest rate are 4.30% and 4.62% per annum respectively. The private placement notes were repaid during the year ended 31 December 2018.

In 2016, the Company issued two tranches of 3-year private placement notes with face values of RMB1,000,000,000 and RMB400,000,000, respectively. The private placement notes are unsecured and issued at par and with coupon rates of 4.35% and 4.30% per annum, respectively. The effective interest rates of the placement Notes are 4.67% and 4.63% per annum, respectively.

In November 2018, the Company issued 3-year private placement notes with face value of RMB1,000,000,000 issued at par and with a coupon rate of 6% per annum. The effective interest rate of the private placement notes is 6.15%.

- (iv) The compared figures represented loans from a related party under Guodian.

### 29 借款(續)

#### (a) 長期帶息借款包括：(續)

##### 附註：

- (i) 於2018年12月31日，抵押的長期帶息借款為以特許經營權資產(附註16)、應收賬款及票據(附註24)、應收服務特許權長期應收款項(附註21)抵押。
- (ii) 於2012年8月，本公司發行公司債券人民幣4,000,000,000元，包括按面值發行的三年期公司債券人民幣1,200,000,000元，票面年利率為4.30%；按面值發行的五年期公司債券人民幣800,000,000元，票面年利率為4.65%；按面值發行的十年期公司債券人民幣2,000,000,000元，票面年利率為5.15%。所有公司債券由國電擔保。此等債券的實際年利率分別為4.52%、4.85%及5.24%。公司已於2015年8月償還了三年期公司債券人民幣1,200,000,000元，以及於2017年8月償還了五年期公司債券人民幣800,000,000元。
- (iii) 於2015年11月，本公司發行了面值總額為人民幣1,000,000,000元的私人配售債券融資工具。票面年利率和實際年利率分別為4.30%和4.62%。此等私人配售債券融資工具於2018年償還。

於2016年，本公司分別發行了第一期和第二期面值總額分別為人民幣1,000,000,000元和400,000,000元的私人配售債券融資工具。期限為三年，無擔保，並按面值發行。票面利率分別為4.35%和4.30%。此等債券的實際年利率分別為4.67%和4.63%。

於2018年11月，本公司發行了面值總額為人民幣1,000,000,000元，期限為三年的私人配售債券融資工具。票面年利率和實際年利率分別為6%和6.15%。

- (iv) 對比資料為國電下屬關聯方借款相關的金額。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 29 BORROWINGS (CONTINUED)

#### 29 借款(續)

(b) The short-term interest-bearing borrowings comprise:

(b) 短期帶息借款包括：

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
Bank loans	銀行貸款		
– secured	– 抵押	925,000	–
– unsecured	– 無抵押	4,534,000	5,616,500
Other loans	其他貸款		
– China Energy (unsecured) (Note)	– 國家能源集團(無抵押)(附註)	500,000	600,000
– related party under China Energy (unsecured) (Note)	– 國家能源集團附屬(無抵押)(附註)	150,000	–
Current portion of long-term borrowings	長期借款的即期部分	1,926,414	1,482,784
		<b>8,035,414</b>	7,699,284

Note: Other loans from China Energy and a related party under China Energy as at 31 December 2018 are unsecured, bear interest rate 4.35% (2017: loans from Guodian bear interest rates from 3.70% to 4.75%) per annum, and are repayable within one year.

附註：於2018年12月31日從國家能源集團及其附屬公司借入的其他貸款為無抵押貸款，年利率為4.35%（2017年：從國電借入的貸款，年利率為3.70%至4.75%），並於一年內支付。

(c) The interest rates per annum on borrowings are as follows:

(c) 借款年利率如下：

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Long-term</b>	<b>長期</b>		
Bank loans	銀行貸款	4.75%–6.50%	4.51%–5.88%
Other loans	其他貸款	4.51%–5.63%	4.51%–5.51%
Private placement notes	私人配售債務融資工具	4.30%–6.00%	4.30%–4.35%
Corporate bonds	公司債券	4.65%–5.15%	4.65%–5.15%
<b>Short-term</b>	<b>短期</b>		
Bank loans	銀行貸款	4.35%–6.13%	3.85%–5.22%
Other loans	其他貸款	4.35%–4.75%	3.70%–4.75%



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 29 BORROWINGS (CONTINUED)

### 29 借款(續)

(d) The long-term borrowings are repayable as follows:

(d) 長期借款還款情況如下：

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
Within 1 year or on demand	1年內或要求時立即還款	1,926,414	1,482,784
After 1 year but within 2 years	1年以上但2年以內	709,277	1,721,892
After 2 years but within 5 years	2年以上但5年以內	2,976,334	2,321,718
After 5 years	5年以上	7,707	10,095
		<b>5,619,732</b>	5,536,489

### 30 TRADE AND BILLS PAYABLES

### 30 應付帳款及票據

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
Bills payable to:	應付票據：		
– sub-contractors and equipment suppliers	– 分包商及設備供應商	182,649	145,507
– raw material suppliers	– 原材料供應商	1,126,460	1,236,693
		<b>1,309,109</b>	1,382,200
Trade payables to	應付帳款：		
– sub-contractors and equipment suppliers:	– 分包商及設備供應商：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	54,046	34,645
– associates	– 聯營公司	1,038	4,588
– third parties	– 第三方	4,542,167	4,855,724
		<b>4,597,251</b>	4,894,957
– raw material suppliers:	– 原材料供應商：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	29,488	27,564
– associates	– 聯營公司	3,651	8,681
– third parties	– 第三方	3,259,887	3,371,319
		<b>3,293,026</b>	3,407,564
		<b>9,199,386</b>	9,684,721

As at 31 December 2018 and 2017, all trade and bills payables of the Group are repayable on demand except for bills payable which are repayable within 1 year. All trade and bills payables are expected to be settled within one year.

於2018年及2017年12月31日，除於1年內應償還的應付票據之外，本集團的所有應付帳款及票據應在對方要求時立即償還。預計所有應付帳款及票據將在一年之內結清。

Note: The compared figures represented amounts due to related parties under Guodian.

附註： 對比資料為國電下屬關聯方的應付款項。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 31 OTHER PAYABLES

#### 31 其他應付款

		2018 <b>RMB'000</b> 人民幣千元	2017 RMB'000 人民幣千元
Interest payables	應付利息		
– China Energy ( <i>Note (iv)</i> )	– 國家能源集團( <i>附註(iv)</i> )	<b>665</b>	598
– related parties under China Energy ( <i>Note (iv)</i> )	– 國家能源集團下屬的關聯方( <i>附註(iv)</i> )	<b>2,040</b>	1,261
– third parties	– 第三方	<b>12,021</b>	12,927
Payables for staff related costs	應付員工的相關成本	<b>127,211</b>	111,437
Payables for other taxes	應付其他稅項	<b>95,841</b>	205,063
Payables for purchase of property, plant and equipment and lease prepayments	購買物業、廠房及設備以及土地使用權的應付款項		
– related parties under China Energy ( <i>Note (iv)</i> )	– 國家能源集團下屬的關聯方( <i>附註(iv)</i> )	<b>13,492</b>	13,492
– third parties	– 第三方	<b>236,913</b>	230,565
Deposits from	按金		
– sub-contractors ( <i>Note (i)</i> )	– 分包商( <i>附註(i)</i> )	<b>60,394</b>	65,485
Retention payables ( <i>Note (ii)</i> )	應付質保金款項( <i>附註(ii)</i> )		
– related parties under China Energy ( <i>Note (iv)</i> )	– 國家能源集團下屬的關聯方( <i>附註(iv)</i> )	<b>13,895</b>	13,822
– third parties	– 第三方	<b>557,466</b>	636,690
Dividends payables	應付股息		
– non-controlling equity owners of subsidiaries	– 附屬公司非控股權益所有者	<b>35,477</b>	25,830
Other accruals and payables	其他預提金額與應付款項		
– China Energy ( <i>Note (iv)</i> )	– 國家能源集團( <i>附註(iv)</i> )	<b>601,700</b>	601,700
– related parties under China Energy ( <i>Notes (iii) and (iv)</i> )	– 國家能源集團下屬的關聯方( <i>附註(iii)及(iv)</i> )	<b>66,762</b>	62,743
– associates	– 聯營公司	<b>58</b>	–
– third parties	– 第三方	<b>320,432</b>	313,216
Financial liabilities measured at amortised cost	按攤銷成本計量的金融負債	<b>2,144,367</b>	2,294,829
Provision for an outstanding litigation	未決訴訟的準備金	<b>27,922</b>	136,414
Contract liabilities ( <i>Note (v)</i> )	合同負債( <i>附註(v)</i> )		
– related parties under China Energy ( <i>Note (iv)</i> )	– 國家能源集團下屬的關聯方( <i>附註(iv)</i> )	<b>760,955</b>	644,842
– third parties	– 第三方	<b>181,212</b>	296,254
		<b>942,167</b>	941,096
		<b>3,114,456</b>	3,372,339

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 31 OTHER PAYABLES (CONTINUED)

Notes:

- (i) The balances represent deposits from sub-contractors for contract bidding. The deposits will be released to sub-contractors upon the completion of the related bidding.
- (ii) Retention payables represent the amounts due to equipment and construction contractors which will be settled upon the expiry of the warranty period.
- (iii) The balances mainly represented an amount of RMB600,000,000 due to China Energy, for repayment of a bank loan of RMB600,000,000 on behalf of GD Solar in the year ended 31 December 2016. All amounts due to China Energy are interest-free, unsecured and have no fixed terms of repayment.
- (iv) The compared figures represented amounts due to Guodian and related parties under Guodian.
- (v) The balances represented the amounts received in advance arising from all the business except construction contracts.

All of the other payables of the Group are expected to be settled or recognised as income within one year or are repayable on demand.

### 31 其他應付款(續)

附註：

- (i) 該款項指收取分包商的按金。招標結束之後，按金即還給分包商。
- (ii) 應付質保金款項指保期滿之後，應付給設備及施工承包商的款項。
- (iii) 該款項為截至2016年12月31日止年度，國家能源集團作為保證人代為支付國電光伏6億元人民幣銀行借款而形成的墊款。所有款項均不帶息、無抵押且未規定還款期。
- (iv) 比較資料為應向國電和國電下的關聯方支付的金額。
- (v) 預收賬款餘額為除建造合同以外的其他業務預收的款項。

預計本集團的所有其他應付款項將於一年之內結清或確認為收入，或提出要求之後立即支付。

### 32 INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

(a) Tax (recoverable)/payable in the consolidated statement of financial position represents:

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
Net tax recoverable at 1 January	於1月1日應付稅項淨額	(88,676)	(100,041)
Provision for the year (Note 8(a))	本年度撥備(附註8(a))	167,609	220,747
Under provision in respect of prior years (Note 8(a))	以往年度撥備不足(附註8(a))	16,254	70,849
Income tax paid	繳納的所得稅	(222,921)	(280,231)
Net tax recoverable at 31 December	於12月31日可收回稅項淨額	(127,734)	(88,676)
<i>Representing:</i>	<i>包括：</i>		
Income tax payable	應付所得稅	48,565	44,312
Tax recoverable	可收回稅項	(176,299)	(132,988)
		(127,734)	(88,676)

### 32 合併財務狀況表中的所得稅

(a) 合併資產負債中(可收回)/應付稅項：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 32 INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

### 32 合併財務狀況表中的所得稅(續)

#### (b) Deferred tax assets and liabilities recognised:

The components of deferred tax assets/(liabilities) recognised in the consolidated statement of financial position and the movements during the year are as follows:

