



華潤燃氣控股有限公司 China Resources Gas Group Limited

(於百慕達註冊成立之有限公司)
(Incorporated in Bermuda with limited liability)

股份代號 stock code : 1193

2021 | 環境、社會及管治報告 Environmental, Social and Governance Report



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主席寄語

Message from the Chairman





2021年是國家「十四五」規劃開局之年，也是在經歷疫情後我國經濟重回發展正軌的關鍵之年。當前，外部環境錯綜複雜，新冠疫情反覆，給全球經濟發展、企業經營和社會民生改善帶來了較大不確定性影響。與此同時，國家「碳達峰、碳中和」目標的提出，以及油氣體制改革步伐穩步推進，對天然氣行業未來發展產生了深遠的影響，對企業可持續發展帶來了重大歷史機遇。面對挑戰與機遇，華潤燃氣履行央企責任，踐行「雙碳」路線，致力於「十四五」期間，實現從單一能源銷售供應向綜合能源供應的跨越式發展，成為國內有影響力的綜合能源供應企業。

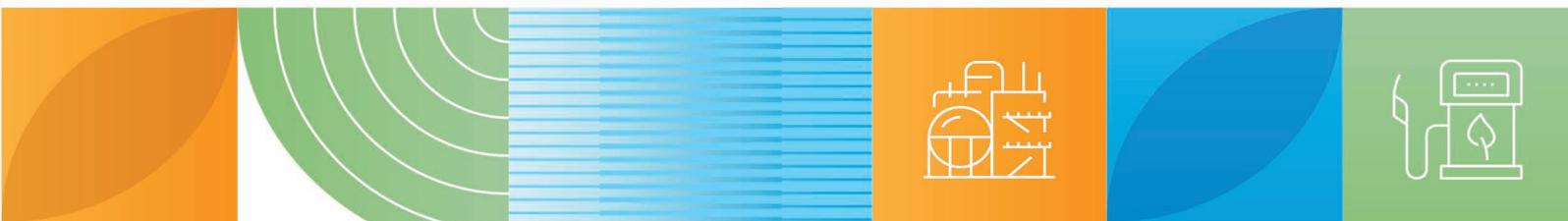
堅持穩健經營，保持業務增長

面對複雜多變的經營環境，華潤燃氣積極迎接外部挑戰，不負眾望，取得了理想成績。截至2021年12月31日，華潤燃氣城市燃氣項目總共達266個，遍及全國25個省份及3個直轄市，覆蓋75個地級市，年燃氣總銷量達約340.82億立方米，客戶數達4,587.36萬戶，覆蓋人口超過3.04億人。此外，2021年，穆迪提升本集團信用評級至A2、標準普爾，惠譽繼續維持本集團A-評級。MSCI-ESG評級機構將公司評級提升至A級，這些評級結果充分反映了公司的可持續發展戰略和發展管理表現得到了市場廣泛認可。

The year 2021 is the first year of China's 14th Five-Year Plan and a critical year for China's economy to be back on the right track after the epidemic. Currently, the external environment is complex with sporadic COVID-19 outbreaks, which brings great uncertainty to the improvement of the global economic development, corporate operations and social well-being. In the meantime, China's carbon peak and carbon neutrality goals and the smooth implementation of the oil and gas system reform have a profound impact on the future development of the natural gas industry and bring significant opportunities for the sustainable development of enterprises. Faced with challenges and opportunities, CR Gas lived up to its responsibilities as a state-owned enterprise directly under the central government, put into practice carbon peak and carbon neutrality, and strived to achieve leapfrog development from single energy sales and supply to integrated energy supply and become an influential integrated energy supplier in China.

ADHERING TO SOUND OPERATIONS TO MAINTAIN BUSINESS GROWTH

In the complex and changing business environment, CR Gas met external challenges, lived up to expectations, and achieved ideal results. As at 31st December 2021, CR Gas had a total of 266 city gas projects, spanning 25 provinces and 3 municipalities directly under the central government, and covering 75 prefecture-level cities. CR Gas recorded a total natural gas sales volume of approximately 34.082 billion cubic metres for the year, and had 45,873,600 customers covering a population of over 304 million. In addition, in 2021, Moody's upgraded the Group's credit rating to A2, Standard & Poor's and Fitch maintained the Group's rating at A-, and MSCI-ESG rating agency upgraded the Company's rating to A, fully demonstrating the wide recognition given by the market to the Company's performance in sustainable development strategies and development management.



洞察行業趨勢，開拓多元業務

可以預見，在技術創新、產業創新和商業模式創新的帶動下，綜合能源業務將依託燃氣主業的能源供應保障優勢，聚焦優質用戶和園區場景，提高能源利用效率和可再生能源滲透率，實現有質量的增長。華潤燃氣作為城鎮燃氣行業的領路人，帶領企業從城鎮燃氣供應商在通向零碳的道路上，充分發揮天然氣靈活、可控、低碳的優勢，通過綜合能源業務充分融合多種新能源技術，既保障能源供應安全，又有效降低排放。集團「十四五」綜合能源戰略規劃，確定聚焦用戶側，專業提供低碳、零碳的綜合能源解決方案與服務，顯著擴大華潤燃氣綜合能源業務規模，初步形成產業佈局，成為國內有影響力的綜合能源供應商。

關注氣候變化，加強碳排放管理

在面向利益相關方的重大性調研問卷評估採集中，我們融入氣候變化議題，在日常運營中，我們識別氣候變化帶來的風險與機遇，積極採取適宜的措施進行風險管控。2021年，集團建立碳排放管理體系，制定碳排放管理制度，設定碳減排目標，並分解制定相關行動計劃與措施，積極拓展低碳技術應用領域，助力低碳減排目標達成。同時，我們在城市燃氣、綜合能源業務及綜合能源服務中全面貫徹綠色發展理念，通過採取量化能耗目標，深化資源節約，提高能源利用，動態監測管理，防治廢棄物污染，加強生態環境影響評估及管控，持續踐行綠色運營，創造環保價值。

GAINING INSIGHTS INTO INDUSTRY TRENDS AND DEVELOPING DIVERSE BUSINESS LINES

It is foreseeable that driven by technological innovation, industrial innovation and business model innovation, the integrated energy business will leverage the advantage of secured energy supply from the principal gas business, focus on high-quality users and park scenarios, and improve energy utilization efficiency and renewable energy penetration, thereby achieving high-quality growth. As a leader in the city and town gas industry, CR Gas led city and town gas suppliers on the journey to achieve zero-carbon by capitalizing on flexible, controllable and low-carbon advantages of natural gas and fully integrating a variety of new energy technologies through its integrated energy business, which not only ensured energy supply, but also effectively reduced emissions. According to its strategic plan for integrated energy under the 14th Five-Year Plan, the Group is determined to provide professional low-carbon and zero-carbon integrated energy solutions and services with a user-centric approach, and significantly scale up its integrated energy business to initially form an industry ecosystem, with a view to becoming an influential integrated energy supplier in China.

PAYING ATTENTION TO CLIMATE CHANGE AND REINFORCING CARBON EMISSION CONTROL

We integrate climate change issues into the materiality assessment based on survey questionnaires collected from stakeholders, identify risks and opportunities brought by climate change in daily operations, and actively take appropriate measures to control risks. In 2021, the Group established a carbon emission management system, formulated carbon emission management measures, set carbon emission reduction targets, developed detailed and tiered action plans and measures, and expanded the areas of application of low-carbon technologies to help achieve the emission reduction targets. Meanwhile, we fully implemented the concept of green development in city gas and integrated energy business and integrated energy services, adopted quantitative energy consumption targets to deepen resource conservation and improve efficiency in the use of energy, conducted dynamic monitoring to prevent waste pollution, strengthened environmental impact assessment and control, and continuously put into practice green operation to create environmental value.



完善管理體系，保障運營安全

近年來國內燃氣事故多發頻發，燃氣安全形勢依然嚴峻。華潤燃氣始終秉承生命至上的安全理念，從嚴落實安全生產責任，不斷優化安全管理體系，推進安全技術創新，加大安全風險監督管理力度以及加強相關方安全管理，打造良好的安全生產企業文化，為所有利益相關方創造一個安全的環境。2021年，公司未發生重大安全生產事故。

攜手各持份者，共創社會價值

員工是華潤燃氣可持續發展的基石，也是戰略推進的動力源泉。公司一貫注重維護員工的各項合法權益，重視員工的成長，不斷完善人才培養機制，注重人文關懷和關心員工身心健康，已建立長效激勵機制，激發員工動力，讓公司成為員工充分施展才華的舞台。此外，飲水思源，華潤燃氣以「常懷感恩之心，努力回饋社會」為公司責任文化，2021年我們在抗擊災情、鄉村振興、捐資助學、關愛特殊群體、志願服務等領域都有所行動，旨在建設一個更和諧的社會。

未來，華潤燃氣將始終秉承為客戶提供低碳清潔能源為初心，攜手各利益相關方，實現企業和環境的和諧發展，為推動經濟社會發展和開創美好未來作出重要貢獻！

IMPROVING THE MANAGEMENT SYSTEM TO ENSURE OPERATIONAL SAFETY

In recent years, gas accidents occurred frequently across the country. As such, gas safety remains a severe challenge. CR Gas always upholds the safety principle of putting life first, strictly implements the responsibility of safe production, continuously improves its safety management system, promotes safety technology innovation, strengthens safety supervision and management and the safety management of relevant parties, develops a corporate culture of safe production, and creates a sound and safe environment for all stakeholders. In 2021, the Company had no major safe production accidents.

WORKING WITH STAKEHOLDERS TO CREATE SOCIAL VALUE

Employees are the cornerstone of CR Gas' sustainable development and the source of driving force for advancing its strategies. The Company puts emphasis on safeguarding the legitimate rights and interests of employees, values the growth of employees, constantly improves the personnel training mechanism, attaches importance to humanistic care and cares about employees' physical and mental health, and has established a long-term incentive mechanism to stimulate employees' motivation, so that the Company can become a stage for employees to fully display their talents. In addition, keeping in mind that "when drinking water, one must not forget where it comes from", CR Gas maintains a corporate responsibility culture of remaining grateful and working hard to give back to society. In 2021, we took actions in the fields of disaster relief, rural revival, education donation, caring for the disadvantaged, and voluntary services, with a view to building a more harmonious society.

In the future, CR Gas will always uphold its original aspiration of providing customers with low-carbon and clean energy, and work with all stakeholders to achieve harmonious development of the Company and the environment and make important contributions to promoting economic and social development and creating a bright future!

