

中国博奇环保(控股)有限公司

China Boqi Environmental (Holding) Co., Ltd.

(Incorporated in the Cayman Islands with limited liability)
(於開曼群島註冊成立的有限公司)

Stock Code 股份代號 : 2377

2022

Annual Report 年報



Contents 目錄

Corporate Information	02	公司資料
Financial and Operation Highlights	05	財務及營運摘要
Chairman's Statement	11	主席報告書
Company Profile	15	公司簡介
Directors and Senior Management	16	董事及高級管理層
Management Discussion and Analysis	33	管理層討論與分析
Major Events for Boqi in 2022	73	2022年博奇公司大事記
Corporate Governance Report	78	企業管治報告
Directors' Report	106	董事會報告
Human Resources	140	人力資源
ESG Report	143	環境、社會及管治報告
Independent Auditor's Report	209	獨立核數師報告
Consolidated Statement of Profit or Loss	217	綜合損益表
Consolidated Statement of Comprehensive Income	218	綜合收益表
Consolidated Statement of Financial Position	219	綜合財務狀況表
Consolidated Statement of Changes in Equity	221	綜合權益變動表
Consolidated Statement of Cash Flows	223	綜合現金流量表
Notes to the Consolidated Financial Statements	227	綜合財務報表附註

Corporate Information

公司資料

BOARD OF DIRECTORS

Executive Director

Zeng Zhijun (*Chairman*)

Non-Executive Directors

Cheng Liquan Richard

Zheng Tony Tuo

Zhu Weihang

Chen Xue

Independent Non-Executive Directors

Liu Genyu

Xie Guozhong

Lu Zhifang

AUDIT COMMITTEE

Xie Guozhong (*Chairman*)

Zheng Tony Tuo

Liu Genyu

REMUNERATION COMMITTEE

Lu Zhifang (*Chairman*)

Zeng Zhijun

Liu Genyu

NOMINATION COMMITTEE

Zeng Zhijun (*Chairman*)

Xie Guozhong

Lu Zhifang

JOINT COMPANY SECRETARIES

Qian Xiaoning

Wong Wai Ling

AUTHORIZED REPRESENTATIVES

Zeng Zhijun

Wong Wai Ling

AUDITOR

Ernst & Young

Certified Public Accountant

Registered Public Interest Entity Auditor

27/F, One Taikoo Place

979 King's Road

Quarry Bay, Hong Kong

董事會

執行董事

曾之俊(主席)

非執行董事

程里全

鄭拓

朱偉航

陳學

獨立非執行董事

劉根鈺

謝國忠

陸志芳

審核委員會

謝國忠(主席)

鄭拓

劉根鈺

薪酬委員會

陸志芳(主席)

曾之俊

劉根鈺

提名委員會

曾之俊(主席)

謝國忠

陸志芳

聯席公司秘書

錢曉寧

黃慧玲

授權代表

曾之俊

黃慧玲

核數師

安永會計師事務所

註冊會計師

註冊公眾利益實體核數師

香港鰂魚涌

英皇道979號

太古坊一座27樓

Corporate Information (Continued)

公司資料 (續)

REGISTERED OFFICE

PO Box 309, Ugland House
Grand Cayman KY1-1104
Cayman Islands

PLACE OF BUSINESS IN HONG KONG

40/F, Dah Sing Financial Centre
248 Queen's Road East
Wanchai, Hong Kong

HEADQUARTERS IN THE PRC

Floor 2, Guoben Culture Building
No. Jia 8, Xinglongzhuang
Chaoyang District
Beijing, the PRC

LEGAL ADVISERS

As to Hong Kong law
Tian Yuan Law Firm LLP
Suites 3304-3309
33/F, Jardine House
One Connaught Place
Central, Hong Kong

As to PRC law
Commerce & Finance Law Offices
12-14th Floor, China World Office 2
No. 1 Jianguomenwai Avenue
Beijing 100022
the PRC

As to Cayman Islands Law
Maples and Calder (Hong Kong) LLP
53rd Floor, The Center
99 Queen's Road Central
Hong Kong

註冊辦事處

PO Box 309, Ugland House
Grand Cayman KY1-1104
Cayman Islands

香港營業地點

香港灣仔
皇后大道東248號
大新金融中心40樓

中國主要辦事處

中國北京市
朝陽區
興隆莊甲8號
國本文化大廈2層

法律顧問

有關香港法律
天元律師事務所(有限法律責任合夥)
香港中環
康樂廣場1號
怡和大廈33樓
3304-3309室

有關中國法律
通商律師事務所
中國北京市
建國門外大街1號
國貿寫字樓2座12-14層
郵編100022

有關開曼群島法律
邁普達律師事務所(香港)有限法律責任合夥
香港
皇后大道中99號
中環中心53樓



Corporate Information (Continued)**公司資料(續)****PRINCIPAL SHARE REGISTRAR AND TRANSFER OFFICE**

Maples Fund Services (Cayman) Limited
PO Box 1093
Boundary Hall
Cricket Square, Grand Cayman
KY1-1102, Cayman Islands

HONG KONG BRANCH SHARE REGISTRAR

Tricor Investor Services Limited
17/F, Far East Finance Centre
16 Harcourt Road
Hong Kong

PRINCIPAL BANKERS

China Construction Bank, Chaoyang Branch
China Minsheng Bank, Aoyuncun Branch
China CITIC Bank, Beichen Branch
Jiangsu Bank, Xuanwumen Branch
China Merchants Bank, Jianguo Road Branch
Bank of China (Hong Kong) Limited

STOCK CODE AND BOARD LOT**Stock Code:**

2377

Board Lot:

1,000 Shares

INVESTOR RELATIONS AND COMMUNICATIONS

Tel: +86 10 5957 9665
+86 10 5878 2059
Fax: +86 10 5957 9900 – 001
Website: www.chinaboqi.com
Email: irhk@chinaboqi.com

主要股份過戶登記處

Maples Fund Services (Cayman) Limited
PO Box 1093
Boundary Hall
Cricket Square, Grand Cayman
KY1-1102, Cayman Islands

香港股份過戶登記處分處

卓佳證券登記有限公司
香港
夏慤道16號
遠東金融中心17樓

主要往來銀行

中國建設銀行朝陽支行
中國民生銀行奧運村支行
中信銀行北辰支行
江蘇銀行宣武門支行
招商銀行建國路支行
中國銀行(香港)有限公司

股份代號及買賣單位**股份代號：**

2377

買賣單位：

1,000股

投資者關係與聯絡

電話：+86 10 5957 9665
+86 10 5878 2059
傳真：+86 10 5957 9900—001
網站：www.chinaboqi.com
電郵：irhk@chinaboqi.com

Financial and Operation Highlights

財務及營運摘要

ANNUAL RESULTS HIGHLIGHTS

For the year ended 31 December 2022 (the “**Reporting Period**” or the “**2022 financial year**”), the revenue of China Boqi Environmental (Holding) Co., Ltd. (the “**Company**”) and its subsidiaries (the “**Group**”) amounted to RMB1,900 million, representing a decrease of 9.2% as compared with last year.

For the year ended 31 December 2022, the gross profit of the Group amounted to RMB391 million and the gross profit margin of the Group was 20.6%, representing an increase of 0.8% and 2.1 percentage points as compared with last year, respectively.

For the year ended 31 December 2022, the net profit of the Group amounted to RMB156 million with a new profit margin of 8.2%. Excluding gain and losses on fair value changes in financial assets at fair value through profit or loss and investment income, the Group’s net profit was RMB227 million, representing a decrease of 6.2% as compared with last year.

For the year ended 31 December 2022, the revenue from the Group’s flue gas treatment business segment was RMB1,510 million. As of 31 December 2022, the Group had 10 newly added EPC projects, with a total contract value amounting to approximately RMB429 million. During the Reporting Period, there were 23 O&M projects in operation, covering thermal electricity and steel sectors. The scope of the Group’s O&M services was successfully expanded from the original environmental protection facilities to the O&M of power generating units. As of 31 December 2022, the Group accumulated 7 concession operation projects, all of which have been put into operation smoothly, laying a strong foundation for the Group’s continuous operation and stable development.

For the year ended 31 December 2022, the revenue from the Group’s water treatment business segment was RMB271 million. The Group’s water treatment business has developed with favorable momentum. As of 31 December 2022, the Group had three new water treatment projects, with a total contract value of approximately RMB295 million. During the Reporting Period, there were 8 water treatment projects being implemented.

年度業績摘要

截至2022年12月31日止年度（「**報告期**」或「**2022 財政年度**」），中國博奇環保(控股)有限公司（「**本公司**」）及其附屬公司（「**本集團**」）的收入為人民幣1,900百萬元，較去年減少9.2%。

截至2022年12月31日止年度，本集團的毛利為人民幣391百萬元及本集團的毛利率為20.6%，較去年分別增長0.8%及2.1個百分點。

截至2022年12月31日止年度，本集團的純利為人民幣156百萬元及本集團的純利率為8.2%。剔除按公允價值計入損益的金融資產的公允價值變動損益及投資收益後，本集團純利為人民幣227百萬元，較去年減少6.2%。

截至2022年12月31日止年度，本集團煙氣治理業務分部收入為人民幣1,510百萬元。於2022年12月31日，本集團有10個新增的EPC項目，總合同金額約為人民幣429百萬元。於報告期內，共有23個在投運的運維項目，涵蓋火電及鋼鐵領域，本集團運行維護服務範圍由原有的環保設施成功拓展至發電機組運維。於2022年12月31日，本集團累計在執行7個特許經營項目，全部均已順利投運，為本集團持續經營和穩定發展奠定重要基礎。

截至2022年12月31日止年度，本集團水處理業務分部收入為人民幣271百萬元；本集團水處理業務發展態勢良好。於2022年12月31日，本集團有3個新訂約的水處理項目，總合同金額約為人民幣295百萬元。於報告期內，共有8個水處理項目正在執行中。

Financial and Operation Highlights (Continued)

財務及營運摘要(續)

For the year ended 31 December 2022, the revenue from the Group's hazardous and solid waste treatment/disposal business segment was RMB12 million. In the field of co-processing of cement kilns, the construction of the first phase of the Cooperative Hazardous and Solid Waste Disposal Project of Tangshan Yandong Cement Kiln in China has been completed, and the hazardous waste business license is being processed. Qinghai Boqi Ecological Environmental Technology Co., Ltd. ("**Qinghai Boqi**") was affected by factors such as increasingly stringent regulatory environment and landscape on cross-province transfer of hazardous waste in the Qinghai Province and the lockdown caused by the coronavirus pandemic in 2022, and thus the Group made a downward adjustment of the acquisition consideration of Qinghai Boqi. Through the planning of its hazardous and solid waste treatment/disposal business, the Group is expected to further open up the market of the hazardous and solid waste treatment/disposal business.

For the year ended 31 December 2022, the revenue from the Group's dual-carbon energy saving business segment was RMB108 million. The contract model of CDQ Project of Tianjin Iron Plant was changed from the original EMC model to the BOT model, which will provide a stable source of income for the Group in the mid- to long-term, thus laying a foundation for the strategic deployment of the Group's dual-carbon energy saving business.

The board (the "**Board**") of directors (the "**Directors**") of the Company recommend the payment of HK\$3.00 cents per ordinary share as final dividend for the year ended 31 December 2022 (31 December 2021: HK\$7.40 cents).

截至2022年12月31日止年度，本集團危固廢處理處置業務分部的收入為人民幣12百萬元。在水泥窯協同處置領域，唐山燕東水泥窯協同處置危固廢處理項目一期已經建設完成，正在辦理危險廢物經營許可證。青海博奇生態環境科技有限公司(「**青海博奇**」)於2022年受青海省危險廢物跨省轉移的監管環境和格局日趨嚴格，以及新冠疫情導致停工等因素的影響，因此本集團已向下游調整青海博奇的收購代價。通過對危固廢處理處置業務的佈局，本集團有望進一步打開危固廢處理處置業務市場。

截至2022年12月31日止年度，本集團雙碳節能業務分部的收入為人民幣108百萬元。天津鐵廠乾熄焦工程項目的合同模式已由原本的EMC模式變更為BOT模式，中長期內將為本集團帶來穩定的收入來源，為本集團雙碳節能的戰略佈局奠定基礎。

本公司董事(「**董事**」)會(「**董事會**」)已建議宣派截至2022年12月31日止年度之末期股息每股普通股3.00港仙(2021年12月31日：7.40港仙)。

Financial and Operation Highlights (Continued)

財務及營運摘要 (續)

The following table sets forth the Company's consolidated statements of profit or loss and other comprehensive income for the periods indicated:

下表載列所示期間本公司的綜合損益及其他全面收益表：

		Year ended 31 December 截至12月31日止年度				
		2022 2022年 RMB'000 人民幣千元	2021 2021年 RMB'000 人民幣千元	2020 2020年 RMB'000 人民幣千元	2019 2019年 RMB'000 人民幣千元	2018 2018年 RMB'000 人民幣千元
Revenue	收入	1,900,248	2,092,172	1,646,131	1,836,496	1,744,998
Cost of sales and services	銷售及服務成本	(1,509,470)	(1,704,613)	(1,306,053)	(1,529,974)	(1,427,140)
Gross profit	毛利	390,778	387,559	340,078	306,522	317,858
Other income and gains and other expense and losses	其他收入及收益以及 其他開支及虧損	(32,231)	136,563	33,532	25,436	117,456
Selling and distribution expenses	銷售及分銷開支	(19,910)	(30,189)	(22,352)	(29,295)	(26,170)
Administrative expenses	行政開支	(89,726)	(89,546)	(79,540)	(88,776)	(98,485)
Research and development expenses	研發開支	(58,662)	(40,040)	(33,810)	(24,256)	(10,618)
(Reversal of)/impairment losses on financial and contract assets	金融及合約資產的(減值 虧損撥回)/減值虧損	(15,078)	892	(11,633)	(10,928)	(3,816)
Share of profits of associates	分佔聯營公司溢利	14,395	30,601	19,337	34,541	27,963
Finance costs	財務成本	(13,667)	(9,786)	(9,910)	(4,177)	(5,900)
Change in fair value of convertible ordinary shares	可轉換普通股之 公允價值變動	-	-	-	-	133,541
Listing expenses	上市開支	-	-	-	-	(3,319)
Profit before tax	除稅前溢利	175,899	386,054	235,702	209,067	448,510
Income tax expense	所得稅開支	(20,241)	(37,652)	(28,309)	(26,453)	(55,691)
Profit for the year	年內溢利	155,658	348,402	207,393	182,614	392,819

Financial and Operation Highlights (Continued)

財務及營運摘要(續)

		Year ended 31 December 截至12月31日止年度				
		2022 2022年 RMB'000 人民幣千元	2021 2021年 RMB'000 人民幣千元	2020 2020年 RMB'000 人民幣千元	2019 2019年 RMB'000 人民幣千元	2018 2018年 RMB'000 人民幣千元
Other comprehensive income/(loss) <i>Other comprehensive income/(loss) that will not be reclassified to profit or loss in subsequent periods</i>	其他全面收益/(虧損) <i>往後期間不會重新分類至損益的其他全面收益/(虧損)</i>					
Equity investment at fair value through other comprehensive income:	按公允價值計入其他全面收益的股權投資					
Changes in fair value	公允價值變動	916	-	-	(2,374)	(5,460)
Income tax effect	所得稅影響	-	-	-	171	819
Net other comprehensive income/(loss) that will not be reclassified to profit or loss in subsequent periods	於往後期間不會重新分類至損益的其他全面收益/(虧損)淨額	916	-	-	(2,203)	(4,641)
Total comprehensive income/(loss) for the year	年內全面收益/(虧損)總額	156,574	348,402	207,393	180,411	388,178
Profit/(loss) attributable to:	以下應佔溢利/(虧損):					
Owners of the parent	母公司擁有人	151,749	348,239	207,608	182,537	394,359
Non-controlling interests	非控股權益	3,909	163	(215)	77	(1,540)
		155,658	348,402	207,393	182,614	392,819
Total comprehensive income/(loss) for the year attributable to:	以下應佔年內全面收益/(虧損)總額:					
Owners of the parent	母公司擁有人	152,665	348,239	207,608	180,334	389,718
Non-controlling interests	非控股權益	3,909	163	(215)	77	(1,540)
		156,574	348,402	207,393	180,411	388,178
Earnings/(loss) per share attributable to ordinary equity holders of the parent	母公司普通股權益持有人應佔每股盈利/(虧損)					
- Basic (RMB)	- 基本(人民幣)	0.15	0.35	0.21	0.18	0.44
- Diluted (RMB)	- 攤薄(人民幣)	0.15	0.35	0.21	0.18	0.27

Financial and Operation Highlights (Continued)

財務及營運摘要 (續)

The following table sets forth selected items from the Company's consolidated statements of financial position as at the dates indicated:

下表載列於所示日期本公司綜合財務狀況表的選定項目：

		As at 31 December 於12月31日				
		2022 2022年 RMB'000 人民幣千元	2021 2021年 RMB'000 人民幣千元	2020 2020年 RMB'000 人民幣千元	2019 2019年 RMB'000 人民幣千元	2018 2018年 RMB'000 人民幣千元
ASSETS	資產					
Total non-current assets	非流動資產總額	2,086,193	2,314,192	1,800,781	1,774,408	1,253,016
Total current assets	流動資產總額	2,639,111	2,463,021	2,064,331	2,222,644	2,277,234
Total assets	資產總額	4,725,304	4,777,213	3,865,112	3,997,052	3,530,250
LIABILITIES AND EQUITY	負債及權益					
Total current liabilities	流動負債總額	1,732,520	1,772,486	1,299,353	1,711,841	1,337,058
Total non-current liabilities	非流動負債總額	143,856	256,841	114,941	11,053	20,018
Total equity	權益總額	2,848,928	2,747,886	2,450,818	2,274,158	2,173,174
Total liabilities and equity	負債及權益總額	4,725,304	4,777,213	3,865,112	3,997,052	3,530,250

Note: There is no restatement of prior years financial information upon application of IFRS 9 and IFRS 15 as at 1 January 2018 and IFRS 16 as at 1 January 2019.