#### (b) 已確認的遞延稅項資產及負債：

合併資產負債表中確認的遞延稅項資產/(負債)以及在本年度的變化情況如下所述：

		Provision for impairment of assets	Tax losses	Unrealised profits on intra-group transactions 集團內部 交易未實現 利潤	Deferred income	Provision for warranty	Intangible assets	Others	Total
		資產減值 撥備	稅項 虧損		遞延 收益	質保金 撥備	無形 資產	其他	合計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
At 1 January 2017 (restated)	於2017年1月1日(重述)	237,802	9,739	38,504	35,562	219,747	(128,352)	(5,159)	407,843
Credited/(charged) to profit or loss (Note 8(a))	計入/(扣減)損益 (附註8(a))	57,176	29,656	2,716	(2,749)	(42,339)	1,358	63,391	109,209
Reclassified as assets held for sale during the year	年內劃分為持有待售	(130)	-	-	-	-	-	-	(130)
At 31 December 2017	於2017年12月31日	294,848	39,395	41,220	32,813	177,408	(126,994)	58,232	516,922
Impact on initial application of IFRS 15	初次應用《國際財務報告準則》第15號的影響	-	-	-	-	-	-	4,894	4,894
Impact on initial application of IFRS 9	初次應用《國際財務報告準則》第9號的影響	34,595	-	-	-	-	-	-	34,595
At 1 January 2018	於2018年1月1日	329,443	39,395	41,220	32,813	177,408	(126,994)	63,126	556,411
Credited/(charged) to profit or loss (Note 8(a))	計入/(扣減)損益 (附註8(a))	67,599	105,635	(6,224)	(7,111)	(18,087)	(2,336)	61,352	200,828
At 31 December 2018	於2018年12月31日	397,042	145,030	34,996	25,702	159,321	(129,330)	124,478	757,239

Note: Deferred tax liabilities in respect of intangible assets arose from the temporary differences in development costs and concession assets.

附註：關於無形資產所產生的遞延所得稅負債是由於開發成本與特許權資產的暫時性差異而產生的。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 32 INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

### 32 合併財務狀況表中的所得稅(續)

**(b) Deferred tax assets and liabilities recognised:  
(Continued)**

**(b) 已確認的遞延稅項資產及負債：  
(續)**

***Reconciliation to the consolidated statement of financial position***

調節至合併財務狀況表：

		2018 <b>RMB'000</b> 人民幣千元	2017 RMB'000 人民幣千元
Net deferred tax asset recognised in the consolidated statement of financial position	於合併財務狀況表中確認的遞延稅項資產淨額	<b>911,188</b>	724,191
Net deferred tax liability recognised in the consolidated statement of financial position	於合併財務狀況表中確認的遞延稅項負債淨額	<b>(153,949)</b>	(207,269)
		<b>757,239</b>	516,922

**(c) Deferred tax assets not recognised**

**(c) 未確認的遞延稅項資產**

In accordance with the accounting policy set out in Note 2(w), the Group has not recognised deferred tax assets in respect of unused tax losses and certain deductible temporary differences of RMB5,213,732,000 (2017: RMB6,671,840,000), as it is not probable that future taxable profits against which the losses or the temporary differences can be utilised will be available in the relevant tax jurisdictions and entities. As at 31 December 2018, the expiration of tax losses of the Group, if unused, is as follows:

根據附註2(w)中規定的會計政策，本集團未確認遞延稅項資產包括的未利用的稅項虧損與某些可抵扣的暫時性差異約為人民幣5,213,732,000元(2017年：人民幣6,671,840,000元)，因為在相關稅務管轄區域及實體內，將來不很可能產生可以使用此等未利用稅項虧損或暫時性差異的應納稅利潤。於2018年12月31日，本集團未利用的稅項虧損的期限如下：

	2018 <b>RMB'000</b> 人民幣千元	2017 RMB'000 人民幣千元
2018	—	84,197
2019	<b>79,565</b>	90,128
2020	<b>453,319</b>	487,861
2021	<b>367,715</b>	394,065
2022	<b>512,058</b>	639,067
2023	<b>505,261</b>	—
	<b>1,917,918</b>	1,695,318

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)

(除非另有說明，以人民幣列示)

### 32 INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

#### (d) Deferred tax liability not recognised

At 31 December 2018, taxable temporary differences relating to undistributed profits and PRC statutory reserves of subsidiaries and associates amounted to RMB3,972,466,000 (2017: RMB4,133,646,000). No deferred tax liability was recognised in respect of these taxable temporary differences as dividends from subsidiaries and associates are not subject to PRC income tax and the Group has no plan to dispose of these subsidiaries and associates in the foreseeable future.

### 33 PROVISION FOR WARRANTY

The movement of provisions for product warranty during the year is as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
At 1 January	於1月1日	847,516	993,090
Additional provisions made	額外撥備	69,676	85,573
Reclassified as liabilities held for sale	劃分至持有待售的負債	-	(1,307)
Provision utilised	已使用撥備	<b>(249,851)</b>	(229,840)
At 31 December	於12月31日	<b>667,341</b>	847,516
Less: current portion of provision for warranty	減：質保金撥備的即期部份	<b>(92,597)</b>	(170,558)
		<b>574,744</b>	676,958

Under the terms of the Group's sales agreements, the Group will rectify product defects of wind turbines, steam turbines and distributed control system products arising within one to five years of the date of sale. Provision is therefore made for the best estimate of the expected settlement under these agreements in respect of sales made within one to five years prior to the end of the reporting period.

### 32 合併財務狀況表中的所得稅(續)

#### (d) 未確認的遞延稅項負債

於2018年12月31日，關於附屬公司及聯營公司的未分配利潤及中國法定公積金的應納稅暫時性差異約為人民幣3,972,466,000元(2017年：人民幣4,133,646,000元)。關於此等應納稅暫時性差異，未確認任何遞延所得稅項負債，因為從附屬公司及聯營公司取得的股息不需繳納中國所得稅，且在可預見的未來，本集團並無任何計劃出售此等附屬公司及聯營公司。

### 33 質保金撥備

本年度質保金撥備的變化如下：

根據本集團銷售協定條款規定，產品售出日期之後1-5年內風機、汽輪機與分散式控制系統產生的產品缺陷，本集團將進行保修。因此，就在報告期末之前的1-5年內的銷售，根據協定項下的預期償付金額的最佳估計作出了撥備。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 33 PROVISION FOR WARRANTY (CONTINUED)

In addition, the Group's photovoltaic modules typically sold with a two or five-year warranty for defects in materials and workmanship and a ten and twenty-five year minimum power output warranty, against declines of more than 10% and 20%, respectively, of initial power generation capacity from the date of delivery. The Group has the responsibility to repair or replace solar modules, at customers' option, under the terms of the warranty policy. The Group maintains warranty provision to cover potential liabilities that could arise under these warranties.

The amount of the provision takes into account the Group's recent claim experience and the experiences of other companies for similar products and is only made where a warranty claim is probable.

### 33 質保金撥備(續)

此外，本集團的光伏組件通常提供2年或5年的原材料及製作工藝缺陷質保期，且針對交付日期時的初始發電能力降低超過10%與20%，分別提供10年及25年的最小發電量質保。在質保條款項下，根據客戶的要求，本集團有責任維修或更換太陽能組件。本集團對此等質保項下潛在的責任計提質保撥備。

根據本集團近年來的理賠經驗以及其他公司關於類似產品的處理經驗，確定此等質保撥備，並僅對很可能產生質保要求的情形提取撥備。

### 34 DEFERRED INCOME

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
At 1 January	於1月1日	<b>368,557</b>	378,886
Additions	增加	<b>6,059</b>	11,038
Credited to profit or loss	計入損益	<b>(55,683)</b>	(21,367)
At 31 December	於12月31日	<b>318,933</b>	368,557

Deferred income mainly represents government grants relating to the construction of property, plant and equipment, as well as technology research funding related to environmental protection related assets, which would be recognised as income on a straight-line basis over the expected useful life of the relevant assets. The deferred income recognised is included in "other revenue" in the consolidated statement of profit or loss.

遞延收益主要包括政府給予關於物業、廠房及設備的建造補貼，以及關於相關環保資產的技術研發基金，根據直線法在相關資產的預計使用壽命期內確認收入。確認為遞延收益的款項包括在合併損益表的「其他收入」中。

### 35 OTHER NON-CURRENT LIABILITIES

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
Long-term retention payables to third parties	應付第三方長期質保金	<b>510,522</b>	397,635
Other non-current financial liabilities	其他非流動金融負債	<b>6,370</b>	6,370
		<b>516,892</b>	404,005

### 35 其他非流動負債

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 36 CAPITAL, RESERVES AND DIVIDENDS

##### (a) Movements in components of equity

The reconciliation between the opening and closing balances of each component of the Group's consolidated equity is set out in the consolidated statements of changes in equity. Details of the changes in the Company's individual components of equity between the beginning and the end of the year are set out below:

		Share capital	Capital reserve	PRC statutory reserve	Accumulated losses	Fair value reserve (non-recycling)	Total equity
		股本	資本儲備	中國法定公積金	累計虧損	儲備(不重新計入)	權益總額
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元 (Note) (附註)	RMB'000 人民幣千元
Balance at 1 January 2017	2017年1月1日結餘	6,063,770	805,682	129,332	(3,592,639)	-	3,406,145
Changes in equity for 2017	2017年權益變化：						
Loss and total comprehensive income for the year	本年度虧損及綜合收益總額	-	-	-	(851,953)	-	(851,953)
Capital contributions from the shareholder to a subsidiary acquired under common control	共同控制下的附屬公司從股東處已經獲得的資本投入	-	(6,942)	-	-	-	(6,942)
Balance at 31 December 2017 (Note)	2017年12月31日結餘(附註)	6,063,770	798,740	129,332	(4,444,592)	-	2,547,250
Impact on initial application of IFRS 9	初始採用《國際財務報告準則》第9號的影響	-	-	-	(3,913)	11,482	7,569
Balance at 1 January 2018	2018年1月1日結餘	6,063,770	798,740	129,332	(4,448,505)	11,482	2,554,819
Changes in equity for 2018	2018年權益變化						
Loss for the year	本年度虧損	-	-	-	298,226	-	298,226
Other comprehensive income	其他綜合收益	-	-	-	-	(41,447)	(41,447)
Total comprehensive income	綜合收益總額	-	-	-	298,226	(41,447)	256,779
Balance at 31 December 2018	2018年12月31日結餘	6,063,770	798,740	129,332	(4,150,279)	(29,965)	2,811,598

Note: The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated due to the initial application (see Note 2(c)).

#### 36 資本、儲備及股息

##### (a) 權益組成部份的變動

合併權益變動表中列出了本集團合併權益中各組成部份的期初及期末餘額的調節情況。本公司權益各組成部份的年初及年末變化情況如下所述：

附註：本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述(見附註2(c))。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 36 CAPITAL, RESERVES AND DIVIDENDS (CONTINUED)      36 資本、儲備及股息(續)

#### (b) Dividends

- (i) Dividends payable to equity shareholders of the Company attributable to the year

The directors of the Company did not recommend the payment of a final dividend in respect of the years ended 31 December 2018 and 2017.

- (ii) Dividends payable to equity shareholders of the Company attributable to previous financial year, approved during the year

The directors of the Company did not approve or pay any dividend in respect of the previous financial year during the years ended 31 December 2018 and 2017.