董事會聲明 Board Statement

華潤燃氣致力於提高可持續業務實踐，建立健全ESG機制，努力與環境和社會和諧相融，創造長期穩定的環境、社會以及企業價值。

董事會ESG治理角色

董事會為集團最高管治單位，對集團ESG事宜的管理與決策負責，明確ESG事宜發展方向，制定ESG工作策略並定期聽取ESG工作小組針對ESG工作的匯報，全面監督公司ESG管理工作。董事會每年專門聽取並審議公司《環境、社會及管治報告》，並對照設定的ESG相關目標檢查實施進度。

ESG管理方針及策略

公司重視ESG風險可能對公司產生的重大影響，每年結合ESG風險識別、宏觀政策與熱點、利益相關方溝通結果等完善ESG議題庫，並通過開展利益相關方調研、專家評估等方式對議題開展重要性評估，獲得ESG議題的優先排序結果，將重點議題的管理與提升作為可持續發展年度戰略工作。公司本年度重要性評估結果已呈交董事會審批確定。

目標、指標與檢討進度

公司建立了ESG目標管理機制，覆蓋溫室氣體排放、資源消耗、污染物排放、安全管理、反腐合規管理等主要ESG績效指標。除逐年制定量化目標外，部分還設定了中長期管理目標，並定期檢討目標進展情況。公司每年與管理層成員、成員公司等簽訂年度績效考核責任書，將安全生產、節能環保、合規經營等ESG績效指標納入主要管理人員及成員公司考核體系中，推動公司ESG目標達成。

本報告詳盡披露華潤燃氣2021年度ESG工作的進展與成效，並分別於2022年3月18日經由董事會審議通過。

CR Gas is committed to improving sustainable business practices, building a well-established ESG mechanism, achieving harmonious co-existence with the environment and society, and creating long-term and stable ESG value.

ROLE OF THE BOARD OF DIRECTORS IN ESG MANAGEMENT

The Board of Directors (the "Board") as the highest governance body of the Group is responsible for the Group's ESG management and decision-making. Specifically, the Board steers the development of ESG issues, develops ESG strategies, regularly receives ESG work reports from the ESG working group, and supervises the Company's ESG management in an all-round way. Each year, the Board receives and reviews the Company's Environmental, Social and Governance Report, and checks the implementation progress against the established ESG targets.

ESG MANAGEMENT POLICY AND STRATEGY

The Company takes seriously the significant impact that ESG risks may have on the Company, enriches the pool of ESG issues every year based on ESG risk identification, macro policies and hotspots as well as stakeholder communication results, conducts materiality assessment through stakeholder surveys, expert evaluation and other means to get the results of priority ranking of ESG issues, and advances the management and improvement of key issues as the annual strategic priority for sustainable development. The Company's materiality assessment results for the Year have been submitted to the Board for approval and confirmation.

TARGETS, INDICATORS AND REVIEW PROGRESS

The Company established an ESG target management mechanism covering a variety of ESG KPIs such as greenhouse gas emissions, resource consumption, pollutant emissions, safety management, anti-corruption and compliance management. In addition to formulating quantitative targets year by year, we also set mid- and long-term management targets for some of them and regularly review the progress of the targets. The Company signs an annual performance appraisal responsibility letter with management members and its member companies each year to integrate the ESG KPIs such as safe production, energy conservation and environmental protection as well as business compliance into the performance appraisal system for key management personnel and member companies, so as to promote the achievement of the Company's ESG targets.

This report discloses in detail the progress and effectiveness of CR Gas' ESG efforts in 2021, and was considered and approved by the Board on 18th March 2022.



1

關於本報告 About this Report

1.1 報告目的

本報告為華潤燃氣控股有限公司及其成員公司（統稱「華潤燃氣」或「本集團」）發佈的第五份獨立《環境、社會及管治報告》。本着公開、透明的原則，華潤燃氣以全面且客觀的方式向社會各界人士匯報本集團過去一年中在環境管理、社會責任及集團管治議題上的策略和承諾，同時通過數據披露詳細展示本集團在相關範圍的表現及績效考核。本報告以中文和英文發佈，如有內容不一致，請以中文版為準。同時，報告已上載至香港聯合交易所（聯交所）及本公司網站 www.crcgas.com。

1.2 報告範圍

本報告涵蓋本集團的核心業務，在二零二一年一月一日至二零二一年十二月三十一日（「本年度」或「年內」）的環境、社會及管治表現，個別部分內容超出上述範圍。目前，本報告覆蓋本集團所有業務（包括城市燃氣業務、綜合服務、綜合能源及交通能源業務）和營運地點。

1.3 報告標準

本報告根據香港聯合交易所有限公司《主板上市規則》附錄二十七《環境、社會及管治報告指引》進行編製，依照「不遵守就解釋」條文規定，並以其載列的四項匯報原則——重要性、量化、平衡及一致性，作為披露的基礎。

1.4 報告審批

董事會負責領導、決策及監督在環境、社會及管治方面的措施、政策及程序，並於2022年3月18日審核通過此份ESG報告的發佈。

1.1 REPORTING PURPOSE

This report is the fifth standalone Environmental, Social and Governance Report published by China Resources Gas Group Limited and its member companies (collectively "CR Gas" or the "Group"). CR Gas reports its strategies and commitments on the topic of environmental management, social responsibilities and group governance in the past year in a comprehensive and objective manner to all levels of the society in the principles of being open and transparent, while disclosing and displaying in details the Group's performance and performance appraisal in the relevant areas through data. This report is published in both Chinese and English. In case of any inconsistency, the Chinese version prevails. Meanwhile, the report has been uploaded to the website of The Stock Exchange of Hong Kong Limited (the Stock Exchange) and the Company's website at www.crcgas.com.

1.2 REPORTING SCOPE

This report covers the environmental, social and governance performance of the core business of the Group during the period from 1st January 2021 to 31st December 2021 (the "Year"), with contents of certain sections exceeding the aforementioned timeframe. Currently, this report covers all businesses (including city gas business, integrated services, integrated energy and transportation energy business) and operational locations of the Group.

1.3 REPORTING STANDARDS

In compliance with the "comply or explain" provisions as stipulated in the Environmental, Social and Governance Reporting Guide in Appendix 27 of the Main Board Listing Rules of The Stock Exchange of Hong Kong Limited, this report has made disclosure based on four reporting principles, namely materiality, quantitiveness, balance and consistency, as set out in the Guide.

1.4 APPROVAL OF THE REPORT

The Board is responsible for leadership, decision-making and supervision of the measures, policies and processes in environmental, social and governance aspects, and reviewed and approved the issuance of this ESG report on 18th March 2022.

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關於我們
About Us

2.1 集團介紹

華潤燃氣(HK.1193)成立於2007年1月，並於2008年10月底成功在香港上市。本公司總部設在廣東深圳，是華潤集團的戰略業務單元之一。

於2021年，本集團憑借良好的行業基礎及執行能力，繼續快速擴張燃氣業務，先後在全國多座大中城市投資設立城市燃氣項目266個，業務遍及全國25個省、3個直轄市、75個地級市，年內，公司共銷售天然氣340.84億立方米，其中工業銷氣量182.12億立方米，商業銷氣量68.51億立方米，民用銷氣量76.54億立方米，加氣站銷氣量14億立方米；新開發工商業用戶3.90萬戶，新開發居民用戶352.40萬戶，其中：新房接駁用戶295.72萬戶，舊房接駁用戶44.43萬戶，農村煤改氣用戶12.25萬戶，累計共服務4,548.87萬戶居民用戶，覆蓋人口超過3.04億人，是國內最大的城市燃氣運營商之一。

憑借公司不斷提升的業務規模及質量，以及受益於國家鼓勵天然氣等清潔能源的推廣及利用，2021年，穆迪提升本集團信用評級至A2、標準普爾，惠譽繼續維持本集團A-評級。反應了本集團的發展戰略及財務表現得到了市場的廣泛認可。此外，國際權威指數機構MSCI給予本集團的ESG評級提升至A級，反映了本集團綠色可持續發展工作的當期表現贏得了市場廣泛認可。

2.1 GROUP PROFILE

Established in January 2007, CR Gas (HK.1193) was successfully listed in Hong Kong at the end of October 2008. Headquartered in Shenzhen, Guangdong, CR Gas is one of the key strategic business units under China Resources Group.

In 2021, the Group continued to rapidly expand its gas business leveraging its excellent industrial foundation and executive ability, and successively invested in and established 266 city gas projects in various large and medium cities in China, with its footprint covering 25 provinces, 3 municipalities directly under the central government and 75 prefecture-level cities across the country. For the Year, the Company's total natural gas sales volume reached 34.084 billion cubic metres, among which industrial gas sales volume, commercial gas sales volume, residential gas sales volume and gas sales volume of gas stations reached 18.212 billion cubic metres, 6.851 billion cubic metres, 7.654 billion cubic metres and 1.400 billion cubic metres, respectively. New industrial and commercial users reached 39,000, and new residential users reached 3,524,000. In particular, new house connection users, existing house connection users and coal-to-gas conversion rural users reached 2,957,200, 444,300 and 122,500, respectively. Offering services to 45,488,700 residential users in total with a population of 304 million, the Group is one of the largest city gas operators in China.

Given the constantly growing business scale and improving business quality of the Company, as well as the encouragement shown by the government in the promotion and utilization of natural gas and other clean energies, Moody's upgraded the Group's credit rating to A2, Standard & Poor's and Fitch maintained the Group's rating at A- in 2021, reflecting the extensive recognition given by the market to the development strategy and financial performance of the Group. In addition, MSCI, an international authoritative index institution, upgraded the Group's ESG rating to A, reflecting the extensive recognition given by the market to the performance of the Group in green and sustainable development during the period.