附註：於2018年1月1日應用國際財務報告準則第9號及國際財務報告準則第15號，以及於2019年1月1日應用國際財務報告準則第16號時，無重述過往年度財務資料。

Financial and Operation Highlights (Continued)**財務及營運摘要(續)**

The following table sets forth a summary of the consolidated statements of cash flows for the periods indicated: 下表載列所示期間綜合現金流量表概要：

		Year ended 31 December				
		截至12月31日止年度				
		2022	2021	2020	2019	2018
		2022年	2021年	2020年	2019年	2018年
		RMB million	RMB million	RMB million	RMB million	RMB million
		人民幣百萬元	人民幣百萬元	人民幣百萬元	人民幣百萬元	人民幣百萬元
Net cash flows from/(used in) operating activities	經營活動所得／ (所用)現金淨額	137	(56)	230	123	85
Net cash flows (used in)/from investing activities	投資活動(所用)／ 所得現金淨額	(23)	(129)	(130)	(439)	(376)
Net cash flows (used in)/from financing activities	融資活動(所用)／ 所得現金淨額	(67)	16	(32)	(15)	369

Chairman's Statement 主席報告書



Dear Shareholders,

In the Year of Tiger, the “Boqi” brand has been established for 20 years. Boqi has grown from a small company to a large enterprise, burgeoning from a learner of business to a robust and rapid developing group. Our assets have grown from a few million of RMB to nearly five billion of RMB; the number of our employees have risen from double digits to four digits; the scope of our service have extended from environmental governance to new energy+; our business has grown from a single segment of flue gas treatment to an integrated business comprising four segments relating to flue gas, water, solid waste and dual-carbon new energy; and our brand has also ranked among the forefront of the industry. Looking back on the past 20 years, although the journey was full of obstacles and ups and downs, all Boqi people have shared the same aspiration and vision of defending the “blue sky, clear water and pure land”, and they have created numerous remarkable results together and make significant contribution to the development of Boqi.

尊敬的各位股東：

壬寅虎年，「博奇」品牌創立滿20週年，博奇從一個小型企業壯大了一個大型企業，從蹣跚學步的嬰兒成長為了步伐矯健的青壯年。我們的資產從幾百萬增長到了近五拾億人民幣；我們的員工從兩位數上升到了四位數；我們的服務從環境治理延伸到了新能源+；我們的業務領域從單一的煙氣治理拓展到了「氣－水－固－雙碳新能源+」四位一體；我們的品牌也躋身到了行業前列。回顧這20年，征途上雖佈滿荊棘與坎坷，但博奇人都懷揣着相同的保衛「藍天、碧水、淨土」的情懷與夢想，攜手共進的創造了累累碩果，為博奇的發展歷程書寫了一次次佳績。

Chairman's Statement (Continued)

主席報告書(續)

The year 2022, being the third year under the influence of COVID-19, is an extraordinary, unusual and difficult year. On the global front, various factors such as the continuation of the conflict between Russia and Ukraine, the intensification of the energy crisis and the high inflation of major economies in Europe and the United States have combined to bring unprecedented uncertainty to the world economy. In the face of a severe and complex external environment, the domestic economic situation is also facing unprecedented difficulties since the reform and opening-up of China. Resurgence of the COVID-19 pandemic, sluggish demand and a serious lack of investor confidence have led to the overall economic downturn.

During the year, we have experienced much bitterness in the business environment. The impact of the COVID-19 pandemic on industrial production and people's lives have become increasingly intense. The repeated suspension of market activities and the shrinking of domestic demand caused the reduction of industrial production capacity and the sharp rise in international bulk commodity prices, which have directly affected our order volume, income and profit. Due to the suspension of commercial activities, the progress of our new business development and scale expansion has severely lagged behind the business goals at the beginning of the year. Because of the strict prevention and control policies in various places, we had to adopt a flexible approach to arrange staffing for individual operational projects according to the market situation. Although the overall per capita operation of the Group has been improved, the overall staff size has been reduced.

During the year, we also had delightful experience. The current competition among environmental protection enterprises has gradually shifted from the hard capability of "investment + engineering" to the soft capability of refined management of "operation + technology". If employees are the essence of the existence of a company, then service and technology can be regarded as the foundation of the business of an enterprise. Capitalizing on the considerable time made available to the management due to the nationwide pandemic control measures, the management have extensively and carefully reviewed Boqi's 14th Five-Year Plan. While maintaining our strategic positioning, we have deeply analyzed the new stage, new pattern and new format of the current environmental industry development. In the light of the Company's development strategy and the needs of business transformation, we have further refined the action plan for

2022年，新冠疫情影響下的第三年，是極不平凡、極不尋常、極不容易的一年。在全球範圍內，俄烏衝突持續、能源危機加劇，歐美各主要經濟體通脹高企等因素疊加，給全球經濟帶來空前的不確定性。面對嚴峻複雜的外部環境，中國國內的經濟局面也面臨着改革開放以來從未有過的巨大困難，疫情反覆、需求不振、投資者信心嚴重不足等導致了整體經濟下行。

這一年，我們有辛酸。疫情對工業生產和人民生活所造成的影響趨於白熱化，市場活動階段性停滯的反覆、國內需求萎縮造成工業產能的減少和國際大宗商品價格的大幅上漲，直接影響了我們的訂單額、收入和利潤。因為無法進行商務活動，我們新業務領域的開拓和規模擴張進度都嚴重的滯後於年初的經營目標；因為各地防控政策的嚴格，個別營運類項目的現場人員編製也不得不進行市場化的靈活方式，雖然集團整體人均經營有所提升，但整體人員規模有所縮減。

這一年，我們有喜悅。當下環保企業間的競爭已經由「投資+工程」的硬實力逐步進入到「運營+技術」精細化管理的軟實力的角逐，如果說員工是企業的立命之本，那麼服務和技術就可以算是企業的立業之本。全國性的疫情管控使得我們管理層有了大片的連續性時間坐下來審視博奇的十四五規劃，在保持戰略定位的同時，深入分析當前環境產業發展新階段、新格局、新業態，結合公司發展戰略和業務轉型需要，更加細化了新業務發展的行動方案，確定了我們在行業內的生態位；得益於商務活動受限的激發，我們新設了客戶服務部，並確定以「服務建立信任，專業創造價值」的管理理念深耕客戶關係，拓寬拓深大客戶業務的同時，也打通了客戶與我們之間互通有無的新通道，全年大客戶新訂單貢獻率攀升至70%；與此同時，通過收併購的形式完成了工業

Chairman's Statement (Continued)

主席報告書(續)

new business development and determined our position in the ecosystem of the industry. Benefiting from the stimulation of restricted commercial activities, we have established a new customer service department and determined to deeply cultivate customer relationships and develop and expand the business with key customers with the management philosophy of "Service Building Trust, Professionalism Creates Value". Meanwhile, new channels for communication between customers and the Group have also been established. As such, the percentage of new orders from key customers for the year has increased to 70%. At the same time, the expansion of the technical capacity in the field of industrial water treatment has been completed through mergers and acquisitions. As a result, we have successfully explored the sewage treatment market in the paper industry and undertaken China's largest sewage treatment technical transformation project in the paper industry in recent years – Sewage Treatment and Renovation EPC Project for Pulping and Paper Production of Shandong Bohui Paper Co., Ltd..

During the year, we have also seen a glimpse of hope amidst adversity. In the past 10 years from the 18th National Congress to the 20th National Congress of the Communist Party of China, the environmental protection industry has also undergone historic changes. In the 18th National Congress of the Communist Party of China, the construction of a "Beautiful China" was included in the goal of a socialist modernized country for the first time, and "Ecological Civilization" was included in the overall planning of the integrated development of five main sectors, so that "Green Development" was incorporated into the new development concept. In the 19th National Congress of the Communist Party of China, the concept of "Harmonious Coexistence between Man and Nature" was included in the basic strategy of upholding and developing socialism with Chinese characteristics in the new era, and "Pollution Prevention" was incorporated into the three critical missions. Subsequently, the general secretary's report to the 20th National Congress once again emphasized the importance of ecological protection, and called for promoting the construction of a beautiful China, coordinating the adjustment of industrial structure, pollution control and ecological protection, and further promoting the prevention and control of environmental pollution, with a view to continuously and vigorously defending the country's blue sky, clear water and clean land. From the perspective of our country's strategic deployment, the layout of China's ecological civilization construction will be more comprehensive and the policy system will be more mature. In the long run, there is so much more we can do, should do and need to do.

水處理領域技術路線的拓展，並因此成功打開了造紙行業工業水處理市場，承攬了近年來中國最大的造紙行業水處理技改項目－山東博匯紙業股份有限公司制漿造紙污水處理改造EPC項目。

這一年，我們有曙光。黨的十八大到二十大這10年來，環保行業也發生了歷史性的變革，從黨的十八大首次把「美麗中國」納入了社會主義現代化強國目標，把「生態文明」納入「五位一體」的總體佈局，將「綠色」納入新發展理念；到十九大把「人與自然和諧共生」納入新時代堅持和發展中國特色社會主義的基本方略，把「污染防治」納入三大攻堅戰；再到總書記的二十大報告再次重點強調了生態保護的重要性，要求推進美麗中國的建設，統籌產業結構的調整、污染治理和生態保護，要更深入推進環境污染防治，持續深入打好藍天、碧水、淨土的保衛戰。從我們國家的戰略部署看，中國生態文明建設的佈局將會更加完善，政策體系也會更加成熟，未來很長一段時間內，我們可做，該做和要做的事情還有很多。



Chairman's Statement (Continued)

主席報告書(續)

The year 2023 is the first year to fully implement the spirit of the 20th National Congress of the Communist Party of China, and is also a crucial year for the implementation of the "14th Five-Year Plan". Against the backdrop of the high-quality development of environmental governance and the construction of a beautiful China, the needs of "pollution abatement and carbon reduction" has ushered in a "big era" of environmental protection. The industrial scope is extending from terminal governance to the whole process of pollution abatement, carbon reduction and clean production, thus realizing the full coverage of the whole chain of pollution control, resource utilization, energy saving and carbon reduction and ushering in a new round of development opportunities in the industry. Capitalizing on the results we have already achieved, we will focus on increasing the scale of new business areas, accelerating business transformation, and implement every strategic deployment in a practical and meticulous way. As such, we will build the solid foundation with a stable income, and further develop our business as the alternative and supporting bases for the medium and long-term.

The support and caring of our investors are essential to our development and progress. I hereby express my heartfelt thanks to our investors, customers, employees and partners for their trust. I hope you will join us on the road ahead to witness our growth and excellence.

Zeng Zhijun

Chairman and Chief Executive Officer

24 March 2023

2023年是全面貫徹落實黨的二十大精神的開局之年，是實施「十四五」規劃承上啟下的攻堅之年，是生態環保產業變革持續深化的一年。在環境治理高質量發展和建設美麗中國背景下，「減污降碳」開啟環保「大時代」，產業範疇正在從末端治理向全過程減污降碳和清潔生產延伸，實現污染治理、資源利用、節能降碳等全鏈條全覆蓋，產業迎來新一輪發展機遇，我們將乘勝追擊，重點提升新業務領域的規模，加快推進業務轉型，做深做實做細每一項戰略部署，紮紮實實穩固盈利「基本盤」，全面建設中長期的「替代盤」及「支撐盤」。

我們的發展與進步，離不開各位投資人的支持與愛護。在此，謹向我們的投資人、客戶、員工、合作夥伴表示由衷的感謝，感謝大家的信任。也非常希望各位能在未來的道路上與我們攜手同行，見證成長和卓越。

曾之俊

主席

行政總裁

2023年3月24日

Company Profile

公司簡介

The Group is committed to becoming a world-class comprehensive group in the environmental protection industry and a service provider of intelligent green housekeeping. The Company was successfully listed on the Main Board of the Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”) on 16 March 2018 (stock code: 2377). The Group provides comprehensive one-stop environmental protection and energy saving services to large-scale industrial customers in energy, chemical and manufacturing industries, by mainly engaging in the businesses of flue gas treatment, water treatment, hazardous and solid waste treatment/disposal, dual-carbon energy saving and new energy. Leveraging on its solid experience and professional capabilities in research and development and design, construction and implementation, operation and management of environment pollution prevention and control, the Group has helped its clients to greatly reduce pollutant emissions and effectively improve their production efficiencies, making remarkable contributions to the improvement of air quality and environment quality, the development of green economy and sustainability.

During the Reporting Period, the Group steadily promoted the continuous development of various business segments and achieved substantial breakthroughs in business diversification, resulting in new contracts with an accumulated value of approximately RMB1,519 million. The Company has always been deeply exploiting the remaining market in the power industry and actively exploring the non-electricity market, and has successively obtained large orders for flue gas treatment in coal power, steel, electrolytic aluminum and other industries. The water treatment business segment has made further achievements by entering into an EPC project contract with Shandong Bohui Paper Co., Ltd., a subsidiary of APP China Group Limited, for the sewage treatment and upgrading of pulp and paper manufacturing, successfully opening up the sewage treatment market in the paper industry. The Company has also actively deployed the hazardous and solid waste treatment/disposal business, and invested in the construction of the Hazardous Waste Packaging Comprehensive Utilization Project of Qinghai Boqi, which is expected to further open up the hazardous and solid waste treatment/disposal market. In respect of the Company’s dual-carbon energy saving business, the CDQ Project of Tianjin Iron Plant has been officially put into operation and will bring a stable income source for the Company in the medium and long term, laying a foundation for further penetrating into the market. The Group has established an industrial layout based on the flue gas treatment business to jointly develop water treatment, hazardous and solid waste treatment/disposal and dual-carbon energy saving and new energy+ business, fostering a new business model with the diversified development of the businesses of flue gas, water, solid waste, dual-carbon energy saving and new energy+, and ushering in a new dimension for the Group. In the future, taking advantage of the favorable policies in the industry, the Group will continue to promote the expansion of various business segments in an orderly manner and take initiatives to carry out strategic cooperation and investment, merger and acquisition in various fields in a timely manner to further the development of the Group.

本集團致力於打造成為國際一流的綜合性環保產業集團及智能型環保管家服務提供商。本公司於2018年3月16日成功在香港聯合交易所有限公司（「聯交所」）主板上市（股票代碼：2377）。本集團向大型能源、化工及製造業等工業客戶提供環保及節能綜合性一站式服務，主要從事煙氣治理、水處理、危固廢處理處置、雙碳節能及新能源業務。本集團憑藉其在環境污染治理上研發與設計、建設與運行、經營與管理的豐富經驗及專業能力，大大降低污染物的排放量並有效提高客戶生產效率，為改善空氣質量、環境質量、發展綠色經濟和可持續發展做出了傑出貢獻。

於報告期內，本集團穩步推進各業務板塊持續發展，業務多元化取得實質性突破，累計新訂約合同額約人民幣1,519百萬元。公司始終深挖電力行業的剩餘市場並積極開拓非電領域市場，相繼取得了煤電、鋼鐵、電解鋁等行業的煙氣治理大單。水處理業務領域再創佳績，與APP（中國）集團旗下山東博匯紙業股份有限公司簽訂製漿造紙污水處理改造EPC項目合同，成功打開了造紙行業污水處理業務市場。公司積極佈局危固廢處理處置業務，投資建設了青海博奇危險廢舊包裝物綜合利用項目，有望進一步打開危固廢處理處置業務市場。公司雙碳節能業務天津鐵廠幹熄焦工程項目已於2022年度正式投產，中長期內將為公司帶來穩定的收入來源，為進一步打開市場奠定基礎。本集團構建了以煙氣治理業務為基礎，共同發展水處理、危固廢處理處置及雙碳節能和新能源+業務的產業格局，形成氣+水+固+雙碳新能源+業務多元化發展新局面。未來，本集團將繼續有序推進各業務板塊拓展，適時開展各領域的戰略合作與投資併購業務，藉助行業政策紅利，使集團發展更進一步。



Directors and Senior Management

董事及高級管理層

DIRECTORS

The Board currently consists of eight Directors, comprising one executive Director, four non-executive Directors and three independent non-executive Directors. The following table sets forth information regarding the Directors.