#### (b) 股息

- (i) 本年應付本公司權益股東股息

本公司董事會不建議派發截至2018年及2017年12月31日止年度末期股息。

- (ii) 本年批准的上一個財年應向權益股東支付的股息

截至2018年及2017年12月31日止年度本公司董事會未批准或派發以前年度相關的股息。

#### (c) Share capital

Registered and issued share capital

#### (c) 股本

已註冊及發行的股本

		No. of shares	
		股數	
		'000	RMB'000
		'000	人民幣千元
<b>Ordinary shares, registered, issued and fully paid:</b>	已註冊、發行且全部繳足的普通股：		
<b>Domestic shares of RMB1.00 each</b>	國內股份，每股人民幣1元		
At 1 January 2017, 31 December 2017 and 31 December 2018	於2017年1月1日，2017年12月31日及2018年12月31日	4,754,000	4,754,000
<b>H shares of RMB1.00 each</b>	H股，每股人民幣1元		
At 1 January 2017, 31 December 2017 and 31 December 2018	於2017年1月1日，2017年12月31日及2018年12月31日	1,309,770	1,309,770
<b>Total</b>	總計		
At 31 December 2018 and 2017	於2018年及2017年12月31日	6,063,770	6,063,770

The holders of ordinary shares are entitled to receive dividends as declared from time to time and are entitled to one vote per share at meetings of the Company. All ordinary shares rank equally with regard to the Company's residual assets.

普通股持有人有權收取不時公佈的股息，且每股在本公司會議上享有一票投票權。所有普通股對公司的剩餘資產享有同樣權利。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

## 36 CAPITAL, RESERVES AND DIVIDENDS 36 資本、儲備及股息(續)

### (CONTINUED)

#### (d) Nature and purpose of reserves

##### (i) Capital reserve

Capital reserve mainly represents share premium, contributions from Guodian, and the difference between the considerations of acquisition or disposal of equity interests from/to non-controlling equity owners and the carrying amount of the proportionate net assets.

##### (ii) PRC statutory reserve

According to the Company's Article of Association, the Company is required to transfer 10% of its net profit as determined in accordance with accounting rules and regulations of the PRC to its statutory reserve until the reserve balance reaches 50% of the registered capital. The transfer to this reserve must be made before distribution of a dividend to equity shareholders. This reserve fund can be utilised in setting off accumulated losses or increasing capital of the Company and is non-distributable other than in liquidation.

##### (iii) Exchange reserve

Exchange reserve comprises all foreign exchange differences arising from the translation of the financial statements of operations that have functional currency other than the RMB which are dealt with in accordance with the accounting policies as set out in Note 2(z).

##### (iv) Fair value reserve (non-recycling)

The fair value reserve (non-recycling) comprises the cumulative net change in the fair value of equity investments designated at FVOCI under IFRS 9 that are held at the end of the reporting period (see Note 2(i)).

#### (d) 儲備性質及用途

##### (i) 資本儲備

資本儲備主要包括股份溢價、國電繳款、以及向非控股權益所有者購買或出售權益的對價與相應淨資產帳面金額之間的差額。

##### (ii) 中國法定公積金

根據本公司的《公司章程》規定，要求本公司將根據中國會計準則及法規確定的淨利潤的10%轉為本公司的法定公積金，直至公積金剩餘總額達到註冊資本的50%。必須在向權益股東分配股息之前，提取該公積金。該公積金可以用於彌補本公司的累計虧損或增資，並且除清算之外不得進行分配。

##### (iii) 匯兌儲備

匯兌儲備包括根據附註2(z)規定的會計政策換算非人民幣為功能貨幣的業務的財務報表時所產生的所有匯兌差額。

##### (iv) 公允價值儲備(不重新計入)

公允價值儲備(不重新計入)包括於報告期末持有的、且根據《國際財務報告準則》第9號，將其指定為按公允價值計量且其變動計入其他綜合收益計量的金融資產(不重新計入)的公允價值的累計淨變動(見附註2(i))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 36 CAPITAL, RESERVES AND DIVIDENDS (CONTINUED)

#### (e) Distributability of reserves

In accordance with the AOA, the net profit after tax of the Company for the purpose of dividends payment will be the lesser of (i) the net profit determined in accordance with the accounting rules and regulations of the PRC; and (ii) the net profit determined in accordance with IFRSs. As of 31 December 2018, the retained profits available for distribution are RMBNil (2017: RMBNil).

#### (f) Capital management

The Group's primary objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so that it can continue to provide returns for equity shareholders and benefits for other stakeholders, by pricing products and services commensurately with the level of risk and by securing access to financing at a reasonable costs.

The Group actively and regularly reviews and manages its capital structure to maintain a balance between the higher equity shareholder returns that might be possible with higher levels of borrowings and the advantages and security afforded by a sound capital position, and makes adjustments to the capital structure in light of changes in economic conditions.

The Group monitors its capital structure on the basis of liability-to-asset ratio, which is calculated as total liabilities by total assets. The liability-to-asset ratio of the Group was 77% (2017: 78%).

There were no changes in the Group's approach to capital management during the year. Neither the Company nor any of its subsidiaries are subject to externally imposed capital requirements.

### 36 資本、儲備及股息(續)

#### (e) 儲備的可分配性

根據《公司章程》，作為股息分配的本公司稅後淨利潤應為以下兩者之中的孰低者：(i)按照中國會計準則及法規確定的淨利潤；(ii)按照《國際會計報告準則》確定的淨利潤。於2018年12月31日，可供分配的留存利潤額為人民幣零元(2017年：人民幣零元)。

#### (f) 資本管理

本集團資本管理的主要目標是，根據風險水準對產品及服務定價及按照合理的成本取得融資，以便保障本集團持續經營的能力，從而可以持續向權益股東提供回報並向其他利益關聯方提供益處。

本集團積極地並且定期審查並管理本集團的資本結構，在較高的借款水準情況下向權益股東提供較高回報的同時，保持本集團具有較好的資本優勢及安全性，並按照經濟形勢不斷調整本集團的資本結構。

本集團根據負債對資產比率監控本集團的資本結構。本集團的負債對資產比率為77%(2017年：78%)。

本集團根據本年度本集團的資本管理方法沒有發生變更。本公司或其任何附屬公司均未有受外界施加的資本要求。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES

Exposure to credit, liquidity, interest rate and currency risks arises in the normal course of the Group's business.

The Group's exposure to these risks and the financial risk management policies and practices used by the Group to manage these risks are described below:

##### (a) Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in a financial loss to the Group. The Group's credit risk is primarily attributable to trade and bills receivables, other receivables, long-term trade receivables and contract assets. The Group's exposure to credit risk arising from cash and cash equivalents is limited because the counterparties are banks and financial institutions with high credit standing, for which the Group considers to have low credit risk.

The Group does not provide any guarantees which would expose the Group to credit risk.

##### ***Trade and bills receivables, other receivables, long-term trade receivables and contract assets***

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer rather than the industry or country in which the customers operate and therefore significant concentrations of credit risk primarily arise when the Group has significant exposure to individual customers. At the end of the reporting period, 44% and 12% (2017: 35% and 11%) of the total trade and bills receivables, other receivables, long-term trade receivables and contract assets was due from China Energy and related parties under China Energy, the Group's largest customer, and the five largest remaining customers respectively.

Individual credit evaluations are performed on all customers. These evaluations focus on the customer's past history of making payments when due and current ability to pay, and take into account information specific to the customer as well as pertaining to the economic environment in which the customer operates. The Group generally requires customers to settle trade receivables in accordance with contracted terms and other debts in accordance with agreements. Credit terms may be granted to customers, depending on the nature of business. Normally, the Group does not obtain collateral from customers.

#### 37 財務風險管理及公允價值

本集團的正常業務過程中存在信用、流動資金、利率以及貨幣風險。

本集團面臨的此等風險以及本集團的財務風險管理政策及措施如下所述：

##### (a) 信用風險

信貸風險指交易對手違背其合約責任導致本集團財務虧損的風險。本集團的信用風險主要與如下因素有關：應收賬款及票據、其他應收款、長期應收款及合同資產。本集團現金及現金等價物均存放於信用狀況良好的銀行及金融機構，本集團評估認為其信用風險不大。

本集團未提供任何會使本集團承受信用風險的其他擔保。

##### ***應收賬款及票據、其他應收款、長期應收款及合同資產***

本集團的信用風險主要受到每個客戶的具體情況影響，而不會受到客戶所從事行業或所處國家的影響，因此，當本集團頻繁地接觸個別客戶時，信用風險的集中度就會增加。於報告期末，分別有44%與12% (2017年：35%與11%) 的應收賬款及票據、其他應收款、長期應收款及合同資產來自於國家能源集團及國家能源集團下屬的關聯方(本集團最大的客戶)和其餘的前五大客戶。

已對所有客戶進行了單獨信用評估。評估針對客戶過去的到期款項支付歷史及目前的支付能力，並考慮了客戶的具體情況，以及客戶營業所在地的整體經濟環境。總體上，本集團要求客戶按照合同條款結算應收賬款，並按照協議規定結清其他欠款。根據業務性質，可能會給予客戶一定的付款信用期限。通常，本集團不向客戶收取抵押物。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

### 37 財務風險管理及公允價值(續)

#### (a) Credit risk (Continued)

##### *Trade and bills receivables, other receivables, long-term trade receivables and contract assets (Continued)*

The Group measures loss allowances for trade and bills receivables, other receivables, long-term trade receivables and contract assets at an amount equal to lifetime ECLs, which is calculated using a provision matrix. As the Group's historical credit loss experience does not indicate significantly different loss patterns for different customer segments, the loss allowance based on past due status is not further distinguished between the Group's different customer bases.

The following table provides information about the Group's exposure to credit risk and ECLs for trade and bills receivables as at 31 December 2018:

#### (a) 信用風險(續)

##### *應收賬款及票據、其他應收款、長期應收款及合同資產(續)*

本集團根據預計信用損失估計應收賬款及票據、其他應收款、長期應收款及合同資產的整個存續期的預期信用損失，該預期信用損失使用計提矩陣進行估計。由於本集團的歷史信用損失經驗表明不同客戶群的損失情況不存在重大差異，因此不會對基於歷史狀態的損失準備按客戶群進行劃分。

於2018年12月31日，本集團應收賬款及票據的信貸風險及預期信用損失率如下表：

		Expected loss rate 預期損失率 %	Gross carrying amount 帳面價值 RMB'000 人民幣千元	Loss allowance 壞賬準備 RMB'000 人民幣千元
Within 1 year	1年內	0.9%	7,560,637	(67,980)
Between 1 to 2 years	1至2年內	4.6%	3,139,814	(143,412)
Between 2 to 3 years	2至3年內	27.2%	1,267,292	(344,488)
Over 3 years	3年以上	58.7%	2,601,479	(1,525,925)
			<b>14,569,222</b>	<b>(2,081,805)</b>

Expected loss rates are based on actual loss experience over the past four years. These rates are adjusted to reflect differences between economic conditions during the period over which the historic data has been collected, current conditions and the Group's view of economic conditions over the expected lives of the receivables.

預期損失率基於過去四年的實際損失情況計算。根據收集歷史資料期間的經濟狀況，當前狀況和本集團對應收賬款預期年限的經濟狀況的預測之間的差異調整這些利率。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (a) Credit risk (Continued)

##### Comparative information under IAS 39

Prior to 1 January 2018, an impairment loss was recognised only when there was objective evidence of impairment (see Note 2(n)(i) – Policy applicable prior to 1 January 2018). At 31 December 2017, trade and bills receivables of RMB2,859,522,000 were determined to be impaired. The aging analysis of trade debtors that were not considered to be impaired was as follows:

		2017 RMB'000 人民幣千元
Neither past due nor impaired	未逾期且未減值	2,726,612
Within 1 year	1年內	5,656,608
Between 1 to 2 years	1至2年內	1,929,329
Between 2 to 3 years	2至3年內	1,465,904
Over 3 years	3年以上	220,543
		9,272,384
		11,998,996

Receivables that were neither past due nor impaired related to a wide range of customers for whom there was no recent history of default.