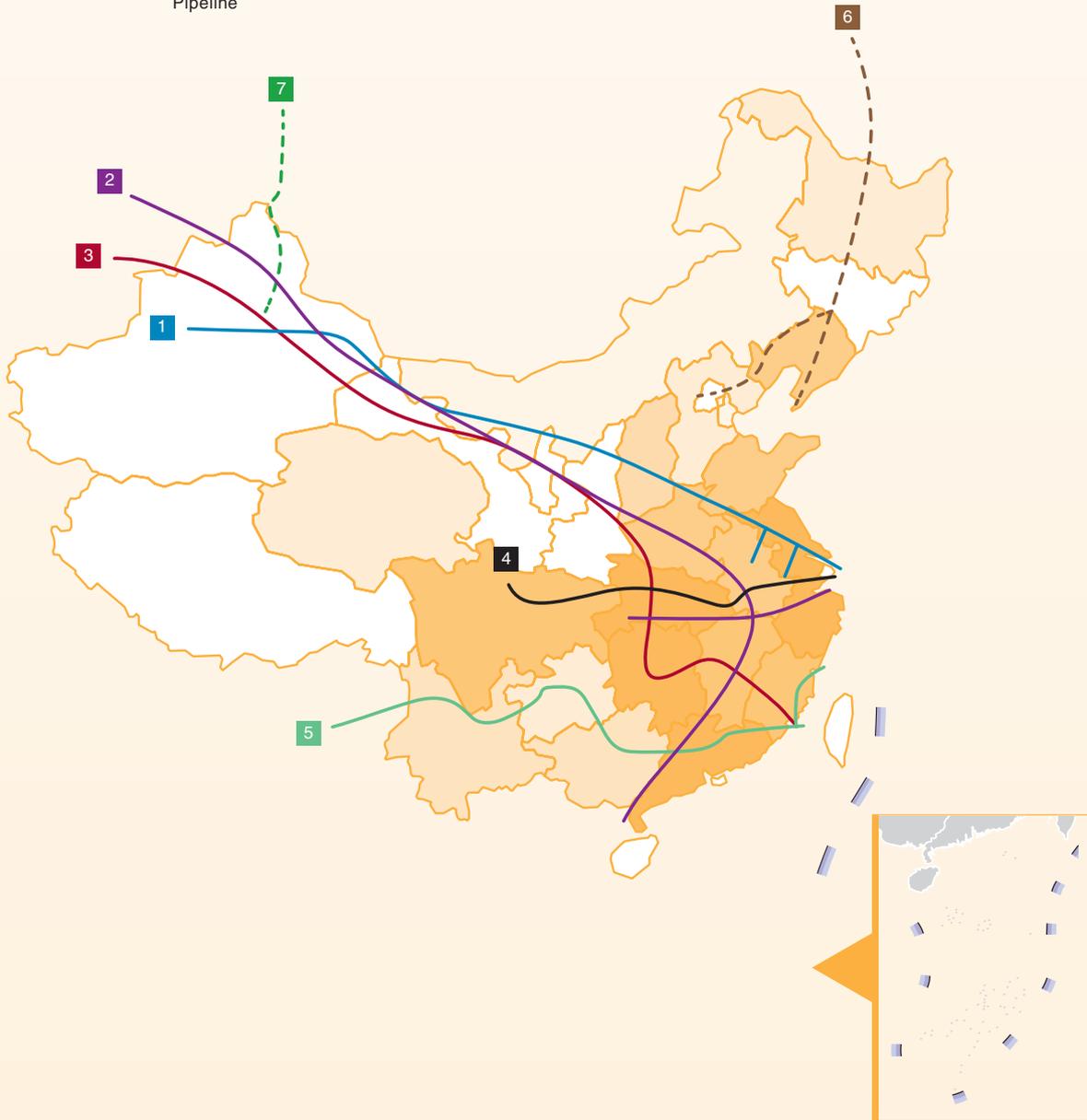


燃氣產業鏈示意圖 Illustration of the gas industry chain



2021年華潤燃氣業務分佈圖 BUSINESS NETWORK OF CR GAS, 2021

- 1 西氣東輸一期
"West to East 1"
- 2 西氣東輸二期
"West to East 2"
- 3 西氣東輸三期
"West to East 3"
- 4 川氣東送
"Sichuan to East"
- 5 中緬油氣
"Myanmar to China"
- 6 俄羅斯天然氣東線
"Russia to China"
Eastern Pipeline
- 7 俄羅斯天然氣西線
"Russia to China"
Western Pipeline





2.2 集團理念

華潤燃氣秉承「促進綠色發展 共創美好生活」的企業使命，持續優化集團的可持續發展管治及表現，致力於成為中國最受尊重的燃氣行業領導者，並實現「成為大眾信賴和喜愛的世界一流能源服務企業」的願景。

綠色發展理念

本集團嚴守所有營運地區所在地的環境相關法律法規以及行業慣例。為響應國家制定的「2060年實現碳中和」的遠大戰略目標，華潤燃氣堅決貫徹創新、協調、綠色、開放、共享的發展理念，落實生態保護紅線、環境質量底線，並致力將低碳發展理念融入公司的日常營運及工程項目管理中。本集團積極採取節能減排措施，引入新設備及新技術，並大力發展清潔能源以滿足客戶的能源需求，共建美麗家園。集團積極向內部及外部利益相關方倡導綠色文化，鼓勵低碳行動，從而促進城市低碳經濟建設，保護生態環境，並助力國家實現低碳戰略。營運過程中，本集團從「排放物」、「資源使用」、「環境和天然資源」以及「應對氣候變化」等四大方面考慮成員公司的營運地區及業務性質，制定對應的環境管控措施，以妥善管理並減少營運過程中對環境造成的影響。

2.2 GROUP IDEOLOGY

Upholding the corporate mission of “embracing green development and building a beautiful life”, CR Gas continues to enhance the governance and performance of sustainable development. Committed to becoming the most respectable leader in China’s gas industry, CR Gas aims at achieving the vision of “being a trustworthy and beloved world leading energy services enterprise”.

Ideology on Green Development

The Group is committed to strictly complying with the environmental laws and regulations and industry practices in each of the regions where it operates. In response to the call of the goal formulated by the Chinese government to achieve carbon neutrality by 2060, CR Gas has made dedicated efforts to implement the development ideology of innovation, coordination, green, openness and sharing, set down the red line of ecological conservation and the bottom line of environmental quality, and incorporated the principle of low-carbon development into its day-to-day operation and project management. The Group has actively adopted energy saving and emission reduction measures, introduced new equipment and new technologies and strenuously promoted the use of clean energy to meet the need of the clients and build a beautiful home with concerted efforts. The Group has promoted a green culture and low-carbon initiatives among internal and external stakeholders in an effort to drive the establishment of low-carbon economy in urban regions with full force, protect the ecological environment and contribute to the achievement of national low-carbon strategy. In the course of operation, the Group has formulated corresponding environmental management and control measures by taking into account the operating regions and business natures of different member companies from four perspectives, namely Emissions, Use of Resources, the Environment and Natural Resources and Addressing Climate Change, so as to properly manage and reduce the impact on the environment in the course of its operation.

企業責任理念

華潤燃氣承諾堅守「誠實守信」、「業績導向」、「客戶至上」，及「感恩回報」四大價值觀，致力將本集團打造成為具有極強責任感的企業，以實踐「追求卓越發展，把華潤燃氣建設成為具有國際競爭力的世界一流企業，實現超越利潤之上的追求」的願景，以及「攜手共創美好生活」的企業使命。營運過程中，本集團從「僱傭」、「健康與安全」、「發展及培訓」、「勞工準則」、「供應鏈管理」、「產品責任」、「反貪污」以及「社區投資」等八大方面制定及履行企業責任，為客戶、員工、股東、社會，及政府等利益相關方創造最大價值。

Ideology on Corporate Responsibility

CR Gas is committed to upholding the four core values of “to be honest and trustworthy”, “performance-oriented”, “customers first”, and “be thankful”, making every effort to establish itself as an enterprise with extremely strong sense of responsibilities, thereby achieving the vision of “pursuit of remarkable development, establishing CR Gas as a world-class enterprise with international competitiveness through pursuing qualities beyond profitability” and the corporate mission “to create a better life together”. In the course of operation, the Group has formulated measures and undertaken its corporate responsibilities in eight major areas, namely Employment, Health and Safety, Development and Training, Labour Standards, Supply Chain Management, Product Responsibility, Anti-Corruption and Community Investment, in order to achieve maximum value for stakeholders including the customers, employees, shareholders, society and the government.

2.3 獎項與榮譽

2021年集團所獲得的認可及獎項：

2.3 AWARDS AND MERITS

Recognition and awards obtained by the Group in 2021:

<p>獎項 Award</p>	<p>獲獎單位 Awarded unit</p>
 <p>香港綠色企業大獎2021「超卓環保安全健康獎」金獎 Hong Kong Green Awards 2021 – Environmental, Health and Safety Award – Gold</p>	<p>華潤燃氣控股有限公司 China Resources Gas Group Limited</p>
 <p>華潤燃氣2020年社會責任報告獲 中國企業社會責任報告評級專家委員會「五星級」評價 2020 Social Responsibility Report of CR Gas was Awarded a Five-star Rating from China Corporate Social Responsibility Report Rating Expert Committee</p>	<p>華潤燃氣控股有限公司 China Resources Gas Group Limited</p>



獎項
Award

獲獎單位
Awarded unit



華潤燃氣控股有限公司
China Resources Gas Group Limited

百尊獲2021中國廚電行業灶具先鋒品牌獎，
旗下雙眼玻璃嵌入式灶JZT-2168G獲2021中國廚電行業灶具優選產品
PERCEN was Awarded the Pioneer Cooking Stove Brand in 2021 China Kitchen Appliance Industry; Its Binocular Glass Built-in Stove JZT-2168G was Awarded the Select Cooking Stove in 2021 China Kitchen Appliance Industry



華潤燃氣工程管理中心和潤智科技
有限公司
CR Gas Engineering Management
Center and Run Zhi Technology Co.,
Ltd.

2021能源企業信息化創新成果與實踐案例
Case Study of 2021 Energy Enterprise Information Innovation Achievements and Practices

2.4 業務回顧

主要業務

華潤燃氣主要從事下游城市燃氣分銷業務，包括管道天然氣分銷及天然氣加氣站業務及燃氣器具銷售。華潤燃氣的業務分佈於全國各地，主要位於經濟較發達和人口密集的地區以及天然氣儲量豐富的地區。

為響應國家的低碳發展戰略，華潤燃氣全力發展天然氣供應業務，向工業、商業、居民客戶及天然氣汽車供應天然氣，並推動綜合能源¹、綜合服務業務²快速發展。於2021年，本集團共在全國多座大中城市投資發展燃氣項目266個，業務遍及全國25個省份及3個直轄市，覆蓋75個地級市。年內，公司共銷售天然氣340.84億立方米，新開發工商業用戶3.90萬戶，新開發居民用戶352.40萬戶，其中：新房接駁用戶295.72萬戶，舊房接駁用戶44.43萬戶，農村煤改氣用戶12.25萬戶，覆蓋人口超過3.04億人。累計鋪設管網長度約17.245萬公里，建設加氣站共261座，其中CNG加氣站173座，LNG加氣站48座，L-CNG加氣站40座。

低碳業務拓展

近年，國家整體經濟轉型向低碳經濟發展，清潔能源的需求急劇增長。有見及此，本集團充分利用客戶資源及技術優勢，穩步發展分布式能源、分布式供暖、分布式光伏等綜合能源業務及充電站、加氫站等新業務，供應潔淨能源，滿足客戶用能需求，同時，拓寬集團收入來源。

1 綜合能源業務主要有分布式能源、分布式供暖、分布式光伏等綜合能源業務及充電站、加氫站等新業務。

Integrated energy business mainly includes distributed energy, distributed heating and distributed photovoltaics as well as new businesses such as charging station and hydrogenation refuelling station.

2 綜合服務業務主要有延伸增值業務、燃氣保險業務及燃氣具銷售業務。

Integrated service business mainly includes extended value-added business, gas insurance business and gas appliance sales business.

2.4 BUSINESS REVIEW

Primary Business

CR Gas is principally engaged in downstream city gas distribution business, including pipeline natural gas distribution, natural gas filling stations operation and sales of gas appliances. Its operations are located across China, mainly in areas which are economically more developed and densely populated and those with rich reserves of natural gas.