董事

董事會現有八位董事，包括一位執行董事、四位非執行董事及三位獨立非執行董事。下表載列有關董事的資料。

Name 姓名	Age 年齡	Position 職位	Date of Appointment as Director 獲委任為董事日期
Executive Director 執行董事			
Mr. Zeng Zhijun 曾之俊先生	52	Chairman of the Board, executive Director and chief executive officer 董事會主席、執行董事及行政總裁	30 January 2015 2015年1月30日
Non-executive Directors 非執行董事			
Mr. Cheng Liqun Richard 程里全先生	57	Non-executive Director (Redesignated from executive Director to non-executive Director with effect from 24 March 2023) 非執行董事(自2023年3月24日起由執行 董事調任為非執行董事)	30 January 2015 2015年1月30日
Mr. Zheng Tony Tuo 鄭拓先生	54	Non-executive Director 非執行董事	30 January 2015 2015年1月30日
Mr. Zhu Weihang 朱偉航先生	36	Non-executive Director 非執行董事	9 January 2017 2017年1月9日
Mr. Chen Xue 陳學先生	56	Non-executive Director 非執行董事	9 January 2017 2017年1月9日
Independent non-executive Directors 獨立非執行董事			
Mr. Liu Genyu 劉根鈺先生	59	Independent non-executive Director 獨立非執行董事	28 February 2018 2018年2月28日
Dr. Xie Guozhong 謝國忠博士	62	Independent non-executive Director 獨立非執行董事	28 February 2018 2018年2月28日
Mr. Lu Zhifang 陸志芳先生	69	Independent non-executive Director 獨立非執行董事	28 February 2018 2018年2月28日

Directors and Senior Management (Continued)

董事及高級管理層 (續)

EXECUTIVE DIRECTOR

Mr. Zeng Zhijun (曾之俊) (“Mr. Zeng”), aged 52, is the chairman of the Board, an executive Director, the chief executive officer, the chairman of the nomination committee (the “**Nomination Committee**”) and a member of the remuneration committee (the “**Remuneration Committee**”) of the Company. Mr. Zeng is responsible for the overall management and operation of the Group. Mr. Zeng was appointed to the Board on 30 January 2015. Mr. Zeng joined the Group in June 2004 serving as a director of Beijing Boqi Electric Power SCI-TECH Co., Ltd.* (北京博奇電力科技有限公司) (“**Beijing Boqi**”), the major operating subsidiary of the Group, and served as the vice chairman of Beijing Boqi from June 2007 to March 2021. Mr. Zeng currently serves as the chairman and general manager of Beijing Boqi. Mr. Zeng served as the chairman of Beijing Horizon Media Group Inc.* (北京華亞和訊科技有限公司) from December 2002 to October 2004.

Mr. Zeng graduated from Beijing Institute of Technology (北京理工大學) with a bachelor’s degree in computer science and engineering in July 1992. Mr. Zeng received a master’s degree in business administration from Massachusetts Institute of Technology in June 2001. Mr. Zeng was awarded the degree of Doctor of Management from The Hong Kong Polytechnic University on 3 November 2010.

Since February 2005, Mr. Zeng has served as a director of Richinfo Technology Co., Ltd.* (彩訊科技股份有限公司) (formerly known as Shenzhen Richinfo Technology Co., Ltd.* (深圳市彩訊科技有限公司)) (a listed company on the Shenzhen Stock Exchange since 23 March 2018, stock code: 300634.SZ), a company that provides mobile Internet technology services in the People’s Republic of China (the “**PRC**” or “**China**”). Save as disclosed above, Mr. Zeng did not hold directorships in any public listed companies in the last three years.

執行董事

曾之俊先生(「曾先生」)，52歲，董事會主席、執行董事、行政總裁、本公司提名委員會(「提名委員會」)主席及薪酬委員會(「薪酬委員會」)成員。曾先生負責本集團整體管理及運營。曾先生於2015年1月30日獲委任加入董事會。曾先生於2004年6月加入本集團，擔任本集團主要營運附屬公司北京博奇電力科技有限公司(「北京博奇」)的董事，於2007年6月至2021年3月擔任北京博奇的副董事長。曾先生目前擔任北京博奇的董事長兼總經理。於2002年12月至2004年10月，曾先生擔任北京華亞和訊科技有限公司董事長。

曾先生於1992年7月獲得北京理工大學計算機科學及工程學士學位。曾先生於2001年6月獲得麻省理工學院工商管理碩士學位。曾先生於2010年11月3日獲授香港理工大學管理學博士學位。

自2005年2月起，曾先生擔任彩訊科技股份有限公司(前稱深圳市彩訊科技有限公司，一間自2018年3月23日起於深圳證券交易所上市的公司(股票代碼：300634.SZ)董事，該公司於中華人民共和國(「中國」)提供移動互聯網技術服務。除上文所披露者外，曾先生在過去三年並無於任何上市公司擔任董事職務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

NON-EXECUTIVE DIRECTORS

Mr. Cheng Liquan Richard (程里全 (“Mr. Cheng”)), aged 57, is a non-executive Director. Mr. Cheng was appointed to the Board on 30 January 2015, and has redesignated as a non-executive Director on 24 March 2023.

Mr. Cheng joined the Group serving as a director of Beijing Boqi on 15 June 2005. Mr. Cheng served as the chairman of the board of Beijing Boqi from December 2007 to December 2020 and served as its chief executive officer from December 2009 to February 2017. Mr. Cheng currently serves as the general manager of Zhejiang Boqi Electric Power SCI-TECH Co., Ltd.* (浙江博奇電力科技有限公司) and Anhui Nengda Fuel Co., Ltd* (安徽能達燃料有限公司). Prior to joining the Group, Mr. Cheng held various positions at Bit Technology Holding Co., Ltd* (比特科技控股股份有限公司), a company that was principally engaged in the wholesale of spare parts for power plants, from April 2000 to March 2003, including deputy manager, general manager, the chairman of the board and a director. Mr. Cheng has been a director of Ningbo Bonded Area Jiujiu Leasing Co. Ltd.* (寧波保稅區久久租賃有限公司) (previously known as Ningbo Huaneng Leasing Co. Ltd.* (寧波華能租賃有限公司)) (“**Ningbo Leasing**”) from 2004 to 2007.

Mr. Cheng graduated from Fudan University with a bachelor’s degree in political economy in July 1987.

From June 2010 to September 2014, Mr. Cheng served as a director of Wuhan Boch Jaco Environmental Co., Ltd* (武漢博奇玉宇環保股份有限公司) (National Equities Exchange and Quotations Stock Code: 831100). From August 2011 to March 2017, Mr. Cheng was a director of Shanghai ZJ Bio-Tech Co., Ltd* (上海之江生物科技股份有限公司) (National Equities Exchange and Quotations Stock Code: 834839). Since 28 November 2019, Mr. Cheng has served as the chairman of the board of directors and an executive director of China Nature Energy Technology Holdings Limited (listed on the main board of the Stock Exchange, stock code: 1597). Save as disclosed above, Mr. Cheng did not hold directorships in any listed public companies in the last three years.

非執行董事

程里全先生(「程先生」)，57歲，為非執行董事。程先生於2015年1月30日獲委任加入董事會，並於2023年3月24日調任為非執行董事。

程先生於2005年6月15日加入本集團，擔任北京博奇的董事。程先生於2007年12月至2020年12月擔任北京博奇的董事會主席，於2009年12月至2017年2月間亦擔任北京博奇的行政總裁。程先生目前亦擔任浙江博奇電力科技有限公司及安徽能達燃料有限公司的董事。加入本集團前，程先生自2000年4月至2003年3月於主要從事批發發電廠備件的比特科技控股股份有限公司擔任多個職務，包括副經理、總經理、董事會主席及董事。程先生自2004年至2007年為寧波保稅區久久租賃有限公司(「寧波租賃」，前稱寧波華能租賃有限公司)的董事。

程先生於1987年7月獲得復旦大學政治經濟學士學位。

於2010年6月至2014年9月，程先生於武漢博奇玉宇環保股份有限公司(全國中小企業股份轉讓系統股份號碼：831100)擔任董事。自2011年8月起至2017年3月，程先生為上海之江生物科技股份有限公司(全國中小企業股份轉讓系統股份號碼：834839)的董事。自2019年11月28日起，程先生於中國納泉能源科技控股有限公司(聯交所主板股票代碼：1597)擔任董事會主席兼執行董事。除上文所披露者外，程先生在過去三年並無於任何上市公司擔任董事職務。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

Mr. Zheng Tony Tuo (鄭拓) (“Mr. Zheng”), aged 54, is a non-executive Director and a member of the audit committee of the Company (the “**Audit Committee**”). Mr. Zheng was appointed to the Board on 30 January 2015. Mr. Zheng does not hold any other position with the members of the Group.

From May 2011 to August 2016, Mr. Zheng served as a director of CITIC Securities International Asset Management Limited (中信証券國際資產管理有限公司), a private company incorporated in Hong Kong. In 2008, Mr. Zheng established MTP Capital Limited, a company that provides investment related consulting services, where he is mainly responsible for the overall management and operation of the company. From September 2000 to March 2010, Mr. Zheng was a director of Compass Venture (China) Limited, a private company incorporated in Hong Kong.

Mr. Zheng received a bachelor’s degree in science from McMaster University in Canada in June 1992.

Mr. Zheng did not hold directorships in any public listed companies in the last three years.

Mr. Zhu Weihang (朱偉航) (“Mr. Zhu”), aged 36, is a non-executive Director. Mr. Zhu was appointed to the Board on 9 January 2017. Mr. Zhu does not hold any other position with the members of the Group.

鄭拓先生(「鄭先生」)，54歲，為非執行董事及本公司審核委員會(「審核委員會」)成員。鄭先生於2015年1月30日獲委任加入董事會。鄭先生並無於本集團成員公司擔任任何其他職務。

於2011年5月至2016年8月期間，鄭先生擔任中信証券國際資產管理有限公司(一間於香港註冊成立的私人公司)之董事。鄭先生於2008年創辦MTP Capital Limited，該公司提供投資相關諮詢服務，彼主要負責該公司整體管理及營運。於2000年9月至2010年3月期間，鄭先生擔任Compass Venture (China) Limited(一間於香港註冊成立的私人公司)之董事。

鄭先生於1992年6月獲得加拿大麥克馬斯特大學理學學士學位。

鄭先生在過去三年並無於任何上市公司擔任董事職務。

朱偉航先生(「朱先生」)，36歲，為非執行董事。朱先生於2017年1月9日獲委任加入董事會。朱先生並無於本集團成員公司擔任任何其他職務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

Mr. Zhu is currently the chairman of Guangdong Pearl River Investment Co., Ltd.* (廣東珠江投資股份有限公司), where he is fully responsible for the company's strategic planning, major investment and production management. Mr. Zhu has been working at Guangdong Pearl River Investment Co., Ltd.* (廣東珠江投資股份有限公司) since September 2008, where he has held various positions in its different branch companies. From September 2008 to September 2011, Mr. Zhu worked at the Guangdong Pearl River Investment Co., Ltd. Finance Management Center* (廣東珠江投資股份有限公司融資管理中心) where he held positions as a financing chief executive, assistant to the director, deputy director and director. From October 2011 to September 2012, Mr. Zhu worked at the North China branch office of Guangdong Pearl River Investment Co., Ltd. (廣東珠江投資股份有限公司) as the deputy general manager and the standing deputy general manager.

Mr. Zhu graduated from Sun Yat-sen University (中山大學) with a bachelor's degree in finance in June 2012.

Mr. Zhu did not hold directorships in any public listed companies in the last three years.

Mr. Chen Xue (陳學) ("Mr. Chen"), aged 56, is a non-executive Director. Mr. Chen was appointed to the Board on 9 January 2017. Mr. Chen does not hold any other position with the members of the Group.

朱先生現任廣東珠江投資股份有限公司董事長，全面負責公司戰略規劃、重大投資和生產經營管理等工作。朱先生自2008年9月起於廣東珠江投資股份有限公司任職並於不同的分公司擔任多個職位。於2008年9月至2011年9月，朱先生於廣東珠江投資股份有限公司融資管理中心任職，擔任融資事務主管、總監助理、副總監及總監。於2011年10月至2012年9月，朱先生於廣東珠江投資股份有限公司華北地區公司任職，擔任副總經理及常務副總經理。

朱先生於2012年6月自中山大學畢業，獲金融學學士學位。

朱先生在過去三年並無於任何上市公司擔任董事職務。

陳學先生(「陳先生」)，56歲，為非執行董事。陳先生於2017年1月9日獲委任加入董事會。陳先生並無於本集團成員公司擔任任何其他職務。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

Mr. Chen has served as deputy general manager of the finance department of Sinopec Group (中國石油化工集團公司) since December 2019. From January 2018 to December 2019, Mr. Chen was the deputy head of the capital operation department of Sinopec Group (中國石油化工集團公司) and deputy general manager of Asset Operation and Management Company Limited (資產經營管理有限公司) under Sinopec Group, mainly responsible for capital operation, safety and environmental protection management. From March 2001 to January 2018, Mr. Chen was the deputy division chief and division chief of various departments and divisions of Sinopec Group (中國石油化工集團公司) including the restructuring department, department of enterprise reform, operation management department of refining and chemical enterprises, capital operation department and the asset management company. Mr. Chen worked at China Sinopec Great Wall Lubricating Oil Limited (中國石化長城潤滑油公司) (an integrated lubricating oil service provider in the PRC) from July 1989 to March 2001. In 2013, Mr. Chen was recognized as professor-level senior economist by the Senior Professional Technical Qualification Appraisal Committee of Sinopec Group (中國石油化工集團公司).

Mr. Chen received his bachelor's degree in petroleum processing from East China College of Chemistry and Technology (華東化工學院) (now known as East China University of Science and Technology (華東理工大學)) in July 1989. Mr. Chen received his master's degree in management from Renmin University of China (中國人民大學) in June 2001.

Mr. Chen did not hold directorships in any listed public companies in the last three years.

自2019年12月，陳先生擔任中國石油化工集團公司財務部副總經理。自2018年1月至2019年12月，陳先生擔任中國石化集團公司資本運營部副主任、中國石化集團資產經營管理有限公司副總經理，主要負責資本運作、安全環保管理工作。自2001年3月至2018年1月，陳先生為中國石油化工集團公司多個部門及分部的副處長及處長，包括重組辦、企業改革部、煉化企業經營部、資本運營部及資產管理公司。陳先生於1989年7月至2001年3月於中國石化長城潤滑油公司(中國綜合潤滑油服務提供商)任職。於2013年，陳先生獲中國石油化工集團公司高級專業技術職務任職資格評審委員會評選為教授級高級經濟師。

陳先生於1989年7月獲華東化工學院(現稱華東理工大學)石油加工學士學位。於2001年6月，陳先生獲中國人民大學企業管理學碩士學位。

陳先生在過去三年並無於任何上市公司擔任董事職務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

INDEPENDENT NON-EXECUTIVE DIRECTORS

Mr. Liu Genyu (劉根鈺) (“Mr. Liu”), aged 59, is an independent non-executive Director and a member of the Remuneration Committee and Audit Committee. He was appointed to the Board on 28 February 2018. Mr. Liu does not hold any other position with the members of the Group.

Mr. Liu currently serves as an executive director and was served as vice chairman and joint chief executive officer of the board of directors of China Nuclear Energy Technology Corporation Limited (中國核能科技集團有限公司), a listed company on the Stock Exchange (stock code: 611) engages in EPC operations and consulting services, solar power generation operations and financing operations. Mr. Liu served as an executive director and the vice chairman of GCL New Energy Holdings Limited from 7 December 2020 to 9 September 2022, which is a company listed on the Stock Exchange (stock code: 451) mainly engaging in the sales of electric power and the development, construction, operation and management of photovoltaic power stations.

Mr. Liu has extensive experience in project development, commercial negotiation and operational management in the electric power industry. During the period from May 2007 to December 2012, Mr. Liu was the chief executive officer as well as an executive director, a member of the executive committee and the authorized representative of China Power New Energy Development Company Limited (中國電力新能源發展有限公司), a Stock Exchange listed company (stock code: 735) that engages in developing, constructing, owning, operating and managing clean energy power plants. Prior to that, Mr. Liu served as the vice president of Chongqing Jiulong Electric Power Co., Ltd* (重慶九龍電力股份有限公司) (principally engaged in electric power production), a company listed on the Shanghai Stock Exchange (stock code: 600292), and he was mainly responsible for construction projects and market management.

獨立非執行董事

劉根鈺先生(「劉先生」)，59歲，為獨立非執行董事及薪酬委員會及審核委員會成員。彼於2018年2月28日獲委任加入董事會。劉先生並無於本集團成員公司擔任任何其他職務。

劉先生現為中國核能科技集團有限公司的執行董事，及曾任該公司董事會副主席及聯席行政總裁。該公司為一間聯交所上市公司(股份代號：611)，從事EPC業務及諮詢服務、太陽能發電業務及融資業務。劉先生於2020年12月7日至2022年9月9日擔任協鑫新能源控股有限公司的執行董事及副董事長。該公司為一間聯交所上市公司(股份代號：451)，主要業務為電力銷售、光伏發電站之開發、建設、經營及管理。

劉先生於電力行業的項目開發、商務談判及營運管理擁有豐富的經驗。劉先生於2007年5月至2012年12月期間在中國電力新能源發展有限公司(一間從事開發、建造、擁有、營運和管理潔淨能源發電廠業務的聯交所上市公司，股份代號：735)工作，擔任行政總裁、執行董事、執行委員會成員和授權代表。在此之前，劉先生出任重慶九龍電力股份有限公司(一間於上海證券交易所上市並主要從事發電業務的公司，股票代碼：600292)的副總裁，主要負責建造項目及市場管理。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

Mr. Liu received his bachelor's degree in industrial electric automation from Harbin Institute of Technology in June 1991. Mr. Liu was awarded an executive master's degree in business administration (EMBA) from Tsinghua University in July 2005.

Save as disclosed above, Mr. Liu did not hold directorships in any listed public companies in the last three years.

Dr. Xie Guozhong (謝國忠) (“Dr. Xie”), aged 62, is an independent non-executive Director, the chairman of the Audit Committee and a member of the Nomination Committee. He was appointed to the Board on 28 February 2018. Dr. Xie does not hold any other position with the members of the Group.