Receivables that were past due but not impaired related to a number of independent customers that had a good track record with the Group. Based on past experience, management believed that no impairment allowance was necessary in respect of these balances as there had been no significant change in credit quality and the balances were still considered fully recoverable.

#### (a) 信用風險(續)

##### 《國際會計準則》第39號下的比較數據

在2018年1月1日之前，僅在有客觀證據表明存在減值跡象時才確認減值損失(見附註2(n)(i)-2018年1月1日之前適用的政策)。於2017年12月31日，應收賬款及票據約人民幣2,859,522,000元已減值。未減值的應收款項的賬齡分析如下：

對應未逾期且未減值的應收款項的大部分客戶近期沒有違約記錄。

對應已逾期但未減值的應收款項的若干獨立客戶與本集團有良好交易記錄。根據過往經驗，管理層認為毋須就該等結餘作出減值撥備。因為信貸等級並無重大變動且預計可全數收回該等結餘。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)      37 財務風險管理及公允價值(續)

#### (a) Credit risk (Continued)

##### Comparative information under IAS 39 (Continued)

Movement in the loss allowance account in respect of trade and bills receivables during the year is as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Balance at 31 December 2017 under IAS 39	於2017年12月31日根據《國際會計準則》第39號的結餘	<b>2,015,720</b>	
Impact on initial application of IFRS 9 (Note 2(c)(i))	初始採用《國際財務報告準則》第9號的影響(附註2(c)(i))	<b>115,357</b>	
Balance at 1 January	於1月1日結餘	<b>2,131,077</b>	2,059,577
Impairment losses recognised during the year	本年確認的減值虧損	<b>327,436</b>	384,378
Reversal of impairment losses	減值虧損轉回	<b>(309,257)</b>	(348,501)
Amounts written off during the year	本年核銷金額	<b>(29,012)</b>	(79,734)
Reclassification as long-term receivables	重分類至長期應收款	<b>(38,439)</b>	-
Balance at 31 December	於12月31日結餘	<b>2,081,805</b>	2,015,720

#### (b) Liquidity risk

The Group's objective is to ensure continuity of sufficient funding and flexibility by utilising a variety of bank loans and other borrowings with debt maturities spreading over a range of periods, thereby ensuring that the Group's outstanding borrowing obligation is not exposed to excessive repayment risk in any one year.

The Company is responsible for the Group's overall cash management and the raising of borrowings to cover expected cash demands. The Group's policy is to regularly monitor current and expected liquidity requirements to ensure that it maintains sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet its liquidity requirements in the short and longer term.

#### (a) 信用風險(續)

##### 《國際會計準則》第39號下的比較數據(續)

本年有關應收賬款及票據的呆帳撥備的變動如下：

#### (b) 流動資金風險

為保證本集團具有足夠的連續資金以及資金靈活性，本集團採用多元化的銀行貸款及其他借款，債務到期日期較為分散，從而使本集團的還款義務不會過度地集中於任何一個年度。

本公司負責本集團的整體現金管理以及滿足所有現金需求的借款事宜。根據本集團的財務政策，本集團定期監控流動資金及預計流動資金的需求性，確保本集團具有足夠的現金儲備，並在主要金融機構中具有適當的資金承諾額度，從而滿足本集團長期以及短期的流動資金需求。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (b) Liquidity risk (Continued)

In order to enhance the Group's liquidity and solvency position, the Group have taken a series of measures and the directors of the Company are satisfied that the Group will have necessary liquid funds to finance its working capital and capital expenditure requirements according to the Group's business plan and cash flow forecast. With regards to its future capital commitments and other financing requirements, the Group has unutilised banking facilities of RMB14,348,033,000 (2017: RMB18,264,002,000) as at 31 December 2018. The directors of the Company are of the opinion that the assumptions which are included in the cash flow forecast are reasonable. However, as with all assumptions in regard to future events, these are subject to inherent limitations and uncertainties and some or all of these assumptions may not be realised.

The following tables show the remaining contractual maturities at the end of the reporting period of the Group's non-derivative financial liabilities, which are based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on rates current at the end of the reporting period) and the earliest date the Group can be required to pay:

#### (b) 流動資金風險(續)

為了增強集團的資金流動性和償債能力，本集團已採取了多重措施。根據本集團的商業計劃和現金流量預測，公司董事同意本集團採用必要的流動資金為其運營資本和資本支出需求提供資金支援。關於本集團未來的資金承擔及其他融資要求，於2018年12月31日，本集團未動用銀行授信約為人民幣14,348,033,000元(2017年：人民幣18,264,002,000元)。本公司董事們認為，現金流預計的假設條件是合理的。然而，關於未來事件的所有假設條件本身均具有有限性及不確定性，某些或者所有此類假設條件均可能不會實現。

下表列出了於報告期末，本集團非衍生金融負債的剩餘合同期限，依據是合同未貼現現金流(包括根據合同利率計算的利息款額，如果採用浮動利率，即為根據報告期末的利率計算的利息款額)，以及可能要求本集團支付的最早日期：

		2018					
		Contractual undiscounted cash outflow					
		合同未貼現現金流出					
		More than 1 year or on demand	More than 1 year but less than 2 years	More than 2 years but less than 5 years	More than 5 years	Total	Carrying amount
		1年內或 要求即付	1年以上 2年以下	2年以上 5年以下	5年以上	合計	帳面 金額
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Long-term borrowings (Note 29(a))	長期借款(附註29(a))	35,736	825,518	3,394,519	16,206	4,271,979	3,693,318
Short-term borrowings (Note 29(b))	短期借款(附註29(b))	8,157,733	-	-	-	8,157,733	8,035,414
Trade and bills payables (Note 30)	應付帳款及票據(附註30)	9,199,386	-	-	-	9,199,386	9,199,386
Other payables (Note 31)	其他應付款項(附註31)	1,871,112	-	-	-	1,871,112	1,871,112
Other non-current liabilities (Note 35)	其他非流動負債(附註35)	-	112,749	404,143	-	516,892	516,892
		19,263,967	938,267	3,798,662	16,206	24,017,102	23,316,122



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)      37 財務風險管理及公允價值(續)

#### (b) Liquidity risk (Continued)

#### (b) 流動資金風險(續)

		2017					
		Contractual undiscounted cash outflow 合同未貼現現金流出					
		Within 1 year or on demand 1年內或 要求即付 RMB'000 人民幣千元	More than 1 year but less than 2 years 1年以上 2年以下 RMB'000 人民幣千元	More than 2 years but less than 5 years 2年以上 5年以下 RMB'000 人民幣千元	More than 5 years 5年以上 RMB'000 人民幣千元	Total 合計 RMB'000 人民幣千元	Carrying amount 帳面 金額 RMB'000 人民幣千元
Long-term borrowings (Note 29(a))	長期借款(附註29(a))	36,327	1,847,474	2,820,957	10,589	4,715,347	4,053,705
Short-term borrowings (Note 29(b))	短期借款(附註29(b))	7,849,370	-	-	-	7,849,370	7,699,284
Trade and bills payables (Note 30)	應付帳款及票據(附註30)	9,684,721	-	-	-	9,684,721	9,684,721
Other payables (Note 31)	其他應付款項(附註31)	1,937,713	-	-	-	1,937,713	1,937,713
Other non-current liabilities (Note 35)	其他非流動負債(附註35)	-	178,271	225,734	-	404,005	404,005
		19,508,131	2,025,745	3,046,691	10,589	24,591,156	23,779,428

#### (c) Interest rate risk

#### (c) 利率風險

The Group's interest rate risk arises primarily from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk.

本集團的利率風險主要來自於長期借款。浮動利率借款使本集團暴露於現金流利率風險之下。

The Group regularly reviews and monitors the mix of fixed and variable rate borrowings in order to manage its interest rate risks. During the year, however, management of the Group did not consider it is necessary to use interest rate swaps to hedge their exposure to interest.

為了管理本集團的利率風險，本集團定期審查並監控固定利率及浮動利率借款的組合。然而，本集團管理層認為在本年度無需通過利率掉期，對沖本集團的利率風險。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (c) Interest rate risk (Continued)

##### (i) Interest rate profile

The following table details the profile of the Group's net borrowings (interest-bearing financial liabilities less interest-bearing financial assets) at the end of the reporting period. The detailed interest rates and maturity information of the Group's borrowings are disclosed in Note 29.

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<b>Net fixed rate borrowings:</b>	<b>固定利率淨借款：</b>		
Borrowings	借款	4,497,944	4,508,835
Less: bank deposits (including restricted deposits)	減：銀行存款(包括受限制存款)	-	(332,217)
loans and advances	貸款及墊款	<b>(18,353)</b>	<b>(17,504)</b>
		<b>4,479,591</b>	4,159,114
<b>Net floating rate borrowings:</b>	<b>浮動利率淨借款：</b>		
Borrowings	借款	3,990,281	5,412,654
Less: bank deposits (including restricted deposits)	減：銀行存款(包括受限制存款)	<b>(3,711,289)</b>	<b>(4,170,800)</b>
		<b>278,992</b>	1,241,854
Total net borrowings	淨借款總額	<b>4,758,583</b>	5,400,968

##### (ii) Sensitivity analysis

At 31 December 2018, it is estimated that a general increase/decrease of 100 basis points in interest rates of net floating borrowings, with all other variables held constant, the Group's profit after tax would have decreased/increased and accumulated loss would have increased/decreased by approximately RMB6,367,000 (2017: profit after tax would have decreased/increased and accumulated loss would have increased/decreased by approximately RMB11,139,000). Other components of consolidated equity would not be affected by the general increase/decrease in interest rates.

#### (c) 利率風險(續)

##### (i) 利率情況

下表詳細列出了報告期末本集團的淨借款情況(帶息金融負債減帶息金融資產)。附註29披露了本集團借款的詳細利率以及借款期限。

##### (ii) 敏感度分析

於2018年12月31日，預計淨浮動利率借款的利率普遍上漲/下調100個基點，其他所有變數保持不變，本集團的稅後利潤將下降/增長及累計虧損則將增長/下降約為人民幣6,367,000元(2017年：人民幣11,139,000元)。合併權益的其他組成部份不會受到利率上漲/下調的影響。

# NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

## 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

### 37 財務風險管理及公允價值(續)

#### (c) Interest rate risk (Continued)

#### (c) 利率風險(續)

##### (ii) Sensitivity analysis (Continued)

##### (ii) 敏感度分析(續)

The sensitivity analysis above has been determined assuming that the change in interest rates had occurred at the end of the reporting period and had been applied to the exposure to interest rate risk for non-derivative financial instruments in existence at the end of the reporting period. The impact on the Group's profit after tax (and retained profits) and other components of consolidated equity is estimated as an annualised impact on interest expense or income of such a change in interest rates.

做出上述敏感度分析的假設條件是利率變化發生在報告期末且套用於當日存在的非衍生金融工具的利率風險的敞口。對本集團稅後利潤(及留存利潤)及合併權益其他組成部份的影響是根據此利率變化對利息費用或收入的年度性影響而估計的。

The estimated 100 basis points increase or decrease represents management's assessment of a reasonable change in interest rates over the period until the next annual statement of financial position date. The analysis is performed on the same basis for 2017.