In response to the country's low-carbon development strategy, CR Gas has made every effort to develop its natural gas supply business, pipeline natural gas to industrial, commercial and residential customers as well as natural gas vehicles, and promoted the rapid development of integrated energy¹ and integrated service business². In 2021, the Group invested in 266 gas projects in a number of large and medium cities in China, with operations spanning 25 provinces and 3 municipalities directly under the central government, covering 75 prefectural-level cities. During the year, the Company sold a total of 34.084 billion cubic metres of natural gas. New industrial and commercial users reached 39,000, and new residential users reached 3,524,000. In particular, new house connection users, existing house connection users and coal-to-gas conversion rural users reached 2,957,200, 444,300 and 122,500, respectively, covering a population of over 304 million. The cumulative length of gas pipelines amounted to around 172,450 kilometres. It constructed a total of 261 gas filling stations, of which 173 were CNG stations, 48 were LNG stations and 40 were L-CNG stations.

Low-carbon Business Development

In recent years, the country's overall economy has shifted to low-carbon economic development, with a significant increase in the demand for clean energy. In view of this, the Group fully leverages its customer resources and technical advantages to steadily develop new integrated energy business lines such as distributed energy, distributed heating and distributed photovoltaics as well as new businesses such as charging stations and hydrogenation refuelling stations to supply clean energy to meet the energy demand of customers and expand the Group's income stream.



在綜合能源（包含但不限於分佈式能源、分佈式供暖、分佈式光伏、合同能源管理、能效服務）領域，累計項目數量達到144個。

新投運充電站25座，累計投運充電站132座，全年售電較同期增長29.4%至2.2億千瓦時。

新投運加氫站4座，累計批准建設加氫站15座，分佈於濰坊、襄陽、無錫、白城、武漢、泰州等地。

2.5 企業管治

管治架構

華潤燃氣構建了一個優良可靠且責任分明的企業管治架構，致力為股東提供一個透明、公開和負責的管治體系。展望未來，本集團將會繼續完善企業管治政策，以確保有關政策與現行慣例和準則相符，不負股東對集團的期望。為強化董事會職能及提升其專長，董事會下設五個委員會，包括審核與風險管理委員會、薪酬委員會、提名委員會、投資委員會及企業管治委員會，各委員會履行不同職能。

誠信合規 嚴守商業道德標準

華潤燃氣以「誠實守信」為集團核心價值觀，致力長期維持本集團誠信水平，以做到誠信於股東、客戶、員工、社會，以實踐「做得比說得好」的企業承諾。本集團制定了一系列誠信合規管理制度，包括《華潤燃氣誠信合規管理辦法》《華潤燃氣誠信合規十要十戒》等。同時，本集團要求員工簽署《華潤燃氣員工誠信合規宣言》，各企業中層以上經理人全員簽署《誠信合規責任書》，確保本集團員工堅守公司有關誠信合規的職業操守。

In the field of integrated energy (including but not limited to distributed energy, distributed heating, distributed photovoltaics, contracted energy management, energy efficiency services), the cumulative number of projects reached 144.

A total of 132 charging stations have been in operation which included 25 new charging stations, with an annual power sales volume of 220 million kWh, representing an increase of 29.4% compared with that of the corresponding period.

4 new hydrogenation refuelling stations were put in operation, and 15 hydrogenation refuelling stations in aggregate were approved for construction in Weifang, Xiangyang, Wuxi, Baicheng, Wuhan, Taizhou, etc.

2.5 CORPORATE GOVERNANCE

Governance Structure

CR Gas has built an excellent and reliable corporate governance structure with clear division of responsibilities and is committed to providing a transparent, open and responsible governance system to shareholders. Looking ahead, the Group will continue to perfect its corporate governance policies to ensure that they are consistent with existing practices and standards and live up to shareholders' expectations for the Group. To strengthen the functions of the Board and enhance its expertise, the Board has set up five committees, namely the Audit and Risk Management Committee, Remuneration Committee, Nomination Committee, Investment Committee and Corporate Governance Committee, with each committee performing different functions.

Integrity and Compliance, Strict Adherence to Business Ethics

Adhering to its core value of being honest and trustworthy, CR Gas is committed to maintaining the integrity standards of the Group in the long run, so as to put into practice integrity among shareholders, customers, employees and society and devote itself to the corporate commitment of "better done than said". The Group has established a series of integrity and compliance management systems, including Integrity and Compliance Management Method of CR Gas (《華潤燃氣誠信合規管理辦法》), Working System of Integrity and Compliance Officer of CR Gas (《華潤燃氣誠信合規專員工作制度》) and 10 Dos and Don'ts for Integrity and Compliance of CR Gas (《華潤燃氣誠信合規十要十戒》). Meanwhile, the Group requires its employees to sign the Staff Integrity and Compliance Declaration of CR Gas (《華潤燃氣員工誠信合規宣言》) and all managers at mid-level or above of the Company to sign the Integrity and Compliance Responsibility Document (《誠信合規責任書》) so as to ensure that employees of the Group uphold the Company's professional ethics regarding integrity and compliance.

華潤燃氣注重內部員工的合規意識，積極開展誠信合規培訓，包括為約2,051名新入職員工提供合規常識普及培訓、組織開展《華潤集團商業行為守則》培訓課件的學習，培養全員合規及風險防範意識，並編製了《華潤燃氣經理人普法教育百問百答手冊》下發，以增強華潤燃氣經理人的合法合規意識。

華潤燃氣嚴守營運所在地有關商業道德審計的法律法規，並已制定相應的內部守則及制度，規範相關事宜。集團堅守「逢離必審」及「三年輪審」原則，根據《黨政主要領導幹部和國有企事業單位主要領導人員經濟責任審計規定》的指引，重點對各區域公司離任經理人開展經濟責任審計工作，聚焦經理人在經濟活動中落實有關黨風廉政建設責任和遵守廉潔從業規定等情況，促進反腐倡廉，促進權力規範運行。

華潤燃氣嚴守《中華人民共和國刑法》《中華人民共和國反壟斷法》《中華人民共和國反不正當競爭法》及《中華人民共和國招標投標法》等國家法律法規，並積極響應國家工商總局《關於禁止公用企業限制競爭和壟斷行為突出問題的公告》，推進反不正當競爭活動。本集團已編製《華潤集團法律風險管理手冊》系列叢書（燃氣分冊）之「雙反」篇《華潤燃氣各業務板塊「十大法律風險」雙反篇》等反壟斷合規工作指引，分析違反反壟斷法及反不正當競爭法的行為及後果以及在業務開展中避免發生以上行為的應對舉措，強化公平競爭及管理。華潤燃氣繼續參與華潤集團反壟斷合規指引項目風險梳理，協助開展項目調研等工作，持續加強風險管理工作。

CR Gas pays attention to the compliance awareness of internal employees, and actively carries out integrity and compliance training, including offering compliance knowledge promotion training to about 2,051 new employees and arranging and conducting studies on training courseware for China Resources Group's Code of Business Conduct (《華潤集團商業行為守則》). We cultivated the awareness of compliance and risk prevention among all employees, and prepared and issued the Q&A Manual for Legal Education of Managers of CR Gas (《華潤燃氣經理人普法教育百問百答手冊》), with a view to increasing the awareness of compliance with laws and regulations of CR Gas's managers.

CR Gas strictly abides by the laws and regulations on business ethics audit in the place where it operates, and has formulated corresponding internal codes and systems to regulate relevant matters. The Group adheres to the principles of "every dismissal is subject to review" and "rotary review for every three years" and follows the guidelines of the Regulations on the Audit of Economic Responsibilities of Leading Cadres of the Party and Government and Major Leaders of State-owned Enterprises and Institutions (《黨政主要領導幹部和國有企事業單位主要領導人員經濟責任審計規定》) to carry out economic responsibility audit of the managers leaving office of each regional company, focusing on the performance of the responsibility for combating corruption and upholding integrity and the compliance with the integrity practice rules by managers when engaging in economic activities, so as to promote anti-corruption and uphold integrity as well as to facilitate the exercise of power in a regulated manner.

CR Gas strictly adheres to national laws and regulations, including the Criminal Law of the People's Republic of China (《中華人民共和國刑法》), the Anti-Monopoly Law of the People's Republic of China (《中華人民共和國反壟斷法》), Anti-unfair Competition Law (《中華人民共和國反不正當競爭法》) of the People's Republic of China and the Tender and Bidding Law of the People's Republic of China (《中華人民共和國招標投標法》), and actively responds to the call of the Announcement on Prominent Problems about Restrictive Competition Practices and Monopoly Acts of Public Companies (《關於禁止公用企業限制競爭和壟斷行為突出問題的公告》) promulgated by the State Administration of Industry and Commerce, so as to promote anti-unfair competition activities. The Group has prepared anti-monopoly compliance guidelines, such as the Legal Risk Management Manual Series of China Resources Group for Gas Companies - AM & AU (《華潤集團法律風險管理手冊》系列叢書（燃氣分冊）之「雙反」篇) and the Top Ten Legal Risk of the Business Segments of China Resources Group - AM & AU (《華潤燃氣各業務板塊「十大法律風險」雙反篇》), and conducted analysis on the acts and consequences of violations of the Anti-Monopoly Law, Anti-unfair Competition Law and corresponding counter-measures to avoid such acts in the course of business development to strengthen fair competition and management. CR Gas continues to participate in the risk management of China Resources Group's project regarding guidelines on anti-monopoly compliance and provide assistance for research, study and other tasks of the project with an aim to reinforce risk management on an ongoing basis.



廉政建設堅持反貪污原則

華潤燃氣堅持「不敢腐、不能腐、不想腐」的理念，本着「守行規、守信譽、重合同、重公平、不賄賂」的原則依法治企，全力推動廉政建設和反貪污工作，並制定了《廉政談話實施辦法》及《十大紀律》等內部制度，嚴格規範員工不得以任何形式接受或要求客戶、供應商、分包商或其他與本集團業務有往來人士提供利益，以杜絕貪污、勒索、賄賂及洗黑錢等不法行為，以此要求集團全體人員承諾合規守法。為監督集團廉政建設的工作及防範貪污事件發生，華潤燃氣構建了「131」大監督體系，「131」分別指各業務部門發揮業務專長履行業務監督職能，用好政治巡察、內部審計和考核盤點三個重要監督手段，及做好紀檢監督工作，從而打造事前防範、事中跟蹤、事後問責的「全流程」監督防範體系。

Incorrupt Governance and Adherence to Anti-corruption Principles

CR Gas insists on the belief that no one dares to, is able to or is willing to be corrupt, manages companies in accordance with the law by complying with the code of practice for the industry and placing due emphasis on credibility, contract, fair competition and anti-bribery. We strive to promote incorrupt governance and anti-corruption work and have established internal systems such as the Incorrupt Governance Discussion Implementation Methods (《廉政談話實施辦法》) and Ten Disciplines (《十大紀律》), pursuant to which employees must not accept or solicit any benefits from customers, suppliers, sub-contractors or other persons affiliated with the Group's business operations in any form to prevent unlawful conduct including corruption, extortion, bribery and money laundering. On this basis, all employees of the Group are required to keep their promises for compliance with laws and regulations. To supervise its work on incorrupt governance and prevent the occurrence of corruption incidents, CR Gas has set up the "131" comprehensive supervision system, with "131" referring respectively to different divisions performing supervision based on their specialties by leveraging three key supervision measures of political inspection, internal auditing and assessments in an efficient manner to establish a supervision system of disciplinary inspection with a complete process of prevention, tracing and accountability on the basis of performing well in discipline inspection.