Dr. Xie is an independent economist based in the PRC and is a columnist for publications including South China Morning Post, The New Century Weekly (renamed as Caixin) and Bloomberg where he published his articles analyzing and consulting on global economics and financial markets. Dr. Xie was named as one of the “50 most influential persons in finance” by Bloomberg in 2013. Dr. Xie has 20 years expertise in financial services and has extensive financial management experience in the fields of corporate finance. From December 2007 to December 2010, Dr. Xie served as an independent non-executive director of Shenzhen Development Bank Co., Ltd* (深圳發展銀行股份有限公司), which was listed on the Shenzhen Stock Exchange (stock code: 000001). Dr. Xie worked for Morgan Stanley from July 1997 to September 2006 and held the role of managing director. He was working in the capacity of a managing director in the research division of Morgan Stanley in Hong Kong before his departure. Prior to joining Morgan Stanley, Dr. Xie worked for Macquarie Bank in Singapore as an associate director from 1995 to 1997. Since June 2022, Dr. Xie has served an independent director of Richinfo Technology Co., Ltd. (彩訊科技股份有限公司) (formerly known as Shenzhen Richinfo Technology Co., Ltd. (深圳市彩訊科技有限公司), a listed company on the Shenzhen Stock Exchange since 23 March 2018, stock code: 300634. SZ), a company that provides mobile Internet technology services in China.

劉先生於1991年6月獲得哈爾濱工業大學工業電氣自動化學士學位，並於2005年7月獲得清華大學高級管理人員工商管理碩士學位(EMBA)。

除上文所披露者外，劉先生在過去三年內並無於任何上市公司擔任董事職務。

謝國忠博士(「謝博士」)，62歲，為獨立非執行董事、審核委員會主席及提名委員會成員。彼於2018年2月28日獲委任加入董事會。謝博士並無於本集團的成員公司擔任任何其他職務。

謝博士為中國獨立經濟學家，且為《南華早報》、《新世紀》周刊(更名《財新》)及彭博新聞社的專欄作家。彼於彭博新聞社刊載分析及討論全球經濟及金融市場的文章。謝博士於2013年獲得彭博新聞社提名為財經界「50位最具影響力人物」之一。謝博士於金融服務方面擁有20年的專業知識並於企業融資領域亦有豐富的財務管理經驗。於2007年12月至2010年12月，謝博士擔任深圳發展銀行股份有限公司(於深圳證券交易所上市，股票代碼：000001)的獨立非執行董事。謝博士於1997年7月至2006年9月任職摩根士丹利，擔任董事總經理。彼於離任前擔任摩根士丹利香港研究部董事總經理。於加入摩根士丹利前，謝博士自1995年至1997年於新加坡麥格理銀行擔任聯席董事。自2022年6月起，謝博士擔任彩訊科技股份有限公司(前稱深圳市彩訊科技有限公司，一間自2018年3月23日起於深圳證券交易所上市的公司(股票代碼：300634.SZ))獨立董事，該公司於中國提供移動互聯網技術服務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

Dr. Xie received his master's degree of science in transportation and a PhD in Philosophy (in the field of economics) from Massachusetts Institute of Technology in September 1987 and June 1990, respectively.

Save as disclosed above, Dr. Xie did not hold directorships in any listed public companies in the last three years.

Mr. Lu Zhifang (陸志芳) (“Mr. Lu”), aged 69, is an independent non-executive Director, the chairman of the Remuneration Committee and a member of the Nomination Committee. He was appointed to the Board on 28 February 2018. Mr. Lu does not hold any other position with the members of the Group.

Mr. Lu is a registered lawyer in China, and is currently a senior partner of East & Concord Partners (北京天達共和律師事務所). Mr. Lu was a senior partner of Haiwen Law Firm (海問律師事務所) from 1994 to 2008 and a partner of Beijing Hylands Law Firm (北京浩天信和律師事務所) from 2009 to 2014. Mr. Lu also has more than 20 years experience in international commercial arbitration, which, among others, he served as an arbitrator of China International Economic and Trade Arbitration Commission. From 1991 to 1994, Mr. Lu worked at the law school of University of International Business and Economics as an associate professor, and served as deputy director of the International Economic Law Department of University of International Business and Economics from 1986 to 1994.

Mr. Lu graduated from Beijing University of International Business and Economics (北京對外貿易學院) with a diploma in English in January 1978, and received his master's degree in laws from the University of California in December 1983.

Mr. Lu did not hold directorships in any listed public companies in the last three years.

於1987年9月及1990年6月，謝博士分別取得麻省理工學院的交通運輸學碩士學位及哲學(經濟學領域)博士學位。

除上文所披露者外，謝博士在過去三年並無於任何上市公司擔任董事職務。

陸志芳先生(「陸先生」)，69歲，為獨立非執行董事、薪酬委員會主席及提名委員會成員。彼於2018年2月28日獲委任加入董事會。陸先生並無於本集團的成員公司擔任任何其他職務。

陸先生為中國註冊律師，現為北京天達共和律師事務所資深合夥人。陸先生於1994到2008年為海問律師事務所資深合夥人，2009年到2014年為北京浩天信和律師事務所合夥人。陸先生於國際商事仲裁擁有逾20年經驗，曾擔任過中國國際經濟貿易仲裁委員會的仲裁員。陸先生於1991年至1994年期間在對外經濟貿易大學法學院擔任副教授，並曾於1986年至1994年任對外經貿大學國際經濟法系副主任。

陸先生於1978年1月獲得北京對外貿易學院英文文憑，及於1983年12月獲得加利福尼亞大學法律碩士學位。

陸先生在過去三年並無於任何上市公司擔任董事職務。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

SENIOR MANAGEMENT

高級管理層

The following table presents certain information concerning the senior management of our Group.

下表呈列有關本集團高級管理層人員的若干資料。

Name 姓名	Age 年齡	Year Joined 加入年份	Position 職位
Ms. Qian Xiaoning (錢曉寧) 錢曉寧女士	49	2007 2007年	Senior Vice president, Board secretary and joint company secretary 高級副總裁、董事會秘書兼聯席公司秘書
Ms. Cao Xiaoping (曹曉萍) 曹曉萍女士	69	2008 2008年	Vice president 副總裁
Mr. Yan Bingli (顏炳利) 顏炳利先生	59	2004 2004年	Vice president 副總裁
Mr. Lu Jing (陸景) 陸景先生	61	2011 2011年	Vice president 副總裁
Ms. Yan Zhilian (閻芝蓮) 閻芝蓮女士	64	2004 2004年	Vice president 副總裁
Ms. Wang Hui (王慧) 王慧女士	45	2019 2019年	Vice president and chief financial officer 副總裁兼財務總監
Mr. Yan Bo (顏波) 顏波先生	44	2022 2022年	Vice president 副總裁
Mr. Sun Liwen (孫禮文) 孫禮文先生	46	2004 2004年	Vice president and the director of design institute 副總裁兼設計院院長

Ms. Qian Xiaoning (錢曉寧) (“Ms. Qian”), aged 49, is the senior vice president, Board secretary and joint company secretary of the Company and joined the Group in February 2007. Ms. Qian is primarily responsible for managing human resources, legal compliance issues, development of new business segments and Board matters. Since joined the Group, Ms. Qian has held various positions including general manager of legal department, general manager of Environmental Remediation Department, Board secretary, vice president and senior vice president of Beijing Boqi. Ms. Qian is also a director of Beijing Bosheng Environmental SCI-TECH Co., Ltd.* (北京博聖環保科技有限公司), the supervisor of Shanxi Puzhou Boqi Environmental Technology Co., Ltd.* (山西蒲州博奇環保科技有限公司) (“**Puzhou Boqi**”), Shanxi Hejin Boqi Environmental Technology Co., Ltd.* (山西河津博奇環保科技有限公司) (“**Hejin Boqi**”) and Jiangxi Jinggangshan Boqi Environmental Technology Co., Ltd. (“**Jinggangshan Boqi**”), the general manager of Shanxi Bo Yuan Qi Cheng Environmental Equipment Service Co., Ltd.* (山西博源奇晟環保設備服務有限公司) (“**Shanxi Bo Yuan**”) and a director of Beijing Boqi Tianqi Environmental Protection Technology Co., Ltd.* (北京博奇天啟環保科技有限公司).

錢曉寧女士(「錢女士」), 49歲, 為本公司高級副總裁、董事會秘書兼聯席公司秘書並於2007年2月加入本集團。錢女士主要負責人力資源管理、法律合規事宜、新業務領域開發及董事會事宜。錢女士自加入本集團以來歷任北京博奇的多個職位, 包括法律部總經理、環境修復部總經理、董事會秘書、副總裁及高級副總裁。錢女士亦為北京博聖環保科技有限公司之董事、山西蒲州博奇環保科技有限公司(「**蒲州博奇**」)、山西河津博奇環保科技有限公司(「**河津博奇**」)、江西井岡山博奇環保科技有限公司(「**井岡山博奇**」)之監事、山西博源奇晟環保設備服務有限公司(「**山西博源**」)之總經理及北京博奇天啟環保科技有限公司之董事。



Directors and Senior Management (Continued)

董事及高級管理層(續)

Prior to joining the Group, Ms. Qian was a securities transaction representative (證券事務代表) of Yongyou Network Technology Co., Ltd. (用友網絡科技股份有限公司) (previously known as 用友軟件股份有限公司, a listed company on the Shanghai Stock Exchange, stock code: 600588), an enterprise management software and cloud service provider in the PRC, from 2001 to February 2007. During the time from July 1996 to August 1997, Ms. Qian worked at the legal department of CITIC Group (previously known as China International Trust Investment Corporation).

Ms. Qian graduated from China University of Political Science and Law in July 1996 with a bachelor's degree in economic law. Ms. Qian obtained a master's degree in economic law from China University of Political Science and Law in June 2006 and a master's degree in business administration from Chinese University of Hong Kong in December 2010.

Ms. Qian did not hold directorships in any listed public companies in the last three years.

Ms. Cao Xiaoping (曹曉萍) (“Ms. Cao”), aged 69, is the vice president of the Company. Ms. Cao joined the Group in June 2008. From March 2010 to March 2022, Ms. Cao concurrently served as the chief financial officer of the Group.

Ms. Cao is primarily responsible for customer relationship management and market development of the Group. Ms. Cao also serves as a director of Shanxi Bo Yuan, a director of Beijing Boqi Environmental Remediation Tech Co. Ltd.* (北京博奇環境修復科技有限公司) and a director of Guo Neng Long Yuan Boqi Environmental Technology (Han Chuan) Co., Ltd.* (國能龍源博奇環保科技(漢川)有限公司).

Ms. Cao has over 30 years of experience in accounting and financial management. Prior to joining the Group, Ms. Cao served as the chief accountant of Angang Construction Consortium Co., Ltd (鞍鋼建設集團有限公司) from November 2000 to June 2008. Ms. Cao was the deputy section chief (副科長) of the finance department of Ansteel Group Corporation (鞍鋼集團) and later served as the deputy director and director from February 1985 to November 2000.

於加入本集團之前，錢女士於2001年至2007年2月期間擔任用友網絡科技股份有限公司(前稱用友軟件股份有限公司，一家於上海證券交易所上市的公司，股份代碼：600588)的證券事務代表。該公司是中國企業管理軟件和雲端服務提供商。錢女士於1996年7月至1997年8月期間於中國中信集團(前稱國際信託投資公司)的法律部任職。

錢女士於1996年7月畢業於中國政法大學，持有經濟法學士學位。錢女士於2006年6月獲得中國政法大學經濟法碩士學位，並於2010年12月獲得香港中文大學工商管理碩士學位。

錢女士在過去三年並無於任何上市公司擔任董事職務。

曹曉萍女士(「曹女士」)，69歲，為本公司副總裁。曹女士於2008年6月加入本集團。於2010年3月至2022年3月，曹女士同時擔任本集團財務總監。

曹女士主要負責本集團客戶關係管理及市場開發事宜。曹女士亦擔任山西博源之董事、北京博奇環境修復科技有限公司之董事及國能龍源博奇環保科技(漢川)有限公司之董事。

曹女士於會計及財務管理方面有逾30年經驗。於加入本集團之前，曹女士於2000年11月至2008年6月期間擔任鞍鋼建設集團有限公司之總會計師。曹女士於1985年2月至2000年11月期間擔任鞍鋼集團之財務部副科長，其後擔任副處長及處長。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

Ms. Cao graduated from Dongbei University of Finance and Economics (東北財經大學) with a master's degree in accounting in March 1999. She became a qualified senior accountant in the PRC in December 1997.

Ms. Cao did not hold directorship in any listed public company in the last three years.

Mr. Yan Bingli (顏炳利) (“Mr. Yan”), aged 59, is the vice president of the Company and joined the Group in October 2004. Since joining the Group, Mr. Yan has held various positions including the engineer of department of engineering and the general manager of Yangcheng project, a project director, the general manager of department of operation and maintenance, the general manager of department of sales and marketing and the general manager of department of operational planning and information management of Beijing Boqi. Mr. Yan is primarily responsible for the management of the Company's engineering. Mr. Yan also serves as the chairman and a director of Beijing Boqi Environmental Remediation Tech Co. Ltd. (北京博奇環境修復科技有限公司).

Mr. Yan obtained the diploma in power engineering management in Northeast Dianli University (東北電力學院) in April 1998.

Mr. Yan did not hold directorships in any listed public companies in the last three years.

Mr. Lu Jing (陸景) (“Mr. Lu”), aged 61, is the vice president of the Company and joined the Group in March 2011. Since joining the Group, Mr. Lu has held various positions including an assistant for the president and the general manager of department of information, the general manager of Jianan subcontracting department (建安分包部), the vice president and the general manager of marketing and sales center of Beijing Boqi. Mr. Lu is primarily responsible for marketing development and sales. Mr. Lu does not hold any other position with the members of the Group.

曹女士於1999年3月獲得東北財經大學會計碩士學位。曹女士於1997年12月成為中國高級會計師。

曹女士在過去三年並無於任何上市公司擔任董事職務。

顏炳利先生 (「顏先生」)，59歲，為本公司副總裁並於2004年10月加入本集團。自加入本集團以來，顏先生歷任北京博奇的多個職位，包括工程部工程師及陽城項目總經理、項目總監、運營和維護部總經理、市場營銷部總經理和經營計劃部和信息管理部總經理。顏先生主要負責公司工程管理。顏先生亦擔任北京博奇環境修復科技有限公司之主席及董事。

顏先生於1998年4月取得了東北電力學院電力管理工程文憑。

顏先生在過去三年並無於任何上市公司擔任董事職務。

陸景先生 (「陸先生」)，61歲，為本公司副總裁並於2011年3月加入本集團。自加入本集團以來，陸先生歷任北京博奇的多個職位，包括總裁助理及信息部總經理、建安分包部總經理、副總裁兼市場營銷中心總經理。陸先生主要負責市場開發及銷售。陸先生並無於本集團其他成員公司擔任任何其他職務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

Prior to joining the Group, for the period from November 2004 to June 2010, Mr. Lu served as an assistant manager of Great Wall Computer Software & Systems Inc* (長城計算機軟件與系統有限公司), a company mainly engaged in information safety business. Mr. Lu also served at the computer room of 57th Institute of the General Staff Council of People's Liberation Army (總參第五十七研究所電腦室) from July 1983.

Mr. Lu obtained a bachelor's degree in applied computer science from PLA Engineering Technology College (人民解放軍工程技術學院) in July 1983.

Mr. Lu did not hold directorships in any listed public companies in the last three years.

Ms. Yan Zhilian (閻芝蓮) ("Ms. Yan"), aged 64, vice president of the Company, joined the Group in 2004. Since she joined the Group, Ms. Yan served several positions in Beijing Boqi, such as the technical director, business manager, general manager of the cost actuary department, general manager of the technical department and assistant to the president. Ms. Yan is primarily responsible for the execution of concession operation projects of the Company. Ms. Yan is also a supervisor of Guo Neng Long Yuan Boqi Environmental Technology (Han Chuan) Co., Ltd.* (國能龍源博奇環保科技(漢川)有限公司).

Prior to joining the Group, Ms. Yan was the department head of the construction cost department in Liaoning Tianyi Accounting Firm* (遼寧天億會計師事務所) from October 1999 to October 2004, the department head of civil engineering projects of Liaoyang Petrochemical Fiber Company* (遼陽石油化纖公司) from December 1985 to October 1999, and a technician of the Third Construction Company of Liaoning Province* (遼寧省第三建築公司) from December 1977 to December 1985.

Ms. Yan obtained a bachelor's degree in industrial engineering from Fushun Petroleum Institute* (撫順石油學院) in July 1983.

Ms. Yan did not hold any other directorships in any listed companies the last three years.

於加入本集團之前，陸先生於2004年11月至2010年6月期間擔任長城計算機軟件與系統有限公司的副經理。該公司從事信息安全業務。陸先生亦於1983年7月起於總參第五十七研究所電腦室工作。

陸先生於1983年7月獲得人民解放軍工程技術學院應用計算機科學專業學士學位。

陸先生在過去三年並無於任何上市公司擔任董事職務。

閻芝蓮女士(「閻女士」)，64歲，為本公司副總裁並於2004年加入本集團。自加入本集團以來，閻女士歷任北京博奇多個職位，包括技經主管、商務經理、成本精算部總經理、技經部總經理及總裁助理。閻女士主要負責本公司特許經營項目執行。閻女士亦為國能龍源博奇環保科技(漢川)有限公司之監事。

於加入本集團之前，閻女士於1999年10月至2004年10月期間擔任遼寧天億會計師事務所工程造價部負責人。閻女士於1985年12月至1999年10月期間擔任遼陽石油化纖公司土建項目負責人。閻女士自1977年12月至1985年12月期間擔任遼寧省第三建築公司技術員。

閻女士於1983年7月獲得撫順石油學院工業工程專業學士學位。

閻女士在過去三年並無於任何上市公司擔任董事職務。

Directors and Senior Management (Continued)**董事及高級管理層 (續)**

Ms. Wang Hui (王慧) (“Ms. Wang”), aged 45, the vice president and chief financial officer of the Company, joined the Group in July 2019. Ms. Wang is primarily responsible for finance and accounting, budget formulation, investment-related matters and administrative management of the Group. Ms. Wang has held various positions in Beijing Boqi since joining the Group, including the general manager of the financial management center, assistant to the president, vice president and chief financial officer. Ms. Wang has served as a supervisor of three subsidiaries of Beijing Boqi, including Laibin Boqi Environmental Protection Technology Co., Ltd. (來賓博奇環保科技有限公司), Qinghai Boqi and Beijing Boqi Tianqi Environmental Protection Technology Co., Ltd. (北京博奇天啟環保科技有限公司). Ms. Wang is also a director of Guo Neng Long Yuan Boqi Environmental Technology (Han Chuan) Co., Ltd. (國能龍源博奇環保科技(漢川)有限公司).