估計的100個基點上漲/下調，是管理層對利率至下一年度財務狀況表日期間可能發生的匯率變化作出的合理評估。與2017年分析方法相同。

#### (d) Currency risk

#### (d) 貨幣風險

The Group is exposed to currency risk primarily through sales and purchases which give rise to receivables and payables, as well as borrowings and cash at bank and in hand that are denominated in a foreign currency, i.e. a currency other than the functional currency of the operations to which the transactions relate. The currencies giving rise to this risk are primarily USD and HKD.

本集團的貨幣風險主要為採用外幣(即與交易相關的業務自功能性幣種不同的其他貨幣)計價的來源於銷售及購買活動產生的應收款項及應付款項，以及借款及銀行存款及庫存現金。與該風險相關的幣種主要包括美元及港幣。

##### (i) Recognised assets and liabilities

##### (i) 確認的資產與負債

The Group is exposed to currency risk primarily arising from cash at bank, receivables, payables and borrowings which are denominated in USD or HKD. Depreciation or appreciation of these foreign currencies against Renminbi would affect the financial position and operating results of the Group. The Group did not hedge its foreign currency exposure.

本集團的貨幣風險主要來源於採用美元或港幣計價的銀行存款、應收款項、應付款項及借款。此等外幣相對於人民幣的貶值或升值均會影響到本集團的財務狀況及經營業績。本集團未對沖外幣風險。

RMB is not a freely convertible currency and the PRC government may at its discretion restrict access to foreign currencies for current account transactions in the future. Changes in the foreign exchange control system may prevent the Group from satisfying sufficient foreign currency demands and the Group may not be able to pay dividends in foreign currencies to its equity shareholders.

人民幣並非自由兌換貨幣，中國政府可自行決定將來限制來往帳戶交易採用的外幣。關於外匯控制制度的變化，可能妨礙本集團滿足對外幣的需求，本集團可能無法採用外幣向股東支付股息。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (d) Currency risk (Continued)

##### (ii) Exposure to currency risk

The following table details the Group's exposure at the end of the reporting period to currency risk arising from recognised assets or liabilities denominated in a currency other than the functional currency of the entity to which they relate. For presentation purposes, the amounts of the exposure are shown in RMB, translated using the spot rate at the end of the reporting period. Differences resulting from the translation of the financial statements of foreign operations into the Group's presentation currency are excluded.

		2018		2017	
		USD 美元 RMB'000 人民幣千元	HKD 港幣 RMB'000 人民幣千元	USD 美元 RMB'000 人民幣千元	HKD 港幣 RMB'000 人民幣千元
Cash at bank and in hand	銀行存款及庫存現金	24,742	33,082	10,064	39,753
Trade receivables	應收賬款	15,776	-	115,417	-
Other receivables	其他應收賬款	-	131,788	-	125,718
Net exposure	淨敞口	40,518	164,870	125,481	165,471

##### (iii) Sensitivity analysis

The followings are the related foreign currency exchange rates to RMB during the year:

		2018		2017	
		Average rate 平均匯率 RMB'000 人民幣千元	Reporting date spot rate 報告日 現匯匯率 RMB'000 人民幣千元	Average rate 平均匯率 RMB'000 人民幣千元	Reporting date spot rate 報告日 現匯匯率 RMB'000 人民幣千元
USD	美元	6.6987	6.8632	6.7356	6.5342
HKD	港幣	0.8561	0.8762	0.8652	0.8359

#### (d) 貨幣風險(續)

##### (ii) 貨幣風險敞口

採用實體相關功能貨幣以外的其他幣種計價的確認資產或負債，使本集團及於報告期末承受的貨幣風險在下表中詳細列出。為陳述之目的，採用報告期末的現匯匯率折算為人民幣來列示貨幣風險。未包括將境外業務的財務報表轉換成本集團報告貨幣所產生的差額。

##### (iii) 敏感度分析

下表列出了本年度相關外幣與人民幣之間的匯率：

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

### 37 財務風險管理及公允價值(續)

#### (d) Currency risk (Continued)

#### (d) 貨幣風險(續)

##### (iii) Sensitivity analysis (Continued)

##### (iii) 敏感度分析(續)

A 5% strengthening of RMB against the following currencies would have increased/(decreased) the net profit after tax and retained profits by the amounts shown below. Other components of equity would not be affected by the strengthen of RMB against foreign currencies.

人民幣對如下貨幣5%的升值，稅後淨利潤及留存利潤的上漲/(下滑)金額如下表所列。權益的其他組成部份不會受到人民幣相對於外幣升值的影響。

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
USD	美元	(1,659)	(5,333)
HKD	港幣	(6,183)	(6,205)
		<b>(7,842)</b>	(11,538)

A 5% weakening of RMB against the above currencies would have had the equal but opposite effect on the above currencies to the amounts shown above, on the basis that all other variables remain constant.

人民幣相對於上述貨幣5%的貶值，如果所有其他變數保持不變，則對上述貨幣產生相同但相反的影響，影響金額如上表所列。

The sensitivity analysis has been determined assuming that the change in foreign exchange rates had occurred at the end of the reporting period and had been applied to the Group's exposure to currency risk for financial instruments in existence at that date, and that all other variables, in particular interest rates, remain constant.

作出上述敏感度分析的假設條件是，匯率變化發生在報告期末且套用於當日存在的金融工具的貨幣風險敞口，且所有其他變數保持不變，尤其是利率未發生變化。

The stated changes represent management's assessment of reasonably possible changes in foreign exchange rates over the period until the next annual statement of financial position date. The analysis is performed on the same basis for 2017.

所陳述的匯率波動情況是管理層對至下一財務狀況表日期間可能發生的匯率變化的合理評估。分析方法同2017年的分析方法相同。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (e) Fair value measurement

##### (i) Financial assets and liabilities measured at fair value

###### Fair value hierarchy

The following table presents the fair value of the Group's financial instruments measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13, *Fair value measurement*. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date
- Level 2 valuations: Fair value measured using Level 2 inputs i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available
- Level 3 valuations: Fair value measured using significant unobservable inputs

The Group has the financial manager performing valuations for the financial instruments, including the unlisted equity securities and receivables from the disposal of a subsidiary. The financial manager reports directly to the chief financial officer and the audit committee. A valuation report with analysis of changes in fair value measurement is prepared by the financial manager at each interim and annual reporting date, and is reviewed and approved by the chief financial officer. Discussion of the valuation process and results with the chief financial officer and the audit committee is held twice a year, to coincide with the reporting dates.

#### (e) 公允價值計量

##### (i) 按公允價值計量的金融資產及負債

###### 公允價值層級

下表呈列本集團於報告期末按經常基準所計量的金融工具公允價值。該等金融工具已歸入《國際財務報告準則》第13號-「公允價值計量」所界定的三個公允價值層級。本集團參照以下估值方法所採用的輸入值的可觀察程度和重要性，從而釐定公允價值計量數值所應歸屬的層級：

- 第1層級估值：僅使用1級輸入資料進行計量的公允價值，即計量之日相同資產或負債的活躍市場中未經調整的報價
- 第2層級估值：使用2級輸入資料進行計量的公允價值，即不符合1級要求且未使用不可觀察的重要輸入資料的可觀察輸入資料。不可觀察輸入資料是不存在市場資料的輸入資料
- 第3層級估值：使用不可觀察的重要輸入資料進行計量的公允價值

本集團的財務經理負責對金融工具(包括非上市權益證券及出售一間附屬公司的應收款項)進行估值。該財務經理直接向首席財務官和審計委員會匯報。該財務經理負責於在各中期及年度報告日期編備內載公允價值計量變動分析的估值報告，以供首席財務官審批。該財務經理為配合以上報告日期，與首席財務官及審計委員會一年兩次商討估值程序和結果。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

### 37 財務風險管理及公允價值(續)

#### (e) Fair value measurement (Continued)

#### (e) 公允價值計量(續)

##### (i) Financial assets and liabilities measured at fair value (Continued)

##### (i) 按公允價值計量的金融資產及負債(續)

Fair value hierarchy (Continued)

公允價值層級(續)

The following table presents the financial instruments of the Group that are measured at fair value as at 31 December 2018:

下表列示於2018年12月31日本集團按公允價值計量的金融工具：

		Fair value at 31 December 2018 於2018年 12月31日的 公允價值 RMB'000 人民幣千元	Fair value measurements as at 31 December 2018 categorised into 於2018年12月31日歸屬 以下層級公允價值計量數值	
			Level 1 第1層級 RMB'000 人民幣千元	Level 3 第3層級 RMB'000 人民幣千元
Financial assets:	金融資產：			
Equity investments in a listed company	對上市公司的其他權益投資	607,198	607,198	-
Equity investments in unlisted companies (Note)	對非上市公司的其他權益投資(附註)	251,217	-	251,217

Note: As at 31 December 2017, the equity investments are classified as available-for-sale securities and measured at cost less impairment losses as these investments in unlisted companies do not have a quoted market price in an active market for an identical instrument and whose fair value cannot otherwise be reliably measured. Available-for-sale financial assets were reclassified to financial assets measured at fair value and designated at FVOCI (non-recycling) upon the adoption of IFRS 9 at 1 January 2018 (see Note 2(c)(i)).

附註：於2017年12月31日，由於這些對非上市公司的投資無法在活躍市場獲得報價且無法可靠地計量其公允價值，因此該等權益投資被劃歸為可供出售證券，並按成本減減值虧損計量。於2018年1月1日採用《國際財務報告準則》第9號後，可供出售金融資產重新分類為按公允價值計量且其變動計入損益計量的金融資產及指定按公允價值計量且其變動計入其他綜合收益計量的金融資產(不重新計入)(見附註2(c)(i))。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (e) Fair value measurement (Continued)

##### (i) Financial assets and liabilities measured at fair value (Continued)

Fair value hierarchy (Continued)

As at 31 December 2018 and 2017, there were no transfers between Level 1 and Level 2, or transfers into or out of Level 3 (except for the initial adoption of IFRS 9).

Information about Level 3 fair value measurements:

	Valuation techniques 估值技術	Significant unobservable inputs 重大不可觀察輸入值	Range 範圍
Unlisted equity instruments 非上市權益工具	Market comparable companies 市場可比較企業	Discount for lack of marketability 就缺乏市場流通性折讓	30%

The fair value of unlisted equity instruments is determined using the price/earning ratios or Sprice/book value ratios of comparable listed companies adjusted for lack of marketability discount. The fair value measurement is negatively correlated to the discount for lack of marketability. As at 31 December 2018, it is estimated that with all other variables held constant, a decrease/increase in discount for lack of marketability by 1% would have increased/decreased the Group's other comprehensive income by RMB2,325,000 (31 December 2017:RMB2,709,000).