案例：廉潔教育學習月系列活動-「學史崇廉，風清氣正」

Case Study: Integrity Education Month Series Activities – Learning from History and Upholding Integrity and Uprightness

2021年10月，華潤燃氣開展了廉潔教育學習月活動，以「學史崇廉，風清氣正」為主題，開展廉政黨課、廉政談話、整改「回頭看」等有關廉政建設及反貪污內容的員工培訓，以提升他們的合規意識。活動月期間，各區域公司講授廉政黨課活動覆蓋員工超過1萬餘人、組織4296次的廉政談話、簽訂《廉潔從業承諾書》的經理人超80人、完成自查問題整改120項。

In October 2021, CR Gas launched the Integrity Education Month campaign with the theme of learning from history and upholding integrity and uprightiness, and carried out staff training on integrity building and anti-corruption, such as Party lectures on clean administration, anti-corruption talks, and review on rectification; with a view to enhancing employees' awareness of compliance. During the Integrity Education Month, our regional companies gave Party lectures on clean administration to over 10,000 personnel, hosted 4,296 anti-corruption talks, signed the Letter of Commitment to Integrity with over 80 management personnel, and rectified 120 items through self-check of problems.



案例：召開傳達集團「靠企吃企」專項整治工作要求會議暨2021年 警示教育大會

Case Study: Holding the Meeting to Convey the Group's Requirements for Special Campaign Against Corporate Parasites and the 2021 Warning Education Conference

2021年7月28日，華潤燃氣召開傳達集團「靠企吃企」專項整治工作要求會議暨2021年警示教育大會，部署「靠企吃企」問題專項整治工作，發揮「以案示警、以案釋紀、以案釋法」作用，以提升全體員工的廉政意識。期間，通報三輪內部巡查發現的問題，對各級黨組織、紀檢機構和領導幹部提出廉潔要求，共計3,000餘人參會。

On 28th July 2021, CR Gas held the Meeting to Convey the Group's Requirements for Special Campaign Against Corporate Parasites and the 2021 Warning Education Conference to arrange a special campaign against corporate parasites and play the role of case study in giving warnings, interpreting discipline and interpreting laws, with a view to enhancing all employees' awareness of integrity. During the period, the problems found in three rounds of internal inspections were reported, and integrity requirements were imposed on Party organs, discipline inspection agencies and officers at all levels. A total of more than 3,000 personnel attended the conference.



年內，華潤燃氣開展的廉潔教育培訓及宣傳活動主要有廉潔提醒、警示教育、任前廉政談話教育、廉潔教育學習月等。集團共向董事及華潤燃氣集團員工提供廉政教育培訓50餘次，總時長70餘小時，覆蓋500餘人；各區域公司廉政教育培訓累計逾1,400次，培訓人數共計22,000餘人，累計培訓時長達2,000小時。

同時，華潤燃氣出台《信訪辦理和監督執紀工作指引》《信訪件和問題線索集中管理辦法》《對不實檢舉控告的澄清工作指引》等內部制度，建立完善的舉報管理與處理機制，規範檢舉控告行為，設立專屬的舉報熱線、舉報郵箱及舉報地址，任何人士可以在保密情況下，通過電話、郵箱、電郵、微信，及親身到訪等渠道舉報涉及本集團的疑似違規行為。本集團亦制定了《紀律審查保密工作規定》，嚴格規範負責執紀工作的專

During the year, the integrity education training and publicity activities carried out by CR Gas mainly included integrity reminder, warning education, integrity talk and education before assuming responsibilities, and integrity education learning month, etc. The Group conducted more than 50 anti-corruption education training sessions for its directors and CR Gas Group's employees, covering over 500 trainees with more than 70 training hours in aggregate; regional companies conducted more than 1,400 anti-corruption education training sessions cumulatively, covering over 22,000 trainees and reaching 2,000 training hours in aggregate.

Meanwhile, CR Gas has introduced internal systems such as the Guidelines for Handling Petitions and Supervision on Implementation of Disciplinary Work 《信訪辦理和監督執紀工作指引》 and the Central Management Measures for Petitions and Problem Clues 《信訪件和問題線索集中管理辦法》, Guidance on Clarification of False Accusations 《對不實檢舉控告的澄清工作指引》, etc. CR Gas has well-established reporting management and handling mechanism, and standard practices for reporting and charging, with specific whistle-blowing hotline, mailbox, and address. Anyone can confidentially report suspected violations concerning the Group through the hotline,



職人員必須遵守保密規定並簽訂保密協議書，確保舉報內容嚴格保密，以保護舉報人。

集團對一切違規行為保持零容忍態度，堅持「三個一律」原則，即「一律處分、一律通報、一律曝光」，舉報案件一經查實，將根據事件影響及情節嚴重程度對涉事員工做出相應處分，對於違反法律的行為，本集團將移交司法機關處理追究其法律責任。報告期內，本集團及其員工均沒有發生與貪污相關的訴訟案件或重大違法違紀違規事項。

風險管控推進風險管理文化

華潤燃氣黨委書記、總裁楊平先生作為風險管理最高級別負責人，負責領導集團「二級管理三級防範」的風險管控體系執行，以「強內控、防風險、促合規」為目標，明確細分了風險控制管理層級及工作機制，落實主體責任，實現風險管理的縱深落地，全面提升風險管控水平。2021年，公司持續推進風險管控工作，全年未發生重大系統性風險。

集團亦建立了風險預警機制，實現重大風險的量化管理、動態管理及閉環管理。為有效提升風險防控能力，集團亦開展了專項風險治理。同時，公司繼續推動區域公司以兩年為周期開展內控評價，組織所有成員公司開展內控自查，促進內控體系規範有效運行。

mailbox, email, WeChat and in-person visits. The Group has also formulated the Regulation on Confidentiality of Disciplinary Review (《紀律審查保密工作規定》), specifying that all personnel in charge of disciplinary review must strictly comply with the confidentiality requirements and sign a confidentiality agreement to keep contents of the reports strictly confidential for protection of the whistle-blowers.

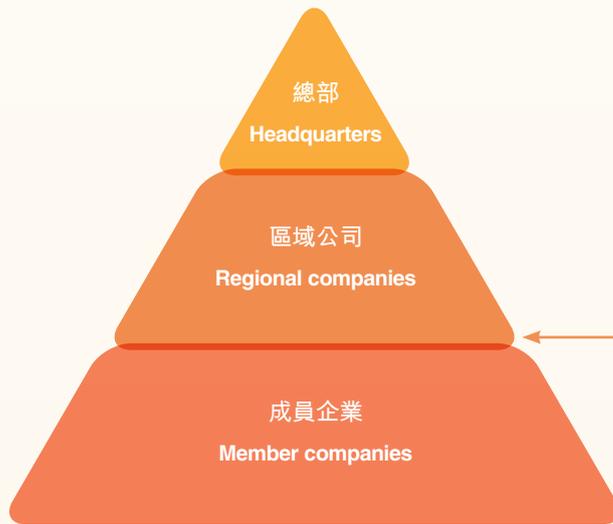
The Group shows no tolerance to any illegal practices, which are subject to punishment, reporting and disclosure with no exceptions. Once the reported case is verified, employees involved are subject to internal punishment according to the impact and the severity of the incident. For unlawful acts, the Group will hand over the case to the judicial authorities and take legal action against the personnel involved. During the reporting period, the Group and its employees had not been involved in any corruption-related lawsuit or major illegal acts.

Risk Management and Control and Promotion of Risk Management Culture

Mr. Yang Ping, the secretary of the party committee and chief executive officer of CR Gas, is the highest-level person-in-charge of its risk management and the leader for implementing a risk control system featuring Two-tier Management and Three-tier Prevention (二級管理三級防範). Targeting to enhance internal control, prevent risk and promote compliance, the system clearly defines the standards and working mechanisms of risk control and management and clarifies the responsibilities of the responsible persons, thereby achieving an in-depth implementation of risk management and improving risk management and control in all aspects. In 2021, the Company pushed forward its risk management and control with continuous efforts and no systemic risk has occurred throughout the year.

The Group has also established a risk alert mechanism, implemented quantitative management, dynamic management and closed-loop management for material risk and carried out special risk governance with a view to enhancing its risk prevention and control capabilities effectively. Meanwhile, the Company continued to promote regional companies to carry out internal control evaluation every two years, conducted self-inspection of internal control among all member companies and facilitated an effective operation of internal control system and standards.

「二級管理三級防範」風控體系
 Risk control system with a “Two-tier Management and Three-tier Prevention (二級管理三級防範)” structure



二級管理

結合區域一體化進程，建立總部、區域公司二級風險控制管理體系，分別負責跟進總部層面、區域公司層面風控工作的具體實施

Two-tier Management

Based on the progress of regional integration, the Group has developed a two-tier risk control and management system comprising the headquarters and regional companies, which are responsible for following up the specific implementation of work in relation to risk control at headquarters and regional companies level, respectively

三級防範

風險管理覆蓋至最末級管理單位，通過總部、區域公司、成員公司三級防範全面提升風險防控能力。

Three-tier Prevention

The risk management coverage was extended to the management units at the lowest level and aimed to comprehensively improve the risk prevention and control ability at all levels through the three-tier prevention comprising the headquarters, regional companies and member companies.

華潤燃氣通過提供風險管控培訓與宣傳及建立風險事件問責機制，致力提升集團風險管理文化。
 CR Gas has provided risk management training and established an accountability mechanism of risk incidents to enhance risk management culture in the Group.



- > **風險管控培訓與宣傳：**本集團持續加強風險管控的理論及相關案例的宣傳，向各層級經理人宣貫公司的《風險管理工作介紹》，並總結審計發現的典型案列，於各層級經理人職能會議中進行宣貫，編製及發佈《風險匯編》《風控簡報》及《風險應對手冊》，全面提升各級經理人風險防控意識。

- > **風險事件問責機制：**本集團出台《華潤燃氣違規經營投資責任追究實施辦法》，規範重大風險管控缺失的責任追究程序，將「未按規定履行內控及風險管理制度建設職責，導致內控及風險管理制度缺失，內控流程存在重大缺陷」等重大風險管理事件納入責任追究範圍，並清楚列明責任追究的職責及程序，確保風險管理文化有效落實。

Risk Management Training and Promotion: The Group continues to strengthen the promotion of theories concerning risk management and relevant cases, disseminates the Introduction of Risk Management (《風險管理工作介紹》) to managers at all levels, and presents summaries of typical cases discovered in auditing at meetings to managers at all levels for illustration purposes. To comprehensively raise the awareness of risk prevention and control among managers at all levels, the Risk Compendium (《風險匯編》), Risk Control Briefing (《風控簡報》) and Risk Response Manual (《風險應對手冊》) have been compiled and released.