Prior to joining the Group, Ms. Wang was appointed as the deputy general manager of financial division of Sound Global Ltd. (桑德國際有限公司), a company listed on the Stock Exchange (stock code: 00967), in October 2014. Since May 2017, she had held management position in Sangde Group Co., Ltd. (桑德集團有限公司) (formerly known as Beijing Sangde Environmental Protection Group Co., Ltd. (北京桑德環保集團有限公司)). In August 2018, Ms. Wang was appointed as the financial head of solid waste center of TUS-sound Environmental Resources Co., Ltd. (啟迪桑德環境資源股份有限公司) (currently known as TUS Environmental Science and Technology Development Co., Ltd. (啟迪環境科技發展股份有限公司)), a company listed on Shenzhen Stock Exchange (stock code: 000826).

王慧女士 (「王女士」), 45歲, 為本公司副總裁兼財務總監, 並於2019年7月加入本集團。王女士主要負責本集團財務及會計、預算制定、投資相關事宜及行政管理工作。王女士自加入本集團以來歷任北京博奇的多個職位, 包括財務管理中心總經理、總裁助理及副總裁兼財務總監。自2020年9月、2021年12月及2022年1月以來, 王女士分別擔任北京博奇三間附屬公司包括來賓博奇環保科技有限公司、青海博奇及北京博奇天啟環保科技有限公司監事。王女士亦為國能龍源博奇環保科技(漢川)有限公司之董事。

在加入本集團前, 王女士於2014年10月獲委任為桑德國際有限公司(聯交所上市公司, 股份代號: 00967)財務部副總經理。於2017年5月起, 彼擔任桑德集團有限公司(前稱為北京桑德環保集團有限公司)管理職位。王女士於2018年8月獲委任為啟迪桑德環境資源股份有限公司(現稱為啟迪環境科技發展股份有限公司, 深交所上市公司, 股份代號: 000826)固廢中心的財務總監。



Directors and Senior Management (Continued)

董事及高級管理層(續)

Ms. Wang obtained a bachelor degree in economics from Anhui University of Finance and Economics in July 2000 and a master degree in economics from Yunnan Minzu University in June 2003. She has been qualified as the intermediate economist and advanced accountant in the PRC and the certified management accountant in the United States of America since November 2004, May 2012 and March 2020, respectively.

Ms. Wang did not hold any other directorships in any listed companies the last three years.

Mr. Yan Bo (顏波) (“**Mr. Yan**”), aged 44, vice president of the Company, joined the Group in March 2022. Mr. Yan is mainly responsible for information management and qualified supplier management.

Before joining the Group, Mr. Yan served as an engineer and quality information supervisor of the Quality Department in Shanghai General Motors from July 2004 to February 2007. From February 2007 to March 2016, he served as an international sourcing supplier quality professional and supplier quality manager in Halliburton. From December 2016 to December 2019, he served as a senior quality manager and the group director of operation quality for Asia Pacific region in Wilo Group. From June 2020 to June 2021, he served as the deputy general manager of operations of Foomay Group.

Mr. Yan obtained a bachelor’s degree in automotive engineering from Tsinghua University in August 2001 and a master’s degree in mechanical engineering from Tsinghua University in July 2004.

Mr. Yan has not held any directorships in any listed companies in the past three years.

王女士於2000年7月取得安徽財經大學經濟學學士學位及於2003年6月取得雲南民族大學經濟學碩士學位。彼分別於2004年11月、2012年5月及2020年3月取得中國中級經濟師、高級會計師及美國註冊管理會計師資格。

王女士在過去三年並無於任何上市公司擔任董事職務。

顏波先生(「顏先生」)，44歲，為本公司副總裁並於2022年3月加入本集團。顏先生主要負責信息管理及格供應商管理。

於加入本集團之前，顏先生於2004年7月至2007年2月曆任上海通用汽車質量部工程師、質量信息主管。於2007年2月至2016年3月曆任哈里伯頓國際採購供應商質量專家、供應商質量經理。於2016年12月至2019年12月曆任威樂集團高級質量經理、亞太區運營質量總監。於2020年6月至2021年6月擔任富美集團運營副總經理。

顏先生於2001年8月獲得清華大學車輛工程專業學士學位，並於2004年7月獲得清華大學機械工程專業碩士學位。

顏先生在過去三年並無於任何上市公司擔任董事職務。

Directors and Senior Management (Continued)

董事及高級管理層 (續)

Mr. Sun Liwen (孫禮文) (“**Mr. Sun**”), aged 46, is the vice president of the Company and the director of the design institute. He joined the Group in December 2004. Mr. Sun is mainly responsible for the management of the design institute, the production technology department and the technical department. Since joining the Group, Mr. Sun has held various positions in Beijing Boqi, including chief engineer of technology, deputy chief engineer of the design department, deputy director and executive deputy director of the design institute, general manager of the technical department, assistant to the president and director of the design institute and vice president of the Company.

Prior to joining the Group, Mr. Sun served as the project leader of 701st Institute of CASC from August 2000 to May 2004. From May 2004 to November 2004, he served as the manager of the technical department of Beijing Sound Environmental Protection Co., Ltd.

Mr. Sun received a bachelor’s degree in mechanical and electronic engineering from Hefei University of Technology in July 2000, and was awarded the title of senior engineer in 2017.

Mr. Sun has not held any directorships in any listed companies in the past three years.

孫禮文先生(「孫先生」)，46歲，為本公司副總裁兼設計院院長，並於2004年12月加入本集團。孫先生主要負責設計院、生產技經部及技經部管理。孫先生自加入本集團以來歷任北京博奇的多個職位，包括工藝主任工程師、設計部副總工程師、設計院副院長、設計院常務副院長、技經部總經理、總裁助理兼設計院院長及副總裁。

於加入本集團之前，孫先生於2000年8月至2004年5月擔任航天701所項目負責人。於2004年5月至2004年11月擔任北京桑德環保有限公司技術部經理。

孫先生於2000年7月獲得合肥工業大學機械電子工程專業學士學位，並於2017年獲得高級工程師職稱。

孫先生在過去三年並無於任何上市公司擔任董事職務。



Directors and Senior Management (Continued)

董事及高級管理層(續)

JOINT COMPANY SECRETARIES

Ms. Qian Xiaoning (錢曉寧), aged 49, is a joint company secretary of our Company. She was appointed as the joint company secretary of the Company on 13 February 2017. Ms. Qian's biographical details are set forth in the paragraph headed "Senior Management" above.

Ms. Wong Wai Ling (黃慧玲) ("Ms. Wong"), is a joint company secretary of our Company. She was appointed as the joint company secretary of the Company on 13 February 2017.

Ms. Wong has over 15 years of experience in providing company secretarial services in Hong Kong. Ms. Wong currently is a vice president of SWCS Corporate Services Group (Hong Kong) Limited and is responsible for assisting listed companies in professional company secretarial work. Ms. Wong was admitted as associate of The Hong Kong Institute of Chartered Secretaries and was elected as association of The Chartered Governance Institute (formerly known as The Institute of Chartered Secretaries and Administrators) in the United Kingdom in July 2013.

Ms. Wong was awarded a bachelor's degree of Arts in Marketing and Public Relations from The Hong Kong Polytechnic University (香港理工大學) in October 2007, and obtained a master degree of Corporate Governance degree from The Open University of Hong Kong (香港公開大學) in December 2011.

聯席公司秘書

錢曉寧女士，49歲，為本公司聯席公司秘書，於2017年2月13日獲委任為本公司聯席公司秘書。錢女士的簡歷詳情已載於上文「高級管理層」一段。

黃慧玲女士(「黃女士」)，為本公司聯席公司秘書，於2017年2月13日獲委任為本公司聯席公司秘書。

黃女士於香港提供公司秘書服務方面擁有逾15年經驗。黃女士現為方圓企業服務集團(香港)有限公司的總監，負責協助上市公司專業的公司秘書工作。於2013年7月，黃女士獲准加入香港特許秘書公會及英國特許公司治理公會(前稱特許秘書及行政人員公會)。

黃女士於2007年10月獲得香港理工大學市場營銷及公共關係文學士學位及於2011年12月獲得香港公開大學企業管治學碩士學位。

Management Discussion and Analysis

管理層討論與分析

The Group is a green ecological governance enterprise that provides environmental governance and comprehensive services for new energy+ to industrial enterprises and cities. Our business mainly focuses on flue gas treatment, water treatment, hazardous waste treatment/disposal, dual-carbon energy saving and new energy. We are customer-oriented, with the goal of achieving carbon neutrality and meeting customer needs as our mission. We always adhere to the philosophy of “service builds trust, and professionalism creates value”, closely follow the development trend of the national environmental protection industry, and are committed to developing into a highly competitive and first-class enterprise in the country, with integrated platforms comprising “environmental protection and dual-carbon management platform, operation service technology platform, and capital investment and financing platform”, aiming to make positive contributions to the environmental protection and ecological civilization construction in the PRC and the world.

1. INDUSTRY OVERVIEW

The year of 2022 is the year of the 20th National Congress of the Communist Party of China. It is also an important year for China to embark on a new journey to comprehensively build a modern socialist country and achieve the second centenary goal. Against the backdrop of fierce internal competition and increasingly complex and severe external environment, the environmental protection industry encounters an austere situation in which resources are actively integrated to improve adhesion. The pace of industry integration is accelerating, and industry competition is also intensified. The structural, deep rooted and trending pressures on ecological and environmental protection have not yet been fundamentally alleviated, and the governance of pollution problems in key regions and industries still needs to be further strengthened.

本集團是向工業企業及城市提供環境治理及新能源+綜合服務的綠色生態治理企業。業務主要聚焦在煙氣治理、水處理、危固廢處理處置、雙碳節能和新能源。我們以客戶為中心，以實現碳中和為目標，以滿足客戶需求為己任，始終秉持「服務建立信任，專業創造價值」的理念，緊跟國家環保行業發展趨勢，致力於發展成為極具競爭力的國內一流的「環保雙碳管理平台、運營服務科技平台及資本運作投融平台」三型平台，為中國乃至世界的環境保護和生態文明建設做出積極的貢獻。

1. 行業概覽

2022年是黨的二十大召開之年，是我國踏上全面建設社會主義現代化國家新征程、向第二個百年奮鬥目標進軍的重要一年。在內部競爭激烈，外部環境更趨複雜嚴峻的情況下，環保行業呈現出一個積極整合資源以提高黏連性的耐寒時代。行業的整合步伐加快，行業競爭也處於白熱化狀態。生態環境保護的結構性、根源性、趨勢性壓力尚未根本緩解，重點區域、重點行業污染問題治理工作仍然有待進一步加強。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

Currently, the fast developing stage of the environmental protection industry is over, and the era of mergers and integrations has just begun. Environmental protection services are provided in the new format of industrial chain integration, digitization, intelligence, integrated development and comprehensive disposal. The competition among environmental protection enterprises has gradually shifted from the hardcore strength of “investment and engineering” to the competition of soft strength of refined management in the area of “operation and technology”. Under the new development trend, the environmental protection industry not only provides good technical support for pollution control, but also has opportunities for its own development.

On 20 January 2022, the Ministry of Industry and Information Technology, the National Development and Reform Commission and the Ministry of Ecology and Environment jointly issued the “Guiding Opinions on Promoting the High-quality Development of the Iron and Steel Industry”, which proposed to further promote green and low-carbon practice. The opinions require the industry to construct a resource recycling system for the mutual development of different industry sectors, so that more than 80% of steel production capacity will achieve ultra-low emission transformation, the comprehensive energy consumption per ton of steel will be reduced by more than 2% and the consumption intensity of water resources will be reduced by more than 10%, with a view to ensuring carbon peaks before 2030.

現階段環保產業的快時代已經結束，兼併整合的大時代才剛剛開啟。環保服務呈現產業鏈整合、數字化、智能化、一體化融合發展和綜合處置的新業態。環保企業間的競爭由「投資+工程」的硬實力逐步進入到「運營+技術」精細化管理的軟實力的角逐。在新發展態勢下環保產業不僅為治污攻堅提供了良好的技術支撐，同時也獲得了自身發展的機遇。

2022年1月20日，工業和信息化部、國家發展改革委和生態環境部聯合印發《關於促進鋼鐵工業高質量發展的指導意見》，該意見提出，將綠色低碳深入推進。構建產業間耦合發展的資源循環利用體系，80%以上鋼鐵產能完成超低排放改造，噸鋼綜合能耗降低2%以上，水資源消耗強度降低10%以上，確保2030年前碳達峰。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

On 29 June 2022, the Ministry of Industry and Information Technology and other six departments issued the “Industrial Energy Efficiency Improvement Action Plan”. Focusing on key industries, sectors and equipment which are energy-consuming, the plan requires to implement policies by industry and category and systematically improve the energy efficiency level in various industries, as well as strengthen energy management in all dimension in the whole chain and process, enhance standard guidance and energy-saving services, and coordinately improve the energy efficiency level of large, medium and small enterprises and industrial parks. It also proposes to coordinate and optimize industrial energy structure and digital empowerment to facilitate energy conservation and efficiency enhancement, and comprehensively improve the foundation of industrial energy efficiency. Promoting the improvement of industrial energy efficiency is an important way to reduce carbon emissions in industrial sectors and achieve the goal of carbon neutrality and carbon peaking.

On 1 August 2022, the Ministry of Industry and Information Technology, the National Development and Reform Commission and the Ministry of Ecology and Environment issued the “Implementation Plan for Carbon Peaking in Industrial Sectors”. Positive progress has been made in the optimization of the industrial structure and energy-consumption structure, resulting in a great improvement in the utilization efficiency of energy resources and the formation of a number of green factories and green industrial parks, thus laying a solid foundation for carbon peaking in industrial sectors. By 2025, it is expected that the intensity of carbon dioxide emissions in key industries will drop significantly. During the “15th Five-Year Plan” period, the country will strive to achieve carbon peaking and carbon reduction by further optimizing the layout of the industrial structure and continuously lowering the intensity of industrial energy consumption and carbon dioxide emissions. On the basis of achieving carbon peaking in industrial sectors, the country will strengthen carbon neutrality capabilities and basically establish a modern industrial system featuring high efficiency, greenness, recycling and low carbon, with a view to ensuring carbon dioxide emissions peaking in industrial sectors by 2030.

2022年6月29日，工業和信息化部等六部委印發《工業能效提升行動計劃》，聚焦重點用能行業、重點用能領域和重點用能設備，分業施策，分類推進，系統提升工業能效水平；加強全鏈條、全維度、全過程用能管理，強化標準引領和節能服務，協同提升大中小企業、工業園區能效水平；統籌優化工業用能結構、數字賦能等對節能提效的促進作用，全面提升工業能效基礎。推進工業能效提升，是降低工業領域碳排放、實現碳達峰碳中和目標的重要途徑。

2022年8月1日，工業和信息化部、國家發展改革委和生態環境部印發《工業領域碳達峰實施方案》，該方案提出，「十四五」期間，產業結構與用能結構優化取得積極進展，能源資源利用效率大幅提升，建成一批綠色工廠和綠色工業園區，築牢工業領域碳達峰基礎。到2025年，重點行業二氧化碳排放強度明顯下降。「十五五」期間，產業結構佈局進一步優化，工業能耗強度、二氧化碳排放強度持續下降，努力達峰削峰，在實現工業領域碳達峰的基礎上強化碳中和能力，基本建立以高效、綠色、循環、低碳重要特徵的現代工業體系。確保工業領域二氧化碳排放在2030年前達峰。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

On 2 November 2022, the Ministry of Science and Technology, the Ministry of Ecology and Environment, the Ministry of Housing and Urban-Rural Development, the Meteorological Bureau and the Forestry and Grassland Bureau jointly issued the “Special Plan for Scientific and Technological Innovation in the Field of Ecological Environment for the 14th Five-Year Plan”. It is mentioned in the plan that in order to actively respond to the challenges encountered in the ecological and environmental governance of the PRC during the “14th Five-Year Plan” period, it is necessary to accelerate scientific and technological innovation in the ecological environment and formulate a green technology innovation system, so as to promote a comprehensive green transformation of the economic and social development and build a beautiful China. The plan focuses on the research and development of key technologies such as the coordinated prevention and control of fine particles (PM2.5) and ozone (O₃), the coordinated prevention and control of ecological environment risks relating to soil-groundwater and the coordinated reduction of pollution and carbon emissions.

On 14 December 2022, the Central Committee of the Communist Party of China and the State Council issued the “Strategic Planning Outline for Expanding Domestic Demand (2022-2035)”, which proposes to put more efforts to the construction of ecological and environmental protection facilities. It also suggests to comprehensively improve the level of ecological environment infrastructure, build an environmental infrastructure system integrating the treatment and disposal facilities and monitoring and supervision capabilities for sewage, garbage, solid and hazardous waste and medical waste, as well as to form an environmental infrastructure network that extends from cities to towns and villages. It also requires to implement major projects for the protection and restoration of important ecosystems, promote the establishment of an ecological protection compensation system, comprehensively facilitate the efficient utilization of resources and construct ecological and environmental protection facilities that are conducive to the enhancement of clean energy utilization and the reduction of carbon dioxide emission. As such, the overall infrastructure of the environmental protection industry can be improved.