#### (e) 公允價值計量(續)

##### (i) 按公允價值計量的金融資產及負債(續)

公允價值層級(續)

於截至2017年及2018年，本集團未發生第1、2層級之間的轉換，或轉入或由第3層級轉出(初始採用《國際財務報告準則》第9號除外)。

公允價值層級第三層級所計量公允價值的資料：

非上市權益工具的公允價值採用可比較上市企業的市價盈利率或價格與帳面值的比率進行確定，並根據就缺乏市場流通性的折讓進行調整。公允價值計量與就缺乏市場流通性的折讓存在負相關的關係。於2018年12月31日，假設所有其他變數維持不變，預計就缺乏市場流通性的折讓減少/增加1%，本集團的其他綜合收益將增加/減少約為人民幣2,325,000元(2017年12月31日：人民幣2,709,000元)。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)      37 財務風險管理及公允價值(續)

#### (e) Fair value measurement (Continued)

##### (i) Financial assets and liabilities measured at fair value (Continued)

Information about Level 3 fair value measurements:  
(Continued)

The movement during the year in the balance of the Level 3 fair value measurements is as follows:

#### (e) 公允價值計量(續)

##### (i) 按公允價值計量的金融資產及負債(續)

公允價值層級第三層級所計量公允價值的資料：(續)

本期第3層級公允價值計量下的結餘變動如下：

		<b>At 31 December 2018</b>
		於2018年12月31日
		<b>RMB'000</b>
		人民幣千元
Unlisted equity securities	非上市權益證券	
At 1 January	於1月1日	-
Adjustment on initial application of IFRS 9 (Note 2(c)(i))	就初始採用《國際財務報告準則》第9號的調整(附註2(c)(i))	<b>173,669</b>
Additional securities recognised	已確認的額外證券	<b>71,572</b>
Changes in fair value recognised in other comprehensive income	於損益內確認的公允價值變動	<b>5,976</b>
At 31 December	於12月31日	<b>251,217</b>

From 1 January 2018, any gains or losses arising from the remeasurement of the Group's unlisted equity securities held for strategic purposes are recognised in the fair value reserve (non-recycling) in other comprehensive income. Upon disposal of the equity securities, the amount accumulated in other comprehensive income is transferred directly to retained earnings. Prior to 1 January 2018, any gains arising from the disposal of the unlisted equity securities were presented in the "Other net income" line item in the consolidated statement of profit or loss.

自2018年1月1日起，因重新計量本集團就戰略目的持有的非上市權益證券而產生的任何收益或虧損於其他綜合收益的公允價值儲備(不重新計入)中進行確認。在出售該等權益證券後，其他綜合收益中的累計金額將直接轉入留存收益。於2018年1月1日前，出售該等非上市權益證券產生的收益於合併損益表中的「其他收益淨額」項目中列報。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 37 FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 37 財務風險管理及公允價值(續)

#### (e) Fair value measurement (Continued)

##### (ii) Fair values of financial assets and liabilities carried at other than fair value

The carrying amounts of the Group's financial instruments carried at cost or amortised cost are not materially different from their values as at 31 December 2017 and 31 December 2018 except for the following financial instruments, for which their carrying amounts and fair value are disclosed below:

#### (e) 公允價值計量(續)

##### (ii) 非按公允價值列賬的金融資產和金融負債的公允價值

按成本或攤餘成本入帳的本集團金融工具的帳面金額與其於2017年12月31日和2018年12月31日的數值並無重大差異，惟以下各項金融工具外，該等金融工具的帳面金額及公允價值披露如下：

		At 31 December 2018 於2018年12月31日		At 31 December 2017 於2017年12月31日	
		Carrying amount 帳面金額 RMB'000 人民幣千元	Fair value 公允價值 RMB'000 人民幣千元	Carrying amount 帳面金額 RMB'000 人民幣千元	Fair value 公允價值 RMB'000 人民幣千元
Unlisted equity securities	非上市權益證券	-	-	162,187	173,669
Long-term receivables	長期應收款項	1,819,031	1,723,048	1,783,276	1,690,112
Fixed rate long-term bank loans	固定利率長期銀行貸款	(1,039,943)	(1,102,297)	(1,059,954)	(1,063,934)
Private placement notes and corporate bonds	私募債券和公司債券	(4,489,451)	(4,484,484)	(4,483,831)	(4,477,886)
Other non-current liabilities	其他非流動負債	(515,953)	(492,557)	(404,005)	(385,685)

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 38 COMMITMENTS

Commitments for the construction and acquisition of property, plant and equipment outstanding at 31 December 2018 not provided for in the financial statements were as follows:

		<b>2018</b>	2017
		<b>RMB'000</b>	RMB'000
		人民幣千元	人民幣千元
Contracted for	已訂約	<b>24,231</b>	35,994
Authorised but not contracted for	已授權但未訂約	<b>311,508</b>	292,688
		<b>335,739</b>	328,682

At 31 December 2018, the total future minimum lease payments under non-cancellable operating leases are payable as follows:

		<b>2018</b>	2017
		<b>RMB'000</b>	RMB'000
		人民幣千元	人民幣千元
With 1 year	1年內	<b>16,373</b>	15,965
After 1 year but with 5 years	1年後但5年內	<b>9,527</b>	10,129
		<b>25,900</b>	26,094

The Group leases certain buildings through non-cancellable operating leases. These operating leases do not contain provisions for contingent lease rentals. None of the rental agreements contain escalation provisions that may require higher future rental payments.

合併財務報表中未列出的於2018年12月31日關於建造及購買物業、廠房及設備的資本承擔如下所述：

於2018年12月31日，根據不可解除的經營租賃，未來應付的最低租賃付款總額如下所述：

本集團通過不可解除的經營租賃來租賃某些樓宇。該經營租賃合同不包含有關或有租金的條款。租賃合同中亦不包含將來可能需要交納更多應付租金款額的增值條款。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 39 CONTINGENT LIABILITIES

##### (a) Guarantees issued

At 31 December 2018, the Group provided bid and performance guarantees to customers for construction contracts and sale of wind turbines as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Bid guarantees provided to:	向如下公司提供的投標擔保：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	17,494	4,962
– third parties	– 第三方	26,342	10,154
Performance guarantees provided to:	向如下公司提供的履約擔保：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	1,741,656	1,193,003
– third parties	– 第三方	703,481	1,546,471
		<b>2,488,973</b>	2,754,590

Note: The compared figures represented guarantees provided to related parties under Guodian.

##### (b) Litigation contingencies

The Group is the defendant in certain lawsuits as well as the plaintiff in other proceedings arising in the ordinary course of business.

While the outcomes of the above contingencies lawsuits or other proceedings cannot be determined at present, management believes that any results will not have a material adverse effect on the financial position, operating results and business of the Group. No provision has been recognised by the Group for these claims.

#### 39 或有負債

##### (a) 擔保款項

於2018年12月31日，本集團關於建造合同及風機銷售而向客戶作出的投標及履約擔保如下所述：

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Bid guarantees provided to:	向如下公司提供的投標擔保：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	17,494	4,962
– third parties	– 第三方	26,342	10,154
Performance guarantees provided to:	向如下公司提供的履約擔保：		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	1,741,656	1,193,003
– third parties	– 第三方	703,481	1,546,471
		<b>2,488,973</b>	2,754,590

附註：上述對比資料為對國電及國電下屬關聯方提供的擔保。

##### (b) 訴訟或有事項

本集團是某些法律訴訟的被告，也是產生於日常經營過程中的其他訴訟程序的原告。

雖然上述或有事項，訴訟或其他法律程序的結果目前仍無法確定，但管理層相信任何因此產生的結果不會對本集團的財務狀況，經營業績及業務產生重大不利影響。本集團未因此索賠確認預計負債。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 40 MATERIAL RELATED PARTY TRANSACTIONS

### 40 重大關聯方交易

#### (a) Transactions with related parties

The Group is part of a larger group of companies under China Energy and has significant transactions and relationships with China Energy and related parties under China Energy.

Principal transactions which were carried out in the ordinary course of business are as follows:

#### (a) 與關聯方的交易

本集團是國家能源集團的眾多公司的一部份，與國家能源集團及國家能源集團下屬的關聯方之間具有重大交易量及重要關係。

在正常業務過程中與關聯方的其他主要交易如下所述：

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<i>Sale of goods to</i>	<i>出售商品予</i>		
– China Energy (Note)	– 國家能源集團(附註)	<b>33,793</b>	35,959
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>2,373,945</b>	3,141,425
– associates	– 聯營公司	<b>785</b>	25,312
<i>Construction service provided to</i>	<i>提供建造服務予</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>3,906,302</b>	3,598,343
– associates	– 聯營公司	<b>2,020</b>	46,557
<i>Service provided to</i>	<i>提供服務予</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>341,551</b>	320,640
<i>Lease to</i>	<i>出租予</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>853,377</b>	757,693
– associates	– 聯營公司	<b>73,355</b>	–
<i>Rent from</i>	<i>授租自</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>8,806</b>	11,704
<i>Purchase of goods from</i>	<i>購買商品自</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>263,469</b>	116,101
– associates	– 聯營公司	<b>573</b>	3,882
<i>Service provided by</i>	<i>服務提供自</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	<b>52,357</b>	55,050
– associates	– 聯營公司	<b>4,392</b>	–
<i>Working capital repaid to</i>	<i>償還週轉資金予</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	–	9
<i>Working capital provided to</i>	<i>提供週轉資金予</i>		
– associates	– 聯營公司	<b>6,028</b>	44,269
<i>Working capital repaid from</i>	<i>償還週轉資金自</i>		
– associates	– 聯營公司	<b>13,180</b>	512,546

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 40 MATERIAL RELATED PARTY TRANSACTIONS 40 重大關聯方交易(續) (CONTINUED)

#### (a) Transactions with related parties (Continued)

#### (a) 與關聯方的交易(續)

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
<i>Loans received from</i>	<i>貸款借取自</i>		
– China Energy (Note)	– 國家能源集團(附註)	600,000	600,000
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	1,640,000	950,000
<i>Loans repaid to</i>	<i>償還貸款予</i>		
– China Energy (Note)	– 國家能源集團(附註)	600,000	600,000
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	745,000	260,500
<i>Interest expenses</i>	<i>利息費用</i>		
– China Energy (Note)	– 國家能源集團(附註)	23,649	19,855
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	20,214	10,439
<i>Interest income</i>	<i>利息收入</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	46,936	39,406
<i>Net deposits placed with</i>	<i>存入的存款淨額</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	(768,208)	32,218
<i>Dividend paid to</i>	<i>支付股息予</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	7,500	38,489
<i>Dividend received from</i>	<i>收取股息自</i>		
– related parties under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	5,915	16,600
– associates	– 聯營公司	83,802	81,105
<i>Disposal of a subsidiary to</i>	<i>處置一個附屬公司予</i>		
– a related party under China Energy (Note)	– 國家能源集團下屬的關聯方(附註)	–	253,644

Note: The compared figures represented amounts related to Guodian and related parties under Guodian.

附註：對比數字為國電及國電下屬關聯方相關的金額。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 40 MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED)

### 40 重大關聯方交易(續)

#### (b) Outstanding balances, including commitment, with related parties

Details of the outstanding balances with related parties are set out in Notes 21, 23, 24, 25, 27, 29, 30, 31 and 32.

At 31 December 2018, the Group's commitments with related parties that have been contracted for but not yet been recognised in these financial statements were as follows:

#### (b) 與關聯方的餘額、包括約定

附註21、23、24、25、27、29、30、31與32對關聯方的餘額進行了詳細說明。

於2018年12月31日，本集團已訂約但尚未在財務報表中確認的對關聯方的約定情況如下：

		2018 RMB'000 人民幣千元	2017 RMB'000 人民幣千元
<i>Sale of goods to</i> – related parties under China Energy (Note)	出售商品予 – 國家能源集團下屬的關聯方(附註)	3,302,243	4,575,958
<i>Construction service to be provided to</i> – related parties under China Energy (Note)	提供建造服務予 – 國家能源集團下屬的關聯方(附註)	2,667,556	3,674,878

Note: The compared figures represented the Group's commitments with related parties under Guodian.

附註：對比數字為集團對國電下屬關聯方承諾的金額。

#### (c) Contributions to defined contribution retirement plans

The Group participates in various defined contribution retirement plans organised by relevant local government authorities and Guodian for its staff. As at 31 December 2018, there was no material outstanding contribution to post-employment benefit plans. Details of the defined contribution retirement plans are set out in Note 7(a).