Accountability Mechanism for Risk Incidents: The Group has issued the Measures of Accountability on Irregularities of Business and Investment of CR Gas (《華潤燃氣違規經營投資責任追究實施辦法》) to regulate the accountability procedures for major risk control deficiencies, include in the scope of accountability major risk management incidents such as failure to perform the required duties of building internal control and risk management systems that results in deficiencies in internal control and risk management systems and major deficiencies in internal control processes, and clearly illustrate the responsibilities and procedures for accountability to ensure effective implementation of risk management culture.

3

可持續發展管治 Sustainable Governance

3.1 責任管理

華潤燃氣在穩步發展的同時，形成了富有特色的企業責任文化，在日常經營活動中融入可持續發展理念，並積極與政府、股東、客戶、員工、業務夥伴和社區團體等利益相關方溝通合作，共同履行社會責任。集團堅持提供專業、高效、親切的服務，供應安全清潔燃氣；致力於改善環境質量，提升生活品質；不斷追求卓越，努力實現股東價值、員工價值和社會價值最大化，攜手共創美好生活。

3.1 RESPONSIBILITY MANAGEMENT

Achieving steady development, CR Gas has also cultivated a unique corporate responsibility culture. The Group integrates the philosophy of sustainable development in daily operations and communicates and works with stakeholders such as local governments, shareholders, customers, employees, partners and local communities, with a view to shouldering social responsibilities together. The Group undertakes to provide professional, efficient and thoughtful services, and to supply safe and clean gas. In order to create a better life together, the Group strives to improve the quality of the environment and the standards of living, at the same time constantly pursuing excellence, and creating maximum shareholder value, employee value and social value.

華潤燃氣企業文化 Corporate Culture of CR Gas

促進綠色發展
共創美好生活

Embracing green
development and building a
beautiful life

使命
Mission

誠實守信 業績導向
以人為本 合作共贏

To be honest
and trustworthy,
performance-oriented,
customers first, and
be mutual beneficial

價值觀
Value

願景
Vision

成為大眾信賴和喜愛的
世界一流能源服務企業

Being a trustworthy and beloved
world leading energy services
enterprise





3.2 責任參與

華潤燃氣高度重視與內外部利益相關方的溝通，針對不同相關方的特點建立了多樣化溝通渠道，及時向各利益相關方披露政策更新、日常經營、發展變革與特殊變動等相關信息，更新公司可持續發展工作的進展情況。我們積極聽取各相關方的建議與意見，了解各相關方對我們的期望與訴求並及時反饋，在為企業創造價值的同時，促進企業與各利益相關方共同可持續發展。

3.2 RESPONSIBILITY ENGAGEMENT

CR Gas attaches great importance to its communication with both internal and external stakeholders, and has set up diverse channels based on their characteristics, timely informed them of information about our updated disclosure policy, day-to-day operation, development and reforms and special changes, and updated them on the progress of the Company's sustainable development work. We actively listen to suggestions of stakeholders, understand their expectations and requests and offer our timely response. While creating value for the Company, we have facilitated sustainable development of both the Company and stakeholders.



華潤燃氣與利益相關方的溝通方式
Communication Channels between CR Gas and Stakeholders

利益相關方 Stakeholder	溝通方式 Communication Channel	對公司的期待 Expectation for the Company	華潤燃氣的回應 Response from CR Gas
政府及監管機構 Government and regulatory bodies	訪問 Interviews 會議 Meetings	依法合規經營 Compliant management in accordance with the law 安全穩定供氣 Safe and stable gas supply 綠色低碳發展 Green and low-carbon development	健全「二級管理三級防範」風控 體系 Improved risk control system with two-tier management and three-tier prevention 開展安全文化建設 Carried out safety culture development 深化安全管理體系建設 Deepened development of safety management systems 環保指標滿足國家標準 Met national standards on environmental protection indicators
股東／投資者 Shareholders/ investors	問卷調查 Questionnaire surveys 面談及電話會議 Interviews and conference calls 投資者論壇及會議 Investor seminars and meetings 分析員簡報會及股東周年大會 Analysts' briefings and annual general meeting 年報及中期報告 Annual and interim reports 集團網站的「投資者關係」分頁 Investor Relations webpage on the Group's website	保障股東權益 Protection of shareholders' rights 公司持續盈利 Sustainable corporate profitability 資金使用規範 Fund usage regulation	召開股東大會 Convened shareholders' meetings 刊發《中期報告／年度報告》及 演示稿 Published interim reports/ annual reports and presentation documents 開展內部審計 Conducted internal audit 商業風險自評 Self-assessment of business risk

華潤燃氣與利益相關方的溝通方式
Communication Channels between CR Gas and Stakeholders

利益相關方 Stakeholder	溝通方式 Communication Channel	對公司的期待 Expectation for the Company	華潤燃氣的回應 Response from CR Gas
客戶 Customers	問卷調查 Questionnaire surveys 客戶滿意度調查 Satisfaction survey of Customers 客戶服務熱線 Customer service hotlines 網站及社交媒體 Websites and social media	保障用戶權益 Protection of users' rights 提供溫馨服務 Providing considerate services 便捷繳費 Convenient payment methods	提供穩定、可靠、環保的清潔能源 Provided stable, reliable, environment-friendly and clean energy 制訂完善的服務目標 Set comprehensive service targets 完善用戶投訴管理 Improved customer complaint management 開通多元化繳費通道 Opened up diversified payment channels
員工 Employees	問卷調查 Questionnaire surveys 訪問 Interviews 會議 Meetings 內部網絡 Intranet 培訓會 Training sessions 與員工溝通的活動 Employee engagement activities 持續溝通 Continuous communication	合法權益保護 Protection of legal rights 暢通職業發展通道 Smooth career path 職業健康安全保護 Occupational health and safety protection	依法簽訂勞動合同 Signed labour contracts in accordance with the law 開展各類培訓學習 Conducted various types of training sessions 開展各類文體活動 Conducted various cultural and sports activities 全方位保障職業健康 Provided all-round protection for occupational health 人事部門內部監督 Internal supervision of HR Department



華潤燃氣與利益相關方的溝通方式
Communication Channels between CR Gas and Stakeholders

利益相關方 Stakeholder	溝通方式 Communication Channel	對公司的期待 Expectation for the Company	華潤燃氣的回應 Response from CR Gas
業務夥伴 Business partners	問卷調查 Questionnaire surveys 訪問 Interviews 審核及評估 Audits and assessment 戰略合作 Strategic cooperation 持續的直接溝通 Continuous direct communication 物資管理系統 Material management system	保障供應商權益 Protecting rights of suppliers 加強供應商管理 Strengthening management over suppliers 帶動供應商成長 Propelling suppliers to grow	誠信合規採購 Carried out compliant procurement with integrity 規範供應鏈管理 Regulated supply chain management 簽訂戰略合作協議 Entered into strategic cooperation agreements 建設綠色產業鏈 Developed green industrial chain
社區團體 Community groups	公益活動 Charity activities 志願服務 Volunteer services	扶貧助困 Poverty alleviation 捐資助學 Donations to schools 關愛特殊群體 Caring for groups with special needs 志願服務 Volunteer services	響應脫貧攻堅號召 Responded to the call for poverty alleviation 支持教育事業發展 Supported educational development 慰問幫扶弱勢群體 Visited and offered assistance to the underprivileged

3.3 重大性議題判定過程

由於華潤燃氣本年度經營業務及可持續發展管理均未發生重大變更，因此，在本年度可持續發展報告的準備過程中，我們邀請了專業顧問對年度可持續發展管理議題進行回顧及評估，確保各項議題與集團所在行業的高度關聯性。我們通過參考國內外優秀同行企業的可持續發展議題，結合資本市場等相關方對於華潤燃氣可持續發展的關注點，在上一年度重大性議題分析的基礎上，最終歸納、更新及總結了2021年度華潤燃氣各項可持續發展議題及其重要性，作為本報告的編製基礎。下表中以粗體顯示的項目為與華潤燃氣高度相關的重要性議題，有關議題將會在本報告內重點描述及討論。

3.3 MATERIALITY ANALYSIS PROCESS

As there were no major changes in the business and sustainable development management of CR Gas in the Year, professional consultants were engaged to review and evaluate the annual sustainable development management issues during the preparation of the year's sustainability report to ensure that the issues are highly relevant to the industries in which the Group operates. By referring to the sustainable development issues of outstanding domestic and foreign peers, taking into the concerns of the capital market and other stakeholders about the sustainable development of CR Gas, and based on the analysis of the material issues of the previous year, various sustainable development issues of CR Gas in 2021 and their materiality were summed up and updated, serving as the basis for the preparation of the report. The items shown in bold in the table below represents materiality issues highly relevant to CR Gas, which will be highlighted and discussed in the report.



華潤燃氣重要性議題列表
Material Issues of CR Gas

<p>經濟 Economy</p>	<ol style="list-style-type: none"> 1. 持續穩定回報 Sustainable and stable return 2. 帶動本地經濟 Contribution to local economy 3. 深化自主創新 Deepening independent innovation Environment
<p>環境 Environment</p>	<ol style="list-style-type: none"> 4. 倡導節能減排 Encouraging energy saving and emission reduction 5. 把握清潔能源機遇 Seizing opportunities regarding clean energy 6. 加強洩漏及廢棄物管理 Strengthening leakage and waste management 7. 促進物料回收及重覆利用 Promoting recycling and repeated use of materials 8. 提升資源使用效益 Enhancing efficiency in the use of resources 9. 加強生態保護與恢復 Strengthening ecological conservation and restoration 10. 減少溫室氣體排放 Reducing greenhouse gas emission 11. 加強氣候風險管理 Strengthening climate risk management Social



華潤燃氣重要性議題列表
Material Issues of CR Gas

<p>社會 Social</p>	<p>12. 建立良好的勞資關係 Establishing good employer-employee relationship</p> <p>13. 員工職業安全健康 Occupational safety and health of employees</p> <p>14. 員工培訓與發展 Staff training and development</p> <p>15. 僱傭多元及平等機會 Employment diversity and equal opportunities</p> <p>16. 防止童工或強制勞工 Prohibiting employment of child labour or forced labour</p> <p>17. 尊重原住民權利 Respecting rights and interests of the natives</p> <p>18. 信息安全與客戶隱私保護 Information security and protection of customer privacy</p> <p>19. 質量管理與客戶服務 Quality management and customer services</p> <p>20. 保護知識產權 Protecting intellectual property rights</p> <p>21. 社區公益與共建 Community charity and co-building</p> <p>22. 保障安全穩定供氣 Ensuring safe and stable gas supply</p> <p>23. 供應商管理與評估 Supplier management and assessment</p>
<p>企業管治 Corporate governance</p>	<p>24. 懲治貪污腐敗 Punishment on corruption</p> <p>25. 完善公司治理 Improving corporate governance</p> <p>26. 合規守法經營 Compliant and legal operation</p> <p>27. 反對不當競爭行為 Anti-unfair competition</p>