2022年11月2日，科技部、生態環境部、住房和城鄉建設部、氣象局、林業和草原局聯合印發《「十四五」生態環境領域科技創新專項規劃》。該規劃中提到，為積極應對「十四五」期間我國生態環境治理面臨的挑戰，需要加快生態環境科技創新，構建綠色技術創新體系，推動經濟社會發展全面綠色轉型，建設美麗中國。重點開展細顆粒物(PM2.5)和臭氧(O₃)協同防治、土壤—地下水生態環境風險協同防控、減污降碳協同等關鍵技術研發。

2022年12月14日，中共中央、國務院印發了《擴大內需戰略規劃綱要(2022—2035年)》，其中提出加大生態環保設施建設力度。全面提升生態環境基礎設施水平，構建集污水、垃圾、固廢、危廢、醫廢處理處置設施和監測監管能力於一體的環境基礎設施體系，形成由城市向建制鎮和鄉村延伸覆蓋的環境基礎設施網絡，實施重要生態系統保護和修復重大工程，推動建立生態保護補償制度。全面推進資源高效利用，建設促進提高清潔能源利用水平、降低二氧化碳排放的生態環保設施。環保行業基礎設施實現整體提升。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

2. BUSINESS REVIEW

In 2022, as affected by the coronavirus pandemic, there were difficulties in the recovery of the world economy and the global production and supply chain was interrupted. Overall, the Chinese economy has been facing pressure from shrinking demand, supply shocks and weakening expectations. The production and operation activities in some industries and regions were stagnant, and the indicators such as industrial production and electricity consumption and freight transportation continued to decline. Against this backdrop, the business expansion and project execution of the Group were facing great challenges and its revenue was affected to a certain extent. Nevertheless, the Group has put great effort to develop and seek new drivers for profit growth, and continuously expand new businesses, secure new customers and enter into new industries, thus laying a solid foundation for the Group's strategic objectives in the "14th Five-Year Plan" and establishing our ecological niche in the era of environmental protection.

As of 31 December 2022, the Group's projects had a broad geographic coverage over China, reaching 31 provinces, municipalities and autonomous regions in China. During the Reporting Period, flue gas treatment and dual-carbon energy saving projects were mainly concentrated in North China and Central Southern China. Relying on the guidance of state policies and driven by the Group's strategic goals, the Group's business in steel and other non-electricity industries has achieved outstanding performance. Compared with the same period last year, the orders of O&M business have grown significantly and the contract periods have been relatively stable for a long term. Meanwhile, water treatment and hazardous and solid waste treatment/disposal projects have been steadily expanding in Northwest China, East China and North China.

2. 業務回顧

2022年，受新冠疫情影響，世界經濟復蘇艱難，全球生產和供應周期不暢。從總體上看，中國經濟面臨着需求萎縮、供給衝擊和預期減弱的壓力。部分行業及地區生產經營活動停滯，工業生產、用電貨運等指標持續走低，本集團業務拓展及項目執行面臨着極大的挑戰，收益受到了一定程度的影響。儘管如此，本集團仍在努力開拓和尋求新的利潤增長點，持續提升對新業務－新客戶－新行業的拓展力度，為本集團的「十四五」戰略目標奠定堅實的基礎，為在環保大時代下的發展尋求我們的生態位。

截至2022年12月31日，本集團的項目在中國的覆蓋範圍廣泛，遍及中國31個省、市及自治區。於報告期內，煙氣治理及雙碳節能項目主要集中在華北和中南地區，依托政策的引導和在本集團戰略目標的驅動下，本集團業務在鋼鐵等非電行業表現亮眼，較去年同期，運維訂單增長顯著且合同周期呈長期穩定態勢。水處理和危固廢處理處置項目則在西北地區、華東地區及華北地區穩步拓展。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The following map shows the distribution of the projects of the Group within the PRC as at 31 December 2022:

下圖列示於2022年12月31日，本集團在中國境內的項目分佈：



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The following map shows the distribution of the projects of the Group outside the PRC as at 31 December 2022:

下圖列示於2022年12月31日，本集團在中國境外的項目分佈：



2.1 Flue Gas Treatment Business

As a provider of comprehensive green ecological treatment services for the industrial environment, the Group's business of flue gas treatment services is mainly conducted through various business models including EPC, O&M and concession operations (including "Build-Operate-Transfer" or "BOT", and "Build-Own-Operate" or "BOO"). During the Reporting Period, we have deeply explored the remaining market of flue gas treatment business by continuously strengthening the construction of our customer service system and leveraging our engineering implementation experience. Our business segments are as follows:

2.1 煙氣治理業務

作為工業環境綜合綠色生態治理服務的提供商，本集團煙氣治理業務主要通過EPC、運維及特許經營(包括「建設－運營－轉讓」或「BOT」，以及「建設－擁有－運營」或「BOO」)等多種業務模式提供服務。報告期內，我們通過不斷加強客戶服務體系的建設及良好的工程實施經驗，深度挖掘煙氣治理業務的剩餘市場。其中：



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

EPC

EPC business mainly involves providing project design, equipment and materials procurement, project construction and equipment installment services in relation to SO₂ or NO_x emission control and dust removal for industrial customers such as power plants, steel factories, chemical plants, refining and building material companies. In recent years, with changes in environmental protection policies, the Group has continued to expand the scope of EPC business customers, from the traditional coal-fired power plant flue gas treatment industry to other industries such as petrochemical, steel, gas, electrolytic aluminum, coking, refining and building materials, and has repeatedly achieved remarkable results in the non-electricity market. As of 31 December 2022, the Group had 10 new EPC projects, with a total contract value amounting to approximately RMB429 million.

The following table sets forth the status of the Group's newly added EPC projects during the Reporting Period:

EPC

EPC業務主要涉及為發電、鋼鐵、化工、煉化及建材等工業客戶二氧化硫、氮氧化物排放控制及除塵項目提供設計、設備與材料採購、項目建設及設備安裝服務。近年來，隨着環保政策的變化，本集團持續擴大EPC業務客戶範圍，從傳統的燃煤電廠煙氣治理行業拓展至石化、鋼鐵、燃氣、電解鋁、焦化、煉化及建材，在非電領域市場屢獲佳績。截至2022年12月31日，本集團新增10個EPC項目，總計合同金額約人民幣429百萬元。

於報告期內，本集團新增的EPC項目情況如下：

No. 序號	Project name 項目名稱	Type of project 項目類型	Newly built/ upgraded 新建／改造	Date of contract 合同簽訂時間	Aggregate contract value 合同額 <i>RMB million</i> 人民幣百萬元
1	Supplementary Agreement for SCR Denitrification Upgrading Project of Sintering Plant of Hebei Yanshan Steel Group Co., Ltd. 河北燕山鋼鐵集團有限公司燒結廠SCR脫硝改造工程項目補充協議	Denitrification 脫硝	Upgraded 改造	January 2022 2022年1月	2 2
2	The Project of Installation of Catalyst and Sonic Sootblower to No. 1 and No. 2 Boiler of Hebei Zhuozhou Jingyuan Thermal Power Co., Ltd. 河北涿州京源熱電有限責任公司1號、2號鍋爐加裝催化劑及聲波吹灰器項目	Denitrification 脫硝	Newly built 新建	January 2022 2022年1月	7 7
3	Design Project for Sintered Particles Upgrading and Renovation Project of No. 1 and 3 Sintering Plants of Hebei Jinxi Steel Group Co., Ltd. 河北津西鋼鐵集團股份有限公司燒結廠一三燒顆粒物提標改造設計項目	Desulfurization and dust removal 脫硫及除塵	Upgraded 改造	February 2022 2022年2月	2 2

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

No. 序號	Project name 項目名稱	Type of project 項目類型	Newly built/ upgraded 新建/改造	Date of contract 合同簽訂時間	Aggregate contract value 合同額 <i>RMB million</i> 人民幣百萬元
4	Equipment Supply Project for Sintered Particles Upgrading and Renovation of No. 1 and 3 Sintering Plants of Hebei Jinxi Steel Group Co., Ltd. 河北津西鋼鐵集團股份有限公司燒結廠一三燒顆粒物提標 改造設備供貨項目	Desulfurization and dust removal 脫硫及除塵	Upgraded 改造	February 2022 2022年2月	24 24
5	Construction and Installation Project for Sintered Particles Upgrading and Renovation of No. 1 and 3 Sintering Plants of Hebei Jinxi Steel Group Co., Ltd. 河北津西鋼鐵集團股份有限公司燒結廠一三燒顆粒物提標 改造建安項目	Desulfurization and dust removal 脫硫及除塵	Upgraded 改造	February 2022 2022年2月	25 25
6	General Contracting Project for Hot Blast Furnace Denitrification System of Iron-making Plant of Hebei Yanshan Steel Group Co., Ltd. 河北燕山鋼鐵集團有限公司煉鐵廠熱風爐脫硝系統總承包 項目	Denitrification 脫硝	Newly built 新建	March 2022 2022年3月	29 29
7	Upgrading Project of Ultra-low Emission Flue and Fan for Flue Gas Desulfurization and Denitrification of No. 4 Nickeliron Kiln of Guangdong Century Qingshan Nickel Industry Co., Ltd. 廣東世紀青山鎳業有限公司4條鎳鐵窑爐煙氣脫硫脫硝超低 排放煙道及風機改造項目	Desulfurization and denitrification 脫硫及脫硝	Upgraded 改造	March 2022 2022年3月	23 23
8	Master Contracting Project of No. 1 Sintering Machine Flue Gas Purification Device relating to the Integrated Project of Removing the Old District of HBIS Hansteel from Urban Area 河鋼邯鋼老區退城整合項目1#燒結機煙氣淨化裝置總承包 項目	Desulfurization, denitrification and dust removal 脫硫、脫硝及除塵	Newly built 新建	July 2022 2022年7月	115 115
9	Expansion Project for Flue Gas Desulfurization and Wet Electrostatic Dust Removal with 400kt/a Pre-baked Anode of Xinjiang Shenhua Carbon Products Co., Ltd. 新疆神火炭素製品有限公司400kt/a預焙陽極煅燒煙氣脫硫 與濕式電除塵增建項目	Desulfurization and dust removal 脫硫及除塵	Upgraded 改造	July 2022 2022年7月	57 57
10	Engineering Upgrading Project for 800kt/a Aluminum Alloy Electrolysis Flue Gas Desulfurization of Xinjiang Shenhua Coal and Electricity Co., Ltd. 新疆神火煤電有限公司800kt/a鋁合金電解煙氣脫硫工程改 造項目	Desulfurization 脫硫	Upgraded 改造	August 2022 2022年8月	145 145

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

O&M

O&M services mainly include operation services and regular maintenance services for desulfurization, denitrification and dust removal facilities owned by the customers. Under the O&M projects, our customers are either charged (i) service fees based on the total amount of on-grid electricity or sintered ton of ore generated during the service period, or (ii) a fixed price determined based on the pre-agreed scope of work. Revenue from the O&M business provides the Group with sustainable source of income and stable cash flow.

During the Reporting Period, the Group had a total of 23 O&M projects in operation, covering industrial sectors such as electricity and steel. The scope of the Group's O&M services has successfully expanded from the original environmental protection facilities to O&M of generator units, and the 135 MW generator unit of Jinxi Steel which we have newly contracted is the first 135MW supercritical gas-powered generating set in China.

The following table sets forth the installed capacities and status of the O&M projects of the Group under operation during the Reporting Period:

No. 編號	Project name 項目名稱	Type of project 項目類型	Starting date of service 服務起始日期 (Month/Year) (年/月)	Expiry date of service contract 服務合約屆滿日期 (Month/Year) (年/月)	Installed capacity 裝機容量
1	Yangcheng #1-6 Unit Flue Gas Desulfurization O&M Project (Note 1) 陽城1-6號機組煙氣脫硫運維項目(附註1)	Desulfurization and dust removal 脫硫除塵	July 2018 2018年7月	March 2023 2023年3月	6×350MW
2	Yangcheng #7-8 Unit Flue Gas Desulfurization O&M Project (Note 1) 陽城7-8號機組煙氣脫硫運維項目(附註1)	Desulfurization, dust removal and slag removal 脫硫除塵除渣	June 2018 2018年6月	March 2023 2023年3月	2×600MW
3	Qinzhou Desulfurization O&M Project 欽州脫硫運維項目	Desulfurization 脫硫	July 2015 2015年7月	June 2024 2024年6月	2×630MW+2×1000MW 2×630MW+2×1000MW
4	Jingjiang Flue Gas Desulfurization and Dust Removal O&M Project 靖江煙氣脫硫及除塵運維項目	Desulfurization and dust removal 脫硫除塵	March 2016 2016年3月	December 2023 2023年12月	2×660MW

運維

運維服務主要包括對客戶擁有的脫硫、脫硝及除塵設施提供運營服務及常規維護服務。就運維項目，我們向客戶收取(i)基於服務期間總上網電量或燒結噸礦量計算的服務費，或(ii)根據預先協定的工作範圍釐定的價格。運維業務收入可為本集團提供持續性收入來源和穩定的現金流量。

於報告期內，本集團共有23個投運的運維項目，覆蓋電力及鋼鐵等工業領域，本集團運行維護服務範圍由原有的環保設施成功拓展至發電機組運維，且新承運的津西鋼鐵135發電機組是國內首台套135MW超超臨界煤氣發電裝機。

於報告期內，本集團的投運運維項目的裝機容量及項目情況如下：

Management Discussion and Analysis (Continued)

管理層討論與分析 (續)

No. 編號	Project name 項目名稱	Type of project 項目類型	Starting date of service 服務起始日期 (Month/Year) (年/月)	Expiry date of service contract 服務合約屆滿日期 (Month/Year) (年/月)	Installed capacity 裝機容量
5	Yangxi Flue Gas Desulfurization and Denitrification O&M Project 陽西煙氣脫硫脫硝運維項目	Desulfurization and denitrification 脫硫脫硝	January 2017 2017年1月	December 2025 2025年12月	2×660MW+2×600MW
6	Shouguang Auxiliary Ashing and Sulfurization Control System Commissioned Operation Project 壽光灰硫化輔控系統委託運行項目	Desulfurization 脫硫	May 2018 2018年5月	March 2024 2024年3月	2×1000MW 2×1000MW
7	Jinxi Steel O&M Project 津西鋼鐵運維項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	March 2019 2019年3月	February 2025 2025年2月	265 m ² sintering machines 265 m ² 燒結機
8	Jinxi Special Steel O&M Project 津西特鋼運維項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	March 2019 2019年3月	June 2023 2023年2月	2×210 m ² + 1×265 m ² sintering machines 2×210 m ² +1×265 m ² 燒結機
9	Denitrification, Desulfurization and Dust Removal O&M Project on 350m ² Sintering Machines of Tianjin Iron Plant 天津鐵廠350平燒結機脫硫脫硝除塵運維項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	November 2019 2019年11月	November 2022 2022年11月	350 m ² sintering machines 350 m ² 燒結機
10	Denitrification O&M Project on 360m ² Sintering Machines of Tianjin Iron Plant 天津鐵廠360平米燒結機脫硫運維項目	Denitrification 脫硝	December 2019 2019年12月	November 2022 2022年11月	360 m ² sintering machines 360 m ² 燒結機
11	Desulfurization, Denitrification and Wastewater Zero-discharge System Equipment Maintenance Works under the O&M Project of No. 5 & 6 units of Yangxi Power Plant 陽西運維電廠5、6機組脫硫脫硝及廢水零排系 統設備維護項目	Desulfurization, denitrification and wastewater zero- discharge 脫硫脫硝廢水零排	January 2022 2022年1月	August 2027 2027年8月	2×1240MW 2×1240MW
12	Operation and Maintenance Service Project of Environmental Protection Facilities of Shanxi Yuguang Power Generation Co., Ltd. 山西豆光發電有限責任公司環保設施運行檢修服 務項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	December 2021 2021年12月	July 2023 2023年7月	2×300MW+2×350MW 2×300MW+2×350MW

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

No. 編號	Project name 項目名稱	Type of project 項目類型	Starting date of service 服務起始日期 (Month/Year) (年/月)	Expiry date of service contract 服務合約屆滿日期 (Month/Year) (年/月)	Installed capacity 裝機容量
13	Hegang Chenggang O&M Project 河鋼承鋼運維項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	April 2022 2022年4月	April 2027 2027年4月	180 m ² sintering machines 180 m ² 燒結機
14	Desulfurization and Denitrification System Contract Operation Project 津西鋼鐵集團有限公司燒結廠二燒脫硫脫硝系統 承包運營項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	July 2021 2021年7月	June 2024 2024年6月	265 m ² sintering machines 265 m ² 燒結機
15	Sintering Machine Flue Gas Purification Device O&M Project relating to the Integrated Project of Removing the Old District of HBIS Hansteel from Urban Area of Handan Steel Group Co., Ltd. 邯鄲鋼鐵集團有限責任公司河鋼邯鋼老區退城 整合項目燒結機煙氣淨化裝置運維項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	From the date of uploading the environmental protection information to the Internet 環保數據並網上傳之日 起	Contract period of 5 years 合同期5年	435 m ² sintering machines 435 m ² 燒結機
16	2×1000MW Desulfurization System O&M Project of SDIC Nanyang 國投南陽2×1000MW脫硫系統運行維護項目	Lime sulfur system 灰硫系統	August 2021 2021年8月	August 2023 2023年8月	2×1000MW 2×1000MW
17	2×660MW Lime Sulfur and Coal Transportation and Maintenance Project of Panji Power Plant of Huainan Mining 潘集淮南礦業潘集電廠2×660MW灰硫輸煤運輸 維護項目	Ash and slag removal, desulfurization and denitrification 除灰渣、脫硫、脫硝	November 2022 2022年11月	November 2024 2024年11月	2×660MW 2×660MW
18	Environmental Protection Facilities O&M Project of Shanxi International Energy Yuguang Coal and Electricity Co., Ltd. 山西國際能源裕光煤電有限責任公司環保設施運 維項目	Desulfurization and dust removal 脫硫及除塵	April 2022 2022年4月	March 2025 2025年3月	1×1000MW 1×1000MW
19	Desulfurizer Purchase and Sale Project of Chengde Branch of Hebei Steel Co., Ltd. 河鋼股份有限公司承德分公司脫硫劑採購買賣 項目	Denitrification, desulfurization and dust removal 脫硝脫硫及除塵	February 2022 2022年2月	June 2027 2027年2月	180 m ² sintering machines 180 m ² 燒結機