#### (c) 界定供款退休計劃的供款

本集團參加了相關政府機構及國電內部組織的各種界定供款退休計劃。於2018年12月31日，在退休福利計劃項下，沒有重大未支付供款。附註7(a)對界定供款退休計劃進行了詳細說明。

#### (d) Transactions with other government-related entities in the PRC

The Group operates in an economic regime currently dominated by entities directly or indirectly controlled, jointly controlled or significantly influenced by the PRC government and numerous government authorities and agencies (collectively referred to as “government-related entities”). Guodian, the parent and ultimate holding company of the Company, is a PRC state-owned enterprise and these government-related entities are also considered as related parties of the Group in this respect.

#### (d) 與中國其他政府相關實體之間的交易

在本集團目前從業的經濟體制之下，主導企業是由中國政府及各種政府機關及機構直接或間接控制、聯合控制或重大影響的實體(合稱為「政府相關實體」)。國電(本公司的母公司及最終控股公司)是中國的國有企業，此等政府相關實體因此也視為本集團的關聯方。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 40 MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED) 40 重大關聯方交易(續)

#### (d) Transactions with other government-related entities in the PRC (Continued)

Apart from transactions with Guodian and related parties under Guodian mentioned above, the Group conducts a majority of its business activities with other government-related entities in the ordinary course of business. These transactions are carried out at terms similar to those that would be entered into with non-government-related entities.

The Group prices its services and products based on the commercial negotiations. The Group has also established its approval process for sales of goods, provision of services, purchase of products and services and its financing policy for borrowings. Such approval process and financing policy do not depend on whether the counterparties are government-related entities or not.

Having considered the potential for transactions to be impacted by related party relationships, the Group's approval processes and financing policy, and what information would be necessary for an understanding of the potential effect of the relationship on these financial statements, the directors of the Company are of the opinion that further information about the following transactions that are collectively significant is required for disclosure:

- Sales of goods and provision of construction services;

The Group sells its goods and provide construction services to a wide range of government-related power companies and manufacturing enterprises. These transactions individually are not significant to the Group.

- Deposits and borrowings;

The Group deposits most of its cash in government-related financial institutions, and also obtains short-term and long-term loans from these financial institutions in the ordinary course of business. The interest rates of the bank deposits and loans are regulated by the People's Bank of China.

#### (d) 與中國其他政府相關實體之間的交易(續)

除上述與國電及國電下屬關聯方之間的交易之外，在正常業務過程中，本集團大部份業務活動是與其他政府相關實體交易的。此等交易的執行條款與非政府相關實體的交易條款相似。

本集團根據市場談判條件對服務及產品定價。關於貨物銷售、服務提供、產品及服務的購買，本集團已建立了審批程序，並建立了關於借款方面的融資政策。此類審批程序及融資政策並不考慮交易對方是否是政府相關實體。

考慮到關聯方關係對交易的潛在影響、本集團的審批程序以及融資政策，以及為瞭解關聯關係對財務報表的潛在影響而需要的資訊，本公司董事們認為，對於具有整體重大意義的如下交易，需要披露進一步的詳細資訊：

- 貨物銷售及施工服務的提供：

本集團向各種政府相關電力公司及製造企業銷售貨物並提供建造服務。此筆交易個別而言對本集團並不重大。

- 存款及借款：

本集團的大部份現金存於政府相關的金融機構，且在正常業務過程中也從此類金融機構獲取短期及長期貸款。銀行存款及貸款利率由中國人民銀行制定。



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 40 MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED)

### 40 重大關聯方交易(續)

#### (d) Transactions with other government-related entities in the PRC (Continued)

- Purchase of materials and receiving construction services; and

The Group purchases materials and receives construction services from a wide range of government-related manufacturing enterprises and construction contractors. These transactions individually are not significant to the Group.

- Service concession arrangements;

The Group entered into a number of service concession agreements with local governments to construct and operate water treatment plants during the concession period. All transactions under the service concession arrangements were made with local governments and carried out at terms set out in the respective service concession arrangements.

#### (e) Key management personnel remuneration

Key management personnel are those persons holding positions with authority and responsibility for planning, directing and controlling the activities of the Group, directly or indirectly, including the Company's directors.

Remuneration for key management personnel, including amounts paid to the Company's directors as disclosed in Note 9, and certain of the highest paid employees as disclosed in Note 10, is as follows:

		2018 <i>RMB'000</i> 人民幣千元	2017 <i>RMB'000</i> 人民幣千元
Salaries and other emoluments	工資及其他薪金	6,804	6,389
Discretionary bonus	酌情花紅	2,009	1,989
Retirement scheme contributions	退休計劃供款	1,088	755
		<b>9,901</b>	9,133

#### (d) 與中國其他政府相關實體之間的交易(續)

- 材料購買及獲得施工服務；及

本集團向各種政府相關製造企業購買材料並向各種政府相關建造承包商獲取建造服務。此等具體交易個別而言對本集團不重大。


- 服務特許權安排；

本集團已與當地政府簽訂了多項特許權服務協定，在特許期限之內，負責建設以及經營污水處理廠。服務特許權協定項下的所有交易均是與地方政府作出的，且在各自的特許權安排中規定了交易執行條款。

#### (e) 主要管理人員薪酬

主要管理人員指對其所處職位具有權力與責任、可直接或間接地規劃、領導以及控制本集團的活動的個人，包括本公司的董事們。

關於主要管理人員的薪酬如下，包括附註9中披露的支付給本公司董事們的金額，以及附註10中披露的若干薪酬最高的僱員：



## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 41 SERVICE CONCESSION ARRANGEMENT

The Group entered into a number of service concession agreements with local governments (the “Grantors”) to construct and operate water treatment plants during the concession period, which is normally for 20–30 years of operation. The Group is responsible for construction and maintenance of water treatment plants during the concession period. At the end of the concession period, the Group needs to transfer water treatment plants to the Grantors at nil consideration. With respect to these service concession arrangements, the Group has evaluated and assessed that these arrangements fall under the scope of IFRIC 12, *Service Concession Arrangements* (“IFRIC 12”).

In accordance with IFRIC 12, the Group accounts for the revenue and costs relating to construction services in accordance with the accounting policy set out in Note 2(p). The consideration received or receivables in exchange for the construction services is recognised as a financial asset for an unconditional contractual right to receive cash or another financial asset from or at the direction of the Grantor for the construction services and/or an intangible asset for a right or a license to charge users of the water treatment service.

The Group has recognised intangible assets (Note 16) and service concession receivables (Note 21) related to the service concession arrangement representing the right the Group received to charge a fee for water treatment or sale of reclaimed water and the guaranteed minimum payment during the operating period of the water treatment plants respectively.

Services concession construction revenue recorded during the year amounted to RMB14,271,000 (2017: RMB17,246,000), which represents the revenue recognised during the construction stage of the service concession period. The Group has recognised profit of RMB2,746,000 (2017: RMB3,942,000) for the construction of water treatment plants.

#### 41 服務特許權安排

本集團與地方政府(「授權方」)簽訂了多項服務特許權協定，在特許權期限之內，負責建設及營運水處理廠，該期限一般為20-30年。在特許權期限之內，本集團負責水處理廠的施工建設以及維護。特許權期滿之後，本集團需要以零對價將水處理廠轉讓給授權方。關於此等服務特許權安排，經本集團評估，此等安排符合《國際財務報告準則詮釋》第12號-「服務特許權安排」(「《國際財務報告準則詮釋》第12號」)。

根據《國際財務報告準則詮釋》第12號規定，本集團根據附註2(p)中陳述的會計政策處理建造服務相關的收入及成本。建造服務的已收或應收對價，就自授權方或按授權方的指示收取現金或其他金融資產的不附帶條件契約權確認為一項金融資產，和/或就向水處理服務之使用者收取費用的權利或許可確認為一項無形資產。

關於服務特許權安排，本集團已確認無形資產(附註16)及服務特許權應收款項(附註21)，分別表示本集團收取水處理費用或銷售中水的權利，以及水處理廠運營期間的保證最低付款額。

本年度服務特許權建造收入約為人民幣14,271,000元(2017年：人民幣17,246,000元)，即為在服務特許權期間的建造階段所確認的收入。本集團已確認有關建造水處理廠的利潤約為人民幣2,746,000元(2017年：人民幣3,942,000元)。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 42 DISPOSAL OF EQUITY INTERESTS IN SUBSIDIARIES

### 42 處置附屬公司的權益

#### (i) Disposal of 90% of equity interest in Guodian Solar Co. Ltd.

Pursuant to the announcements published by the Company on 3 May 2016 and 4 July 2016, the Company entered into a cooperation framework agreement and sale and purchase agreement with Zhonghuan Semiconductor, a listed Company on the Shenzhen Stock Exchange, to dispose 90% of equity interest in Guodian Solar to Zhonghuan Semiconductor, and Zhonghuan Semiconductor will issue ordinary shares as consideration. Guodian Solar will cease to be a subsidiary of the Company upon completion of the disposal.

During the year ended 31 December 2018, the Company completed the disposal of 90% of equity interest in Guodian Solar to Zhonghuan Semiconductor. According to the sales and purchase agreement, Zhonghuan Semiconductor issued 83,983,137 ordinary shares (“**Consideration Shares**”) to the Company on 16 August 2018, and the Company designated its investments in the Consideration Shares to be measured at FVOCI (non- recycling) as the investments are hold for strategic purpose.

#### (i) 處置國電光伏有限公司90%的股權

根據本集團於2016年5月3日和2016年7月4日發佈的公告，本集團與天津中環半導體股份有限公司(「中環股份」)訂立合作框架協定和買賣協議，該公司於深圳證券交易所掛牌上市；本集團亦將其對國電光伏有限公司(「國電光伏」)的90%股權出售予中環股份，且中環股份將發行普通股作為代價。國電光伏將於該項處置之時不再是本公司的附屬公司。

於截至2018年12月31日止年度內，本集團完成其對國電光伏的90%股權出售予中環股份。根據相關買賣協議，中環股份於2018年8月16日應向本集團發行83,983,137股普通股(「代價股份」)。因這些投資是出於戰略目的而持有，本集團將待售股份的投資指定為以公允價值計量且其變動計入其他綜合收益的投資(不重新計入)。

		<i>RMB'000</i> 人民幣千元
Consideration received, satisfied in cash	收到對價，現金支付	-
Cash and cash equivalents disposed of	處置現金及現金等價物	(13,921)
Net cash outflows	淨現金流出	(13,921)

#### (ii) Disposal of 51% of equity interest in United Power Changjiang (Jiangsu) Co., Ltd.

During the year ended 31 December 2018, the Company completed the disposal of the 51% equity interest in United Power Changjiang (Jiangsu) Co., Ltd. (“**Changjiang Jiangsu Company**”). Consideration for the disposal of 51% of equity interest in Changjiang Jiangsu RMB23,988,000 has been received in 2017 and effects of disposal of the subsidiary on the consolidated statement of cash flows of the Group for the year ended 31 December 2018 is RMBNil.