綠色運營

創造環保價值

Green Operation

To Create Environmental Value



4

綠色運營 創造環保價值

Green Operation to Create Environmental Value

華潤燃氣秉承「改善環境質量、提升生活品質」的企業使命，堅持「不以犧牲環境為代價謀求企業發展，不以犧牲環境的長遠利益換取企業的短期效益」的原則，積極遵守《中華人民共和國環境保護法》《中華人民共和國清潔生產促進法》等法律法規，不斷完善環境管理體系，注重降低自身經營活動對環境造成的影響，深入綠色理念宣教，推動集團「綠色低碳」發展。

4.1 環境管理

集團以國家法律法規及行業標準為依據，制定了《節能減排管理制度》和《用水、用電、用油管理標準》等制度，規範各級單位的節能減排工作，加強能源消耗管控與污染防治，佈局碳排放管理，提升環境管理能力。同時，集團積極推進環境管理的相關認證，鼓勵各級單位獲得ISO9001、ISO14001管理體系認證，目前共有13家成員公司獲得ISO9001認證。

此外，我們通過對綜合能源消費量、耗電量、汽油消耗量、柴油消耗量、天然氣消耗量、銷氣量、營業收入（可比價）、萬元營業收入綜合能耗（可比價）、萬元增加值綜合能耗（可比價）、二氧化碳排放總量等進行動態監控，了解節能減排措施的落實及取得的成效，及時做出調整，同時根據監控數據進行匯總分析，為下一年制定合理可行的環境量化目標提供可靠依據。

節能降耗目標

2021年，公司有效落實節能減排工作，萬元營業收入綜合能耗指標與2020年同比降低6.8%；萬元增加值綜合能耗指標與2020年同比降低1.5%，超額完成節能減排目標，同時設立2022年相應的節能減排目標。

CR Gas upholds a corporate mission to improve the quality of the environment and the quality of life, adheres to the principles of never seeking corporate development at the expense of the environment and never sacrificing long-term interests of the environment for short-term gains of the Company, abides by the Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》), the Cleaner Production Promotion Law of the People's Republic of China (《中華人民共和國清潔生產促進法》) and other relevant laws and regulations, constantly improves its environmental management system, makes efforts to reduce the impact of its business activities on the environment, and deepens the education on green concepts to promote the green and low-carbon development of the Group.

4.1 ENVIRONMENTAL MANAGEMENT

Based on national laws and regulations and industry standards, the Group has formulated a series of measures, including the Management Measures for Energy Conservation and Emission Reduction (《節能減排管理制度》) and the Management Standards for the Use of Water, Electricity and Oil (《用水、用電、用油管理標準》), to regulate the energy conservation and emission reduction efforts of units at all levels. On this basis, the Group strengthens energy consumption control and pollution prevention and control, carries out carbon emission management, and improves environmental management capabilities. In the meantime, the Group proactively promotes relevant environmental management certifications and encourages units at all levels to obtain ISO 9001 and ISO 14001 certifications. Up to now, a total of 13 member companies have obtained ISO 9001 certification.

In addition, we dynamically monitor overall energy consumption, power consumption, gasoline consumption, diesel consumption, natural gas consumption, gas sales volume, revenue (at comparable price), overall energy consumption per RMB10,000 of revenue (at comparable price), overall energy consumption per RMB10,000 value added (at comparable price) and total carbon dioxide emissions, etc. to learn about the implementation and results achieved of energy conservation and emission reduction measures and make timely adjustments, and sort out and conduct analysis on the monitoring data to provide a reliable basis for developing reasonable and feasible quantitative environmental targets in the next year.

Energy Conservation and Emission Reduction Targets

In 2021, the Company effectively implemented energy conservation and emission reduction measures. As a result, overall energy consumption per RMB10,000 of revenue decreased by 6.8% compared with that of 2020, and overall energy consumption per RMB10,000 value added decreased by 1.5% compared with that of 2020, better than the energy conservation and emission reduction targets. In addition, we set energy conservation and emission reduction targets for 2022.



表 華潤燃氣節能減排指標完成情況及下年度目標
Table Achievements in Energy Conservation and Emission Reduction Indicators of CR Gas and
Targets for the Next Year

	2020年完成值	2021年目標值	2021年完成值	2022年目標
	Actual amount in 2020	Target value for 2021	Actual amount in 2021	Target for 2022
萬元人民幣營業收入綜合能耗(可比價) (噸標煤/萬元)	0.0059	0.005841	0.0055	萬元人民幣營業收入綜合 能耗較2020年下降幅 度為7.2%
Overall energy consumption per RMB10,000 of revenue (at comparable price) (tonnes of standard coal/ RMB10,000)	0.0059	0.005841	0.0055	To lower overall energy consumption per RMB10,000 of revenue by 7.2% compared with that of 2020
萬元人民幣增加值綜合能耗(可比價) (噸標煤/萬元)	0.0204	0.020298	0.0201	萬元人民幣增加值綜合 能耗較2020年下降幅 度為1.58%
Overall energy consumption per RMB10,000 value added (at comparable price) (tonnes of standard coal/RMB10,000)	0.0204	0.020298	0.0201	To lower overall energy consumption per RMB10,000 value added by 1.58% compared with that of 2020

針對以上目標，公司每月對節能減排數據進行監測並分析總結，根據需要部署下一步重點工作，以保證節能降耗目標能夠完成。

突發環境事件應對

華潤燃氣依據國家應急管理法律法規要求，結合城市燃氣行業實際業務情況，建立應急及事故預案管理體系，制定覆蓋事故災難、自然災害、社會安全事件、公共衛生事件等多項要素的應急預案，其中相關的應急措施通過外部專家評審後完成政府部門審批備案。

公司細化突發環境事件的分級標準和響應機制。按照影響程度從大到小的原則，我們設立了紅、橙、黃、藍四級預警機制，共對應三種預案響應類型。其中，華潤集團專家組成員將配合華潤燃氣應對紅色(I級)應急響應；橙色(II級)響應由華潤燃氣負責實施應對；黃色(III級)響應由區域公司負責應對；藍色(IV級)響應由成員公司負責應對。

應對氣候變化

華潤燃氣重視氣候變化對城市、承包商及公司日常運營工作的潛在影響，積極應對溫度及海平面上升、乾旱和極端天氣等實體風險對業務營運帶來的消極影響，同時對於政策變動、商業影響、市場取向的變化等風險帶來的重大影響，及時作出響應和調整。

針對極端天氣事件如暴雨帶來的實體風險，我們制定《自然災害應急處置預案》《2021年防汛工作方案》等，成立防汛工作小組，要求各成員公司定期開展應急演練，做好應急物資配備，強化員工防汛應急能力，規範和提高災害應對能力，維護社會和公司穩定。

For the above targets, the Company monitored, conducted analysis on and prepared summaries the energy conservation and emission reduction data every month, and arranged subsequent key tasks as needed to ensure that the energy conservation and consumption reduction targets can be achieved.

Environmental Emergency Response

In accordance with the requirements of national emergency management laws and regulations and based on the actual situation of the city gas industry, CR Gas has established an emergency and accident management system and formulated emergency response plans covering accidental disasters, natural disasters, social security incidents, public health events, etc. The emergency measures involved have been approved by and filed with government departments after being reviewed by external experts.

The Company has refined the grading standards and emergency response mechanisms for environmental emergencies. Based on the degree of impact from large to small, we have set up a four-level early warning system comprising red, orange, yellow and blue warnings, which correspond to three types of emergency response plans. Specifically, Grade I emergency response (for red warning) is carried out by an expert group of China Resources Group and CR Gas; Grade II emergency response (for orange warning) is carried out by CR Gas; Grade III emergency response (for yellow warning) is carried out by regional companies; Grade IV emergency response (for blue warning) is carried out by member companies.

Addressing Climate Change

CR Gas attaches importance to the potential impact of climate change on the daily operations of cities, contractors and the Company, actively addresses the negative impact of physical risks such as rise in temperature and sea-level, drought and extreme weather on business operations, and makes timely adjustments in response to the material impact of risks such as policy changes, business implications and changes in market dynamics.

In response to the physical risks caused by extreme weather events such as rainstorm, we developed the Natural Disaster Emergency Response Plan (《自然災害應急處置預案》) and the 2021 Flood Control Plan (《2021年防汛工作方案》), etc., established a flood control work group, and required all member companies to conduct regular emergency drills, rationally allocate emergency supplies, and strengthen employees' flood control and emergency response capabilities, so as to regulate and improve disaster response capabilities and maintain the stability of society and the Company.



4.2 碳排放管理

在國家「3060雙碳目標³」的大背景下，華潤燃氣積極響應國家「雙碳」號召，堅持綠色低碳發展，加強節能降耗管理，大力推廣清潔能源，佈局碳排放管理，致力於實現「零污染、低能耗、低排放」的目標。

基於業務發展現狀，我們識別出達成「雙碳目標」過程中，主要面臨的四項挑戰：

1. 業務分佈廣泛，行動一致性的挑戰；
2. 銷氣規模龐大，碳排放總量的挑戰；
3. 新能源、新業務帶來的轉型發展挑戰；
4. 行業外部監管趨嚴的挑戰。

為有效應對以上挑戰，華潤燃氣將採取不斷健全完善「雙碳」管控體系、持續推動節能減排、堅持科技創新、發展綜合能源等對策，堅決貫徹國務院《關於完整準確全面貫徹新發展理念做好碳達峰碳中和工作的意見》的要求，確保碳排放強度持續降低。

4.2 CARBON EMISSION MANAGEMENT

In response to China's goals to achieve carbon peak by 2030 and carbon neutrality by 2060³, CR Gas adheres to green and low-carbon development, strengthens energy conservation and emission reduction management, vigorously promotes clean energy and carries out carbon emission management to achieve the goals of zero pollution, low energy consumption and low emissions.

Based on the status quo of business development, we have identified four major challenges in the process to achieve the carbon peak and carbon neutrality goals:

1. the challenge of maintaining consistency of action arising from wide business coverage;
2. the challenge of controlling total carbon emissions given huge gas sales;
3. the challenge of transformation brought by new energy and new business lines;
4. the challenge from tightening regulation of the industry.

In order to effectively address the above challenges, CR Gas will take various measures, such as improving and perfecting the management system for achieving carbon peak and carbon neutrality, consistently pushing forward saving energy and reducing emissions, pursuing technological innovation and developing integrated energy, and resolutely implement the requirements of the State Council under the Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy, so as to continuously lower carbon emission intensity.