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

No. 編號	Project name 項目名稱	Type of project 項目類型	Starting date of service 服務起始日期 (Month/Year) (年/月)	Expiry date of service contract 服務合約屆滿日期 (Month/Year) (年/月)	Installed capacity 裝機容量
20	Desulfurization and Denitrification Outsourcing Operation Project of Sintering Plant 450 of Hebei Jinxi Steel Group Co., Ltd. 河北津西鋼鐵集團股份有限公司燒結廠450脫硫脫硝除塵外委運營項目	Desulfurization and denitrification 脫硫脫硝及除塵	September 2022 2022年9月	August 2025 2025年8月	450m ² sintering machines 450m ² 燒結機
21	Ash Vulcanization Auxiliary Control Operation and Auxiliary Production Service Project of Qingyuan Power Plant of Guangdong Company 廣東公司清遠電廠灰硫化輔控運行及輔助生產服務項目	Ash vulcanization auxiliary control operation and auxiliary production service 灰硫化輔控運行及輔助生產服務	October 2022 2022年10月	October 2025 2025年10月	2×300MW+2×350MW 2×300MW+2×350MW
22	O&M Project (Excluding Desulfurization and Denitrification) for 135 MW Generator Unit of Jinxi Steel 津西鋼鐵135發電機組(不含脫硫脫硝)運行維護項目	O&M for generator unit 發電機組運維	October 2022 2022年10月	October 2026 2026年10月	135MW 135MW
23	O&M Project for 299,000 cubic meters Blast Furnace Gas Tank of Jinxi Steel 津西鋼鐵29.9萬立高爐煤氣櫃運行維護項目	O&M for blast furnace gas tank 高爐煤氣櫃設備運維	October 2022 2022年10月	October 2026 2026年10月	299,000 cubic meters 29.9萬立

Note 1: Upon the expiration of the contract, it can be renewed twice for one year according to the terms of the contract.

附註1：合約期滿後可按合約條款按一年期再續約兩次。

Concession Operation Business

Under the concession operation business model, the Group is responsible for the financing, investment, construction and operation of a project according to its concession contracts with its customers.

In 2022, the Group continued to carry out its concession operation business, including desulfurization, denitrification and green island. As of 31 December 2022, the Group accumulated seven concession operation projects (Note 2), all of which have been put into operation smoothly, laying a strong foundation for the Group's continuous operation and stable development.

特許經營業務

在特許經營業務模式下，本集團負責根據與其客戶訂立的特許經營合同為項目籌措資金、投資、建設及運營。

於2022年，本集團繼續運營其特許經營業務，包括脫硫、脫硝及環保島。於2022年12月31日，本集團累計在執行七個特許經營項目（附註2），所有項目均已順利投運，為本集團持續經營和穩定發展奠定重要基礎。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The following table sets forth details of the concession operation projects of the Group under operation during the Reporting Period (Note 1):

於報告期內，本集團投運的特許經營項目詳情如下(附註1)：

No. 序號	Project name 項目名稱	Installed capacity 裝機容量	Type of project 項目類型	Newly built/ Upgraded 新建/改造	Total investment 投資總額 RMB million 人民幣百萬元	Date of signing contract 合同簽訂日期 (Month/Year) (年/月)	Expiry date of concession period 特許經營期限屆滿日期 (Month/Year) (年/月)
1	Jiangxi Jinggangshan BOT Project 江西井岡山BOT項目	2×300MW+ 2×660MW	Desulfurization 脫硫	Newly built and upgraded 新建及改造	386 (Note 3)	January 2008 (for Phase I) August 2008 (for Phase II)	July 2030 (for Phase I) December 2030 (for Phase II)
2	Shanxi Hejin BOT Project 山西河津BOT項目	2×300MW+ 2×660MW	Denitrification 脫硝	Newly built 新建	90	June 2012	September 2033 (for Unit #1) May 2033 (for Unit #2) 2033年9月(1號機組) 2033年5月(2號機組)
3	Shanxi Puzhou Phase I BOT Project (Note 2) 山西蒲洲一期BOT項目 (附註2)	2×300MW	Denitrification 脫硝	Newly built 新建	84	June 2012	January 2034 (for Unit #1) May 2033 (for Unit #2) 2034年1月(1號機組) 2033年5月(2號機組)
4	Shanxi Puzhou Phase II BOT Project 山西蒲洲二期BOT項目	2×350MW	Desulfurization 脫硫	Newly built 新建	112	May 2014	End of 2037 2037年底
5	Xinjiang Shenhuo BOT Project 新疆神火BOT項目	4×350MW	Green Island 環保島	Upgraded 改造	498 (Note 3)	June 2017	End of 2032 2032年底
6	Huainan Guqiao BOT Project 淮南顧橋BOT項目	2×330MW	Green Island 環保島	Upgraded 改造	173	May 2018	End of 2033 2033年底
7	Xinjiang Guotai Xinhua BOT Project 新疆國泰新華BOT項目	2×350MW	Green Island 環保島	Upgraded 改造	150	July 2018	June 2028 2028年6月
8	Guangxi Laibin Desulfurization, Denitrification and Dust Removal BOO Project 廣西來賓脫硫脫硝 除塵BOO項目	2×300MW	Green Island 環保島	Upgraded 改造	303 (Note 3)	December 2018	End of 2033 2033年底

Management Discussion and Analysis (Continued)

管理層討論與分析 (續)

Notes:

1. On 30 December 2022, Beijing Boqi and Shanxi Yuguang Power Generation Co., Ltd. (山西昱光發電有限責任公司) (“**Shanxi Yuguang**”) entered into a termination agreement, pursuant to which, among others, Shanxi Yuguang agreed to purchase and Beijing Boqi agreed to sell the Yuguang BOT Facilities. For further details, please refer to the announcement of the Company headed “Discloseable Transaction — Disposal of the Yuguang BOT Facilities” dated 30 December 2022.
2. Shanxi Puzhou Phase I BOT Project is currently under negotiation of being repurchased by the owner, and the related BOT business has been suspended.
3. The environmental protection facilities of Jiangxi Jinggangshan BOT Project, Xinjiang Shenhua BOT Project and Guangxi Laibin Desulfurization, Denitrification and Dust Removal BOO Project have been optimized in terms of their process, thus the investment amount has increased accordingly.

附註：

1. 於2022年12月30日，北京博奇與山西昱光發電有限責任公司(「山西昱光」)訂立終止協議，據此(其中包括)，山西昱光同意購買且北京博奇同意出售昱光BOT設施。有關詳情，請參閱本公司日期為2022年12月30日標題為「須予披露交易－出售昱光BOT設施」的公告。
2. 山西蒲洲一期BOT項目已處於業主回購洽談階段，相關BOT業務已暫停。
3. 江西井冈山BOT項目、新疆神火BOT項目及廣西來賓脫硫脫硝除塵BOO項目的環保設施分別進行了工藝優化，使得投資額相應增加。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

2.2 Water Treatment Business

During the Reporting Period, the Group's water treatment business has developed with favorable momentum. Relying on its engineering implementation experience and performance foundation in the field of water treatment, the Group successfully explored the markets of the pharmaceutical and paper industries. Changzhi Yuanyan Pharmaceutical Technology Co., Ltd. is a pharmaceutical enterprise in the park where the Group's Lubao Industrial Park Wastewater Treatment Project is located. The Group conducts advanced treatment and concentration of the pretreated sewage to achieve near zero discharge in the park. The pulping and paper-making sewage treatment transformation EPC project of Shandong Bohui Paper Co., Ltd. is a large-scale technical transformation general contracting project in the field of domestic pulping and paper-making sewage treatment in recent years. The project adopts the Group's advanced industrial water treatment integrated technology to effectively remove COD and pollutants such as total nitrogen and total phosphorus to ensure the efficient and stable operation of the system, while realizing the reuse of reclaimed water and saving water resources. As of 31 December 2022, the Group had three new water treatment projects, with a total contract value of approximately RMB295 million.

2.2 水處理業務

報告期內，本集團水處理業務發展態勢良好。憑借本集團在水處理領域的工程實施經驗和業績基礎，成功開拓了醫藥和造紙行業的市場。長治市元延醫藥科技有限公司為本集團的潞寶工業園區污水處理項目所在園區內的醫藥企業，本集團對其預處理後的排水進行深度處理和濃縮，實現園區近零排放。山東博匯紙業股份有限公司一製漿造紙污水處理改造EPC項目採用本集團先進的工業水處理組合技術，有效去除COD、總氮、總磷等污染物，保證系統高效穩定運行的同時，實現中水回用，節省水資源。截至2022年12月31日，本集團新增叁個水處理項目，總計合同金額約人民幣295百萬元。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The following table sets forth details of the water treatment projects being implemented by the Group during the Reporting Period:

於報告期內，本集團在執行的水處理業務項目如下：

No.	Project name	Type of project	Date of signing contract 合同 簽訂時間	Expiry date of service contract (month/year) 服務合約屆滿日期 (年/月)
序號	項目名稱	項目類型		
1	Sewage Advanced Treatment and Recycle Project for Coking Waste water/sewage and Renewable Resource Utilization of Shanxi Lubao Industrial Park 山西潞寶工業園區焦化廢(污)水及再生資源化利用污水深度處理及回用項目	N/A <i>(Note)</i> 不適用 ^(註)	June 2019 2019年6月	N/A 不適用
2	Concentrated Water Advanced Treatment System Project of Lubao Industrial Park Sewage Treatment Center 潞寶工業園區污水處理中心濃水深度處理系統項目	N/A <i>(Note)</i> 不適用 ^(註)	November 2020 2020年11月	N/A 不適用
3	Wastewater Zero Discharge Project for the Coking Plant of Tianjin Iron Works Co., Ltd. 天津鐵廠有限公司焦化廠廢水零排放項目	EPC EPC	August 2021 2021年8月	N/A 不適用
4	Wastewater Treatment System EPC Project of Binzhou Hongnuo Company 濱州宏諾公司廢水處置系統EPC工程項目	EPC EPC	September 2021 2021年9月	N/A 不適用
5	Technical Service Project for Yakela Sewage Treatment Station of Sinopec Northwest Oilfield Branch 中石化西北油田分公司雅克拉污水處理站技術服務項目	O&M 運維	October 2021 2021年10月	September 2024 2024年9月
6	Domestic Sewage Treatment and Operation Commissioned Project of Xinjiang Northwest Oilfield Drilling Team 新疆西北油田鑽井隊生活污水處理生產運行委託項目	O&M 運維	January 2022 2022年1月	June 2024 2024年6月
7	Wastewater/Sewage Collection and Treatment Project of Changzhi Yuanyan Pharmaceutical Technology Co., Ltd. 長治市元延醫藥科技有限公司(廢)污水接納處理項目	O&M 運維	January 2022 2022年1月	January 2023 2023年1月
8	Sewage Treatment and Renovation EPC Project for Pulping and Paper Production of Shandong Bohui Paper Co., Ltd. 山東博匯紙業股份有限公司制漿造紙污水處理改造EPC項目	EPC EPC	April 2022 2022年4月	N/A 不適用

Note: Such projects belong to self-owned assets and are not applicable to this classification.

註：該等項目屬於自有資產，不適用此處分類。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

2.3 Hazardous and Solid Waste Treatment/Disposal Business

During the Reporting Period, the Group's Drilling Mud Solid Waste Treatment O&M Project in Xinjiang Drilling Area has been operating smoothly, with a designed processing capacity of 120,000 tons per year. In the field of co-processing of cement kilns, the construction of the first phase of the Cooperative Hazardous and Solid Waste Disposal Project of Tangshan Yandong Cement Kiln in China has been completed, and the hazardous waste business license is being processed. The project is planned to be invested and constructed in two phases. After the completion and operation of the project, the annual processing capacity of hazardous solid waste is expected to reach about 100,000 tons. Qinghai Boqi, a subsidiary of the Group, was affected by factors such as increasingly stringent regulatory environment and landscape on cross-province transfer of hazardous waste in the Qinghai Province and the lockdown caused by the coronavirus pandemic in 2022, which resulted in significant changes in operating environment and future development prospects of Qinghai Boqi. The Group has further signed a supplementary agreements to adjust the consideration for acquisition of Qinghai Boqi with reference to the revised valuation as at 30 June 2022^(note), which greatly reduced the Group's investment cost on the projects of Qinghai Boqi. The Group has invested in the construction of the Hazardous Waste Packaging Comprehensive Utilization Project of Qinghai Boqi. Through the planning of its hazardous and solid waste treatment/disposal business, the Group is expected to further open up the market of the hazardous and solid waste treatment/disposal business.

Note: For further details, please refer to the Company's announcement dated 2 December 2022.

2.3 危固廢處理處置業務

於報告期內，本集團的中石化新疆工區鑽井泥漿固廢治理運維項目順利運營，設計處理能力達每年12萬噸；水泥窯協同處置領域，唐山燕東水泥窯協同處置危固廢處理項目一期已經建設完成，正在辦理危險廢物經營許可證，該項目計劃分兩期投資建設，建成投運後的危固廢每年處理量有望達約10萬噸；本集團子公司青海博奇於2022年受青海省危險廢物跨省轉移的監管環境和格局日趨嚴格，以及新冠疫情導致停工等因素的影響，導致青海博奇的經營環境和未來發展發生了較大的變化，本集團進一步簽訂了補充協議，根據2022年6月30日的經修訂估值調整了青海博奇的收購代價^(註)，較大幅度降低了本集團對青海博奇項目的投資成本。本集團投資建設了青海博奇危險廢舊包裝物綜合利用項目，通過對危固廢處理處置業務的佈局，本集團有望進一步打開危固廢處理處置業務市場。

註：有關詳情，請參閱本公司日期為2022年12月2日的公告。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

2.4 Dual-Carbon Energy Saving Business

During the Reporting Period, the Group's dual-carbon energy saving business was carried out in an orderly manner, and it always seeks to further expand its market share in the field of dual-carbon energy saving business. The CDQ Project of Tianjin Iron Plant has been officially put into operation during the Reporting Period. The contract model was changed from the original EMC model to the BOT model in July 2022 with a contract term of 10 years, which will provide a stable source of income for the Group in the mid- to long-term, thus laying a foundation for the strategic deployment of the Group's dual-carbon energy saving business.

2.4 雙碳節能業務

報告期內，本集團的雙碳節能業務有序開展，並始終嘗試進一步擴大雙碳節能業務領域的市場份額。天津鐵廠乾熄焦工程項目已於報告期內正式投產，合同模式於2022年7月由原本的EMC模式變更為BOT模式，合同期10年，中長期內將為集團帶來穩定的收入來源，為集團雙碳節能的戰略佈局奠定基礎。

3. FINANCIAL POSITION AND OPERATING RESULTS

In 2022, as affected by the local and overseas macroeconomy and the domestic pandemic situation, the Company's market expansion and project execution were restricted, bringing great challenges to the production and operation of the Company. Nevertheless, the Company has continued to step up its efforts to explore new business areas and improve its organizational management level and technological innovation capabilities, thus ensuring the normal operation of various business segments and maintaining a sound asset structure.

Revenue

In the 2022 financial year, the Group's total revenue was RMB1,900 million, representing a decrease of 9.2% from RMB2,092 million for the year ended 31 December 2021 (the "2021 financial year"), mainly due to the following reasons: (i) the progress of certain EPC projects was delayed due to the impact of the lockdown policy relating to coronavirus pandemic; (ii) the power generation of certain concession operation projects decreased as compared with 2021 and the services under Shanxi Yuguang BOT Project were terminated; and (iii) the revenue from the hazardous and solid waste treatment/disposal business decreased due to the impact of the coronavirus pandemic and environmental inspections.

3. 財務狀況及經營業績

2022年，受國內外宏觀經濟形勢及國內新冠疫情影響，本公司市場拓展及項目執行受限，給本公司生產經營帶來極大挑戰。即便如此，本公司仍不斷加大新業務領域開拓力度，提升組織管理水平和技術創新能力，保證各業務板塊正常運轉，資產結構狀況保持良好。

收入

於2022財政年度，本集團的收入總額為人民幣1,900百萬元，較截至2021年12月31日止年度（「2021財政年度」）的人民幣2,092百萬元減少9.2%，主要由於(i)受新冠疫情封控政策影響，部分EPC項目進度延緩；(ii)部分特許經營項目發電量較2021年有所減少及山西昱光BOT項目服務終止；及(iii)危固廢處理處置業務受新冠疫情和環保檢查影響導致收入下降。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The Group generates revenue primarily from four operating segments: (i) flue gas treatment, (ii) water treatment; (iii) hazardous and solid waste treatment/disposal; and (iv) dual-carbon energy saving business. The following table sets forth a breakdown of the revenue of the Group by segment for the periods indicated.