#### (ii) 處置聯合動力長江(江蘇)有限公司51%的股權

截至2018年12月31日，本集團完成了聯合動力長江(江蘇)有限公司(「聯合動力(長江江蘇)」)51%的股權處置。處置51%股權的對價款人民幣23,988,000元於2017年收到，對截至2018年12月31日止年度本集團的合併現金流量表的影響是人民幣零元。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

#### 43 COMPANY-LEVEL STATEMENT OF FINANCIAL POSITION 43 公司層面的財務狀況表

		2018 <i>RMB'000</i> 人民幣千元	2017 RMB'000 人民幣千元
<b>Non-current assets</b>	<b>非流動資產</b>		
Property, plant and equipment	物業、廠房及設備	1,027,779	1,099,835
Investment properties	投資性物業	888,220	897,051
Intangible assets	無形資產	21,281	23,070
Interests in subsidiaries	對附屬公司的投資	4,382,074	4,184,074
Interests in associates	對聯營公司的投資	89,600	89,600
Other equity investments	其他權益投資	855,265	156,070
Other non-current assets	其他非流動資產	-	3,074
<b>Total non-current assets</b>	<b>非流動資產總額</b>	<b>7,264,219</b>	6,452,774
<b>Current assets</b>	<b>流動資產</b>		
Inventories	存貨	331	171
Trade and bills receivables	應收賬款及票據	160,436	485,636
Deposits, prepayments and other receivables	按金、預付款項及其他應收款項	2,936,209	2,648,402
Cash at bank and in hand	銀行存款及庫存現金	311,486	272,246
Assets held for sale	持有待售資產	-	462,633
<b>Total current assets</b>	<b>流動資產總額</b>	<b>3,408,462</b>	3,869,088
<b>Current liabilities</b>	<b>流動負債</b>		
Borrowings	借款	4,691,585	4,212,812
Trade and bills payables	應付帳款及票據	14,434	13,278
Other payables	其他應付款項	117,198	227,504
<b>Total current liabilities</b>	<b>流動負債總額</b>	<b>4,823,217</b>	4,453,594
<b>Net current liabilities</b>	<b>流動負債淨額</b>	<b>(1,414,755)</b>	(584,506)
<b>Total assets less current liabilities</b>	<b>資產總額減流動負債</b>	<b>5,849,464</b>	5,868,268
<b>Non-current liability</b>	<b>非流動負債</b>		
Borrowings	借款	3,037,867	3,321,018
<b>Total non-current liability</b>	<b>非流動負債總額</b>	<b>3,037,867</b>	3,321,018
<b>NET ASSETS</b>	<b>資產淨額</b>	<b>2,811,597</b>	2,547,250
<b>CAPITAL AND RESERVES</b>	<b>資本及儲備</b>		
Share capital	股本	6,063,770	6,063,770
Reserves	儲備	(3,252,173)	(3,516,520)
<b>TOTAL EQUITY</b>	<b>權益總額</b>	<b>2,811,597</b>	2,547,250

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
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### 44 PARENT AND ULTIMATE HOLDING COMPANY

China Energy and Guodian, the parent and ultimate holding company of the Company, has signed the Consolidation Agreement Between China Energy Investment Corporation Limited and Guodian Group Limited (the “**Consolidation Agreement**”) on 5 February 2018, pursuant to which China Energy was consolidated with Guodian (“**Consolidation**”).

On 27 August 2018, the Company was informed by China Energy and Guodian that on 27 August 2018, China Energy and Guodian received the Decision of Non-Prohibition on Anti-Monopoly Review on Concentration of Operators (Fan Long Duan Shen Cha Han [2018] No. 26) issued by the Anti-Monopoly Bureau of the State Administration of Market Regulation. The Bureau decided not to prohibit the Consolidation after review, and allowed Consolidation to be implemented henceforth. Conditions for completion of the Consolidation as agreed under the Consolidation Agreement have been fully satisfied. After the Consolidation, the parent and ultimate holding company of the Group was changed into China Energy.

China Energy does not produce financial statements available for public use.

### 45 COMPARATIVE FIGURES

The Group has initially applied IFRS 15 and IFRS 9 at 1 January 2018. Under the transition methods chosen, comparative information is not restated. Further details of the changes in accounting policies are disclosed in Note 2(c).

### 44 母公司及最終控股公司

國家能源集團與本公司的母公司及最終控股公司國電集團已於2018年2月5日簽署《國家能源投資集團有限責任公司與國電集團之合併協議》(《合併協議》)，約定國家能源集團與國電集團合併(《集團合併》)。

本公司於2018年8月27日接到國家能源集團及國電集團通知，國家能源集團與國電集團已於2018年8月27日收到國家市場監督管理總局反壟斷局出具的《經營者集中反壟斷審查不予禁止決定書》(反壟斷審查函[2018]第26號)，該局經審查後決定對集團合併不予禁止，從即日起可以實施集中。《合併協議》約定的集團合併交割條件已全部滿足。集團合併後，本公司的母公司及最終控股公司變更為國家能源集團。

國家能源集團未編製可供公眾使用的財務報表。

### 45 對比數據

本集團於2018年1月1日起應用《國際財務報告準則》第15號及《國際財務報告準則》第9號。根據選擇的過渡方法，由於初次應用，對比數據並未重述。有關會計政策變更的進一步詳情於附註2(c)披露。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

### 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)

(除非另有說明，以人民幣列示)

#### 46 POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 DECEMBER 2018

Up to the date of issue of these financial statements, the IASB has issued a number of amendments, new standards and interpretations which are not yet effective for the year ended 31 December 2018 and which have not been adopted in these financial statements. These include the following which may be relevant to the Group.

#### 46 已發佈但尚未在截至2018年12月31日止年度生效的修訂、新訂的準則及詮釋可能產生的影響

截至本財務報表刊發日期為止，國際會計準則理事會已發佈於截至二零一八年十二月三十一日止年度尚未生效的若干修訂、新訂準則及解釋，其在本財務報表內尚未採用。該等準則包括下列可能與本集團有關的準則。

	Effective for accounting periods beginning on or after 於下列日期或之後 開始的年度期間生效
IFRS 16, <i>Leases</i> 國際財務報告準則第16號·租賃	1 January 2019 二零一九年一月一日
IFRIC 23, <i>Uncertainty over income tax treatments</i> 國際財務報告準則解釋第23號·具有不確定性的所得稅處理	1 January 2019 二零一九年一月一日

The Group is in the process of making an assessment of what the impact of these amendments, new standards and interpretations is expected to be in the period of initial application. So far the Group has identified some aspects of the IFRS 16 which may have a significant impact on the consolidated financial statements. Further details of the expected impacts are discussed below. The actual impact upon the initial adoption of the IFRS 16 may differ as the assessment completed to date is based on the information currently available to the Group, and further impacts may be identified before the standard is initially applied in the Group's interim financial report for the six months ending 30 June 2019. The Group may also change its accounting policy elections, including the transition options, until the standard is initially applied in that financial report.

本集團正在評估預期這些的修訂、新訂準則及詮釋於首次應用期間的影響。迄今為止本集團已識別新訂準則的若干方面可能對綜合財務報表造成重大影響。有關預期影響的進一步詳情於下文論述。國際財務報告準則第16號於首次採納時的實際影響可能不同，原因是至今完成的評估乃基於本集團現時可得資料作出，而進一步影響可能於國際財務報告準則第16號本集團截至二零一九年六月三十日止六個月的中期財務報告首次應用前確認。本集團亦可能改變其會計政策選擇，包括過渡選擇，直至該等準則於該中期財務報告內首次應用為止。

## NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Expressed in RMB unless otherwise indicated)  
(除非另有說明，以人民幣列示)

### 46 POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 DECEMBER 2018 (CONTINUED)

#### IFRS 16, *Lease*

As disclosed in Note 2(m), currently the Group classifies leases into finance leases and operating leases and accounts for the lease arrangements differently, depending on the classification of the lease. The Group enters into some leases as the lessor and others as the lessee.

IFRS 16 is not expected to impact significantly on the way that lessors account for their rights and obligations under a lease. However, once IFRS 16 is adopted, lessees will no longer distinguish between finance leases and operating leases. Instead, subject to practical expedients, lessees will account for all leases in a similar way to current finance lease accounting, i.e. at the commencement date of the lease the lessee will recognise and measure a lease liability at the present value of the minimum future lease payments and will recognise a corresponding "right-of-use" asset. After initial recognition of this asset and liability, the lessee will recognise interest expense accrued on the outstanding balance of the lease liability, and the depreciation of the right-of-use asset, instead of the current policy of recognising rental expenses incurred under operating leases on a systematic basis over the lease term. As a practical expedient, the lessee can elect not to apply this accounting model to short-term leases (i.e. where the lease term is 12 months or less) and to leases of low-value assets, in which case the rental expenses would continue to be recognised on a systematic basis over the lease term.

IFRS 16 will primarily affect the Group's accounting as a lessee of leases for properties, plant and equipment which are currently classified as operating leases. The application of the new accounting model is expected to lead to an increase in both assets and liabilities and to impact on the timing of the expense recognition in the statement of profit or loss over the period of the lease.

The Group plans to elect to use the modified retrospective approach for the adoption of IFRS 16 and will recognise the cumulative effect of initial application as an adjustment to the opening balance of equity at 1 January 2019 and will not restate the comparative information. As disclosed in Note 38, at 31 December 2018 the Group's future minimum lease payments under non-cancellable operating leases amount to RMB25,900,000, the majority of which is payable within 1 year after the reporting date. The initial adoption of IFRS 16 is not expected to have a significant impact on the opening balance at 1 January 2019.

Other than the recognition of lease liabilities and right-of-use assets, the Group expects that the transition adjustments to be made upon the initial adoption of IFRS 16 will not be material. However, the expected changes in accounting policies as described above could have a material impact on the Group's financial statement from 2019 onwards.

### 46 已發佈但尚未在截至2018年12月31日止年度生效的修訂、新訂的準則及詮釋可能產生的影響(續)

#### 《國際財務報告準則》第16號，租賃

如附註2(m)所披露，本集團目前難以將租賃分類為融資租賃及經營租賃並就租賃安排入賬，取決於租賃的分類。本集團作為承租人訂立部分租賃，而其餘則以出租人訂立租賃。

預期國際財務報告準則第16號將不會嚴重影響出租人將彼等於租約項下的權利及義務入賬的方式。然而，一旦採納國際財務報告準則第16號，承租人將不再區分融資租約及經營租約。相反，受實際權益方法的規限，承租人將以與現有融資租約會計處理方法類似的方式將所有租約入賬，即於該租約開始日期，承租人將按未來最低租賃款項的現值確認及計量租賃負債，及將確認相應的「使用權」資產。於初步確認該資產及負債後，承租人將確認租賃負債結餘所累計的利息開支及使用權資產折舊，而非於租期內按系統基準確認根據經營租約所產生的租賃開支的現有政策。作為實際的權益方法，承租人可選擇不將此會計模式應用於短期租賃(即租期為12個月或以下)及低價值資產的租賃，於該等情況下，租金開支將繼續於租期內按系統基準確認。

國際財務報告準則第16號將主要影響本集團作為租約承租人就物業、廠房及設備(現時分類為經營租約)的會計處理方法。預期應用新會計模式將導致資產及負債均有所增加，及影響租期內於損益表確認開支的時間。

本集團計劃選擇採用經修改的追溯法採用國際財務報告準則第16號，並將初始應用的累積效應確認為對2019年1月1日所有者權益期初餘額的調整，不會重述比較資訊。如附註38所披露，截至2018年12月31日，本集團未來不可撤銷經營租賃項下的最低租賃付款額約為人民幣25,900,000元，其中大部分在報告日期後1年內支付。初次採用國際財務報告準則第16號預計不會對2019年1月1日的期初餘額產生重大影響。

除了確認租賃負債和使用權資產外，本集團預計，在初次採用國際財務報告準則第16號時所作的過渡調整將不會是重大的。但是，上述會計政策的預期變化可能對集團2019年以後的財務報表產生重大影響。



# 國電科技環保集團股份有限公司

GUODIAN TECHNOLOGY & ENVIRONMENT GROUP CORPORATION LIMITED\*

(於中華人民共和國註冊成立的股份有限公司)  
(a joint stock limited liability company incorporated in the People's Republic of China)

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