本集團主要從四個經營分部賺取收入：(i) 煙氣治理；(ii) 水處理；(iii) 危固廢處理處置；及(iv) 雙碳節能業務。下表載列本集團於所示期間按分部劃分的收入明細。

		Segment revenue	
		分部收益	
		Year ended 31 December	
		截至12月31日	
		2022	2021
		2022年	2021年
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Flue Gas Treatment Business	煙氣治理業務	1,510,016	1,751,589
EPC	EPC	568,983	715,703
O&M	運維	400,429	394,927
Concession Operation	特許經營	504,104	582,157
Of which: Construction	其中：建造	30,484	39,439
Operation	運營	473,620	542,718
Others	其他	36,500	58,802
Water Treatment Business	水處理業務	270,878	100,286
Hazardous and Solid Waste	危固廢處理處置業務		
Treatment/Disposal Business		11,717	20,062
Dual-Carbon Energy Saving Business	雙碳節能業務	107,637	220,235
Total	總計	1,900,248	2,092,172

For the 2022 financial year, revenue generated from the Group's flue gas treatment business segment was as follows:

- Revenue from EPC business was RMB569 million, representing a decrease of 20.5% from RMB716 million for the 2021 financial year, mainly due to the delay in the progress of new contracts, tender works and certain EPC projects under operation as a result of the impact of the lockdown policy relating to coronavirus pandemic;

於2022財政年度，本集團煙氣治理業務分部的收入如下：

- EPC業務收入為人民幣569百萬元，較2021財政年度的人民幣716百萬元減少20.5%，主要由於受新冠疫情封控政策影響，新簽合同、招投標工作及部分在執行EPC項目進度延緩；

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

- Revenue from O&M business was RMB400 million, representing an increase of 1.3% from RMB395 million for the 2021 financial year, mainly due to the increase in the number of new mid- and long-term O&M orders in the non-electricity sector; and
- Revenue from concession operation business was RMB504 million, representing a decrease of 13.4% from RMB582 million for the 2021 financial year, mainly due to (i) a year-on-year decrease in power generation of certain concession operation projects as a result of the impact of the coronavirus pandemic; and (ii) the termination of the services under Shanxi Yuguang BOT Project.

For the 2022 financial year, revenue from the Group's water treatment business segment was RMB271 million, representing an increase of 171.0% from RMB100 million for the 2021 financial year, mainly due to market expansion and the increase in business scale.

For the 2022 financial year, revenue from the Group's hazardous and solid waste treatment/disposal business segment was RMB12 million, representing a decrease of 40.0% from RMB20 million for the 2021 financial year, mainly due to the delay in related administrative approvals under the impact of the coronavirus pandemic and environmental inspections, which resulted in the restriction on operations and declining revenues.

For the 2022 financial year, revenue from the Group's dual-carbon energy saving business segment was RMB108 million, representing a decrease of 50.9% from RMB220 million for the 2021 financial year, mainly because construction revenue significantly decreased year-on-year as the related projects completed construction and entered into operating stage.

- 運維業務的收入為人民幣400百萬元，較2021財政年度的人民幣395百萬元增加1.3%，主要由於非電領域新簽中長期運維訂單增加；及
- 特許經營業務的收入為人民幣504百萬元，較2021財政年度的人民幣582百萬元減少13.4%，主要由於(i)受新冠疫情影響，部分特許經營項目發電量同比降低；及(ii)山西昱光BOT項目服務終止。

於2022財政年度，本集團水處理業務分部的收入為人民幣271百萬元，較2021財政年度的人民幣100百萬元增加171.0%，主要由於市場拓展及業務規模增加。

於2022財政年度，本集團危固廢處理處置業務分部的收入為人民幣12百萬元，較2021財政年度的人民幣20百萬元減少40.0%，主要由於受新冠疫情及環保檢查影響，相關行政審批延遲，經營受限，收入下降。

於2022財政年度，本集團雙碳節能業務分部的收入為人民幣108百萬元，較2021財政年度的人民幣220百萬元減少50.9%，主要由於項目建設完成，進入營運階段，建造收入同比大幅減少。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

Cost of Sales and Services

For the 2022 financial year, the Group's cost of sales and services was RMB1,509 million, representing a decrease of 11.5% from RMB1,705 million for the 2021 financial year, mainly due to (i) the delay in the progress of certain EPC projects due to the impact of the lockdown policy relating to coronavirus pandemic; (ii) a decrease in power generation of certain concession operation projects as compared to 2021 and the termination of the services under the Shanxi Yuguang BOT Project; and (iii) the hazardous and solid waste treatment/disposal business being affected by the coronavirus pandemic and environmental inspections.

For the 2022 financial year, the cost of sales and services of the Group's flue gas treatment business segment are as follows:

- The cost of sales and services for EPC business amounted to RMB535 million, representing a decrease of 19.5% from RMB665 million for the 2021 financial year, mainly due to the delay in the progress of new contracts, tender works and certain EPC projects under operation as a result of the impact of the lockdown policy relating to coronavirus pandemic;
- The cost of sales and services for O&M business amounted to RMB286 million, representing a decrease of 5.9% from RMB304 million for the 2021 financial year, mainly due to the reduction of operating costs resulting from changes in the service scope of certain projects and optimization of organization and management; and
- The cost of sales and services for concession operation business amounted to RMB376 million, representing a decrease of 15.3% from RMB444 million for the 2021 financial year, mainly due to (i) the decrease in power generation of certain concession operation projects and the termination of the services under Shanxi Yuguang BOT Project; and (ii) the reduction in operating cost due to the optimization of production process.

銷售及服務成本

於2022財政年度，本集團的銷售及服務成本為人民幣1,509百萬元，較2021財政年度的人民幣1,705百萬元減少11.5%，主要由於(i)受新冠疫情封控政策影響，部分EPC項目進度延緩；(ii)部分特許經營項目發電量較2021年減少及山西昱光BOT項目服務終止；及(iii)危固廢處理處置業務受新冠疫情和環保檢查影響。

於2022財政年度，本集團煙氣治理業務分部的銷售及服務成本如下：

- EPC業務的銷售及服務成本為人民幣535百萬元，較2021財政年度的人民幣665百萬元減少19.5%，主要由於受新冠疫情封控政策影響，新簽合同、招投標工作及部分在執行EPC項目進度延緩；
- 運維業務的銷售及服務成本為人民幣286百萬元，較2021財政年度的人民幣304百萬元減少5.9%，主要由於部分項目服務範圍變更及組織管理優化，運營成本降低；及
- 特許經營業務的銷售及服務成本為人民幣376百萬元，較2021財政年度的人民幣444百萬元減少15.3%，主要由於(i)部分特許經營項目發電量減少及山西昱光BOT項目服務終止；及(ii)生產工藝優化，運營成本降低。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

For the 2022 financial year, the cost of sales and services for water treatment business segment was RMB213 million, representing an increase of 238.1% from RMB63 million for the 2021 financial year, mainly due to market expansion and the increase in business scale.

For the 2022 financial year, the cost of sales and services for hazardous and solid waste treatment/disposal business segment was RMB13 million, representing a decrease of 18.8% from RMB16 million for the 2021 financial year, mainly due to the delay in related administrative approvals under the impact of the coronavirus pandemic and environmental inspections, which resulted in the restriction on operations and declining costs.

For the 2022 financial year, the cost of sales and services for dual-carbon energy saving business segment was RMB85 million, representing a decrease of 60.1% from RMB213 million for the 2021 financial year, mainly because construction cost significantly decreased year-on-year as the related projects completed construction and entered into operating stage.

Gross Profit and Gross Profit Margin

For the 2022 financial year, the Group's gross profit was RMB391 million, representing an increase of 0.8% from RMB388 million for the 2021 financial year, and the gross profit margin was 20.6%, increased by 2.1 percentage points from the 2021 financial year, mainly because of the reduction in operating cost due to the optimization of production process of projects and organizational management.

於2022財政年度，水處理業務分部的銷售及服務成本為人民幣213百萬元，較2021財政年度的人民幣63百萬元增加238.1%，主要由於市場拓展，業務規模增加。

於2022財政年度，危固廢處理處置業務分部的銷售及服務成本為人民幣13百萬元，較2021財政年度的人民幣16百萬元減少18.8%，主要由於受新冠疫情及環保檢查影響，相關行政審批延遲，經營受限，成本下降。

於2022財政年度，雙碳節能業務分部的銷售及服務成本為人民幣85百萬元，較2021財政年度的人民幣213百萬元減少60.1%，主要由於項目建設完成，進入營運階段，建造成本同比大幅減少。

毛利及毛利率

於2022財政年度，本集團的毛利為人民幣391百萬元，較2021財政年度的人民幣388百萬元增長0.8%，毛利率為20.6%，較2021財政年度增加2.1個百分點，主要由於本集團項目生產工藝及組織管理優化，營運成本降低。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

The following table sets forth the Group's gross profit and gross profit margin for each of the business segment for the periods indicated:

下表載列本集團於所列期間各業務分部的毛利及毛利率：

		Year ended 31 December 截至12月31日止年度			
		2022 2022年		2021 2021年	
		Gross Profit	Gross Profit Margin	Gross Profit	Gross Profit Margin
		毛利	毛利率	毛利	毛利率
		RMB'000	%	RMB'000	%
		人民幣千元	百分比	人民幣千元	百分比
Flue Gas Treatment Business	煙氣治理業務				
EPC	EPC	33,804	5.9	50,976	7.1
O&M	運維	113,971	28.5	91,757	23.2
Concession Operation	特許經營	128,126	25.4	138,071	23.7
Of which: Construction	其中：建造	244	0.8	817	2.1
Operation	運營	127,882	27.0	137,254	25.3
Others	其他	35,744	97.9	58,584	99.6
Water Treatment Business	水處理業務	58,084	21.4	36,815	36.7
Hazardous and Solid Waste Treatment/Disposal Business	危固廢處理處置業務	(935)	(8.0)	4,386	21.9
Dual-Carbon Energy Saving Business	雙碳節能業務	21,984	20.4	6,970	3.2
Total	總計	390,778	20.6	387,559	18.5

For the 2022 financial year, the gross profit of the Group's flue gas treatment business segment is as follows:

於2022財政年度，本集團煙氣治理業務分部的毛利如下：

- The gross profit of EPC business was RMB34 million, representing a decrease of 33.3% from RMB51 million for the 2021 financial year, mainly due to the delay in the progress of new contracts, tender works and certain EPC projects under operation as a result of the impact of the lockdown policy relating to coronavirus pandemic;
- EPC業務的毛利為人民幣34百萬元，較2021財政年度的人民幣51百萬元減少33.3%，主要由於受新冠疫情封控政策影響，新簽合同、招投標工作及部分在執行EPC項目進度延緩；

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

- The gross profit of O&M business was RMB114 million, representing an increase of 23.9% from RMB92 million for the 2021 financial year, mainly due to the reduction of operating costs resulting from changes in the service scope of certain projects and the optimization of organizational management; and
- The gross profit of the concession operation business was RMB128 million, representing a decrease of 7.2% from RMB138 million for the 2021 financial year, mainly due to the decrease in power generation of certain concession operation projects and the termination of services under the Shanxi Yuguang BOT Project.
- 運維業務的毛利為人民幣114百萬元，較2021財政年度的人民幣92百萬元增加23.9%，主要由於部分項目服務範圍變更及組織管理優化，運營成本降低；及
- 特許經營業務的毛利為人民幣128百萬元，較2021財政年度的人民幣138百萬元減少7.2%，主要由於部分特許經營項目發電量減少及山西昱光BOT項目服務終止。

For the 2022 financial year, the gross profit of the Group's water treatment business segment was RMB58 million, representing an increase of 56.8% from RMB37 million for the 2021 financial year, mainly due to market expansion and the decrease in unit price of certain consumption materials.

於2022財政年度，本集團水處理業務分部的毛利為人民幣58百萬元，較2021財政年度的人民幣37百萬元增加56.8%，主要由於市場拓展及部分消費物料的單位價格下降。

For the 2022 financial year, the gross profit of the Group's hazardous and solid waste treatment/disposal business segment was negative RMB1 million, representing a decrease of 125.0% from RMB4 million for the 2021 financial year, mainly due to the delay in related administrative approvals under the impact of the coronavirus pandemic and environmental inspections, which resulted in the restriction on operations and declining gross profit.

於2022財政年度，本集團危固廢處理處置業務分部的毛利為人民幣負1百萬元，較2021財政年度的人民幣4百萬元減少125.0%，主要由於受新冠疫情影響及環保檢查，相關行政審批延遲，經營受限，毛利下降。

For the 2022 financial year, the gross profit of the Group's dual-carbon energy saving business segment was RMB22 million, representing an increase of 214.3% from RMB7 million for the 2021 financial year, mainly because gross profit significantly increased year-on-year as the related projects completed construction and entered into operating stage.

於2022財政年度，本集團雙碳節能業務分部的毛利為人民幣22百萬元，較2021財政年度的人民幣7百萬元增加214.3%，主要由於項目建設完成，進入運營階段，毛利同比大幅增長。



Management Discussion and Analysis (Continued)

管理層討論與分析(續)

Other Income and Gains

For the 2022 financial year, other income and gains consist primarily of interest income, exchange gains and losses, gain on adjustment of acquisition consideration and rental income.

For the 2022 financial year, the Group's other income and gains were RMB215 million, representing an increase of RMB64 million as compared with RMB151 million for the 2021 financial year, mainly attributable to the gain on adjustment of acquisition consideration for Qinghai Boqi.

Selling and Distribution Expenses

For the 2022 financial year, the Group's selling and distribution expenses were RMB20 million, representing a decrease of RMB10 million as compared with RMB30 million for the 2021 financial year, with the ratio of selling and distribution expenses to revenue declining to 1.1% for the 2022 financial year from 1.4% for last year, mainly due to the hampering on sales activities under coronavirus pandemic, which resulted in a decrease in sales and distribution expenses.

Administrative Expenses

For the 2022 financial year, the Group's administrative expenses amounted to RMB90 million, remaining unchanged as compared with RMB90 million for the 2021 financial year. The ratio of administrative expenses to revenue increased to 4.7% for the 2022 financial year from 4.3% for the 2021 financial year, mainly due to the decrease in revenue caused by the coronavirus pandemic as compared to last year, resulting in an increase in the ratio of administrative expenses to revenue.

其他收入及收益

於2022財政年度，其他收入及收益主要包括利息收入、匯兌損益、收購代價調整收益及租金收入等。

於2022財政年度，本集團其他收入及收益淨額為人民幣215百萬元，較2021財政年度的人民幣151百萬元增加人民幣64百萬元，主要由於對青海博奇收購代價的調整產生的收益。

銷售及分銷開支

於2022財政年度，本集團銷售及分銷開支為人民幣20百萬元，較2021財政年度人民幣30百萬元減少人民幣10百萬元，銷售及分銷開支佔收入的比率由上年同期的1.4%降至2022財政年度的1.1%，主要由於新冠疫情影響銷售活動開展，銷售及分銷開支減少。

行政開支

於2022財政年度，本集團的行政開支為人民幣90百萬元，與2021財政年度人民幣90百萬元持平；行政開支佔收入比率由2021財政年度的4.3%上升至2022財政年度的4.7%，主要由於受新冠疫情影響收入規模較去年減少，行政開支佔收入比率上升。

Management Discussion and Analysis (Continued)

管理層討論與分析(續)

Research and Development (“R&D”) Expenses

For the 2022 financial year, the Group’s R&D expenses amounted to RMB59 million, representing an increase of RMB19 million as compared with RMB40 million for the 2021 financial year. The ratio of R&D expenses to revenue increased from 1.9% for the 2021 financial year to 3.1% for the 2022 financial year, mainly due to the sustainable R&D investment in certain projects and expansion of new business, with a view to enhancing the Company’s competitiveness in the market, resulting in an increase in the Group’s investment in R&D.

Finance Costs

The Group’s finance costs consisted of interest expenses on bank borrowings, other borrowings and lease liabilities. For the 2022 financial year, the Group’s finance costs were RMB14 million, representing an increase of RMB4 million as compared with RMB10 million for the 2021 financial year, mainly due to the increase in the Group’s bank loans and other borrowings during the Reporting Period as compared with 2021.

Gearing Ratio

The gearing ratio is calculated as a percentage of the Group’s total liabilities over the Group’s total assets. As at 31 December 2022, the Group’s gearing ratio was 39.7%, decreased by 2.8 percentage points from 42.5% as at 31 December 2021.

Income Tax Expenses

The income tax expenses of the Group for the 2022 financial year was RMB20 million, decreased by 47.4% from RMB38 million for the 2021 financial year, mainly due to the decrease in the Group’s profit before tax during the Reporting Period.

研究及開發(「研發」)開支

於2022財政年度，本集團的研發開支為人民幣59百萬元，較2021財政年度人民幣40百萬元增加人民幣19百萬元，研發開支佔收入比率由2021財政年度的1.9%上升至2022財政年度的3.1%，主要由於持續對若干項目進行研發投資並擴展新業務，以提升本公司在市場上的競爭力，本集團加大了研發投入。

財務成本

本集團的財務成本為銀行借款及其他借款和租賃負債的利息開支。於2022財政年度，本集團的財務成本為人民幣14百萬元，較2021財政年度人民幣10百萬元增加人民幣4百萬元。主要由於本集團報告期內銀行貸款及其他借款較2021年增加所致。

資產負債比率

資產負債比率乃根據本集團的負債總額佔本集團的總資產的百分比釐定。於2022年12月31日，本集團的資產負債比率為39.7%，較2021年12月31日的42.5%減少了2.8個百分點。

所得稅開支

本集團於2022財政年度的所得稅開支為人民幣20百萬元。較2021財政年度的人人民幣38百萬元減少47.4%，主要由於本集團報告期內除稅前溢利減少所致。