3 2020年9月22日，習近平總書記在第75屆聯合國大會上宣佈中國二氧化碳排放力爭於2030年前達到峰值，努力爭取2060年前實現碳中和。
On 22nd September 2020, General Secretary Xi Jinping announced at the 75th UN General Assembly that China strives to achieve carbon peak by 2030 and carbon neutrality by 2060.

碳排放管理組織機構

華潤燃氣計劃成立碳排放管理委員會，統籌低碳發展工作，下設工作領導小組和下屬企業碳排放管理與執行機構，建立自上而下的部門協調機制和反饋機制。主要職責：

- 研究制定碳管理相關制度和發展戰略；
- 加強外部溝通，積極與政府相關主管部門溝通，獲得更多碳市場資訊；
- 開展碳盤查試點及普查管理工作，制定配額分配方案，研究碳資產管理模式；
- 積極推進碳排放權交易，密切跟蹤國際和國內碳交易市場進展情況；
- 建立並維護企業碳管理信息系統。

碳排放管理相關制度

我們制定了《華潤燃氣低碳發展考核評價辦法》《華潤燃氣碳資產統計與報送制度及碳資產管理辦法》等低碳戰略管理制度，爭取在實踐過程中，探索制定低碳技術標準和研究確定碳減排方法。

Institutional Structure for Carbon Emission Management

CR Gas plans to establish a carbon emission management committee to coordinate low-carbon development efforts, and set up a work leading group under the committee and managerial and executive bodies for carbon emissions in its member companies, with a view to building a top-down departmental coordination mechanism and feedback mechanism. Its main responsibilities are as follows:

- to conduct research and formulate measures and development strategies related to carbon management;
- to strengthen external communication, especially with relevant government authorities, and obtain more carbon market information;
- to carry out pilot carbon audit and survey management, develop quota allocation schemes and study carbon asset management models;
- to promote carbon emission trading, and closely monitor the developments of carbon markets at home and abroad;
- to establish and maintain a carbon management information system.

Carbon Emission Management Measures

We have formulated a series of management measures for low-carbon strategy including the Performance Assessment Measures for Low-carbon Development of China Resources Gas (《華潤燃氣低碳發展考核評價辦法》) and the Carbon Asset Statistics and Reporting System and Carbon Assets Management Measures of China Resources Gas (《華潤燃氣碳資產統計與報送制度及碳資產管理辦法》), and strive to explore and develop low-carbon technical standards and study and determine carbon emission reduction methods in the process of practice.



碳排放管理措施

華潤燃氣依照碳排放管理制度和發展策略，制定碳達峰碳中和行動計劃，從五大方面穩抓碳排放行動方向：

- **強化天然氣排放管理：**通過優化內部管理，提升燃氣安全輸配信息化水平，加強燃氣管網及設施安全建設、巡查和維保等措施持續減少天然氣排放。
- **加大可再生能源應用：**依託自身燃氣市場和用戶資源優勢，將單一燃氣用戶轉化為綜合能源用戶，開發分布式能源、分布式供暖、分布式光伏、加氫站和充電站等綠色低碳業務。同時加強能源智能管理平台建設，利用數智化手段節能增效。
- **完善碳資產管理：**建立長效碳排放核査和碳資產管理機制，着力提升碳資產管理能力。同時及時關注碳交易市場政策及管理發展，積極主動進入並參與碳排放交易。
- **持續推動節能管理：**深入推動信息化系統，落實數字化辦公，完備視頻和電視會議系統，降低差旅頻次；同時逐漸淘汰替換高能耗辦公及照明器具，節約能源消耗；此外，推動電動車或氫燃料電池汽車替代傳統燃油車，增加綠電使用規模。
- **減排技術探究及儲備：**建立產學研一體機構，從能源智能管理平台開發，新能源業務拓展，高效節能設備研究，碳捕捉、收集和利用技術(CCUS)等方面與科研院校和相關企業進行深度合作與研發。

Carbon Emission Management Actions

According to the carbon emission management measures and development strategies, CR Gas has formulated action plans for achieving carbon peak and neutrality to take actions for carbon emission control in five aspects:

- **Strengthening natural gas emission management:** Improve the information system for safe transmission and distribution of gas by refining internal management, and step up the safety, inspection and maintenance of gas pipelines and facilities to continuously reduce natural gas emissions.
- **Increasing renewable energy utilization:** Turn gas users into integrated energy users based on our advantages in the gas market and user base, and develop low-carbon business lines such as distributed energy, distributed heating, distributed photovoltaics, hydrogenation refuelling stations and charging stations; strengthen the construction of smart energy management platform and use intelligent digital approaches to save energy and increase efficiency.
- **Improving carbon asset management:** Establish a long-term carbon emission verification and carbon asset management mechanism, and improve carbon asset management capabilities; timely monitor the developments of carbon market policy and management, and actively participate in carbon emission trading.
- **Promoting energy conservation management:** Promote information system, implement digital office, set up a complete video conferencing system, and reduce the frequency of travel; phase out and replace high-energy-consuming office and lighting equipment to save energy consumption; gradually replace traditional fuel vehicles with electric vehicles or hydrogen fuel cell vehicles, and increase the use of green electricity.
- **Exploring and developing emission reduction technology:** Establish an industry-university-research integrated institution to conduct in-depth cooperation and R&D with universities, scientific research institutions and relevant enterprises on smart energy management platform development, new energy business development, energy-efficient equipment, technology for carbon capture, use and storage (CCUS), etc.

華潤燃氣積極落實以上行動計劃，配合低碳發展的需求，重點推動終端節能技術，積極導入清潔能源。在用戶場景方面，我們通過不斷提升可再生資源佔比、利用負碳技術等方式，賦能用戶端降低碳排放。在低碳技術應用方面，主要分為四大發展領域：

城市燃氣領域：以城市燃氣為主要方向，運用去碳技術和天然氣管道摻氫技術，解決燃氣儲存問題，有效降低碳排放。

綜合能源領域：基於國內天然氣基礎設施與電力設施鏈接現狀，開展氣電互補應用技術探索；大力發展綜合能源業務，計劃推出綜合能源數字化服務平台，進行智慧能源管理。

綜合服務領域：研究燃氣設備技術和用能升級技術，如富氧燃燒、碳移除等。

新業務領域：推崇使用清潔能源，試點發展可再生能源制氫；運用小型船舶的雙燃料高效燃燒技術，達成降低海上污染物排放及碳排放的目的。

此外，華潤燃氣計劃搭建碳資產財務管理體系、碳排放信息管理平台、碳排放及碳交易監督管理機制和支持服務體系，包括第三方核查機構、碳排放管理IT信息系統支持機構等，全面落實碳減排管理工作。

CR Gas actively implements the above action plans, and focuses on promoting terminal energy-saving technologies and introducing clean energy in line with low-carbon development needs. In terms of user scenarios, we empower users to reduce carbon emissions by continuously increasing the proportion of renewable resources and applying carbon-negative technologies. Our low-carbon technologies are mainly applied in four fields as follows:

City gas: Use decarbonisation technology and natural gas pipeline hydrogenation technology to solve the problem of gas storage and reduce carbon emissions in the city gas industry.

Integrated energy: Explore gas-and-power complementary application technology based on the connection between natural gas infrastructure and power facilities in China; vigorously develop integrated energy business, and plan to launch an integrated energy digital service platform for smart energy management.

Integrated services: Conduct research on gas equipment technology and energy upgrade technology, such as oxygen-enriched combustion and carbon removal.

New business areas: Promote the use of clean energy and carry out pilot projects on hydrogen production from renewable energy sources; use the efficient dual-fuel combustion technology for small ships to achieve the goal of reducing marine pollutant discharge and carbon emissions.

In addition, CR Gas plans to build a carbon asset financial management system, a carbon emission information management platform, a carbon emission and carbon trading supervision and management mechanism and a support service system, covering third-party verification agencies and IT support agencies for carbon emission management, with a view to implementing carbon emission reduction management in an all-round manner.



案例：廣東省普寧市紡織印染環保綜合處理中心分佈式能源項目 Case Study: Distributed Energy Project of Puning Textile Printing and Dyeing Environmental Comprehensive Treatment Centre in Guangdong Province

華潤燃氣汕頭公司助力普寧市紡織印染環保綜合處理中心園區，以生態環境治理與能源高效利用結合，兩期建設天然氣分佈式能源為1,021.35畝的園區供能。由於天然氣中S含量極低，且無粉塵含量，因此可忽略分佈式能源系統中的SO₂及粉塵排放。項目完全投運後，與常規供能方式相比，全年可減少CO₂排放量約21萬噸，減排率可達35%。

The regional company of CR Gas in Shantou helped Puning Textile Printing and Dyeing Environmental Comprehensive Treatment Centre build distributed energy systems in two phases to supply energy for the 1,021.35-mu industrial park by combining ecological environment treatment and efficient utilization of energy, with a focus on dyeing and printing. Since natural gas has very low sulphur content and no dust content, SO₂ and dust emissions in distributed energy systems are negligible. After the project is put into full operation, it can reduce CO₂ emissions by 210,000 tonnes or 35% a year compared with that of conventional energy supply.



甲烷逸散管理

華潤燃氣作為中國油氣企業甲烷控排聯盟的成員單位，密切跟進聯盟工作進度，不斷加強控排技術研發和大數據分析，持續投入資金和力量推進甲烷控排技術的應用。在輸配端和用戶端持續致力於甲烷逸散管控。

輸配端：華潤燃氣在LNG、CNG場站設計環節，融入BOG回收、排污回收等工藝設計，實現系統零排或微排；在管網管理上推廣應用不停輸技術，減少不必要的甲烷放散，同時加強調壓設施維保，盡量避免超壓放散；在管網巡檢、施工監護等工作中，通過燃氣管網在線洩漏監測等智慧化手段，提高甲烷逸散預警能力，減少管網甲烷的排放。

Methane Escape Management

As a member of the Methane Emission Control Alliance of Chinese Oil and Gas Enterprises, CR Gas closely follows the work progress of the alliance, constantly strengthens the research and development of emission control technologies and big data analysis, and continuously invest funds and efforts to promote the application of methane emission control technologies. It is committed to methane escape control at the transmission & distribution end and the user end.

Transmission & distribution end: In the design of LNG and CNG stations, CR Gas integrates BOG recycling, sewage recycling, and other processes to achieve zero or minimum emission of the system. In pipeline network management, it promotes the application of non-stop transmission technology to reduce unnecessary fugitive methane emissions. At the same time, it puts more efforts into the maintenance of pressure regulating facilities and avoids overpressure emission as much as possible. In pipeline network inspection, construction monitoring and other works, it enhances the early warning ability of methane escape to reduce methane emissions from the pipeline network through intelligent means such as online leakage monitoring of gas pipeline network.

用戶端：華潤燃氣通過應用灶具連接專用軟管、自閉閥等本質安全設備設施，在管理上提高入戶安檢率，增強用戶安全用氣意識；採用激光檢測儀對戶外公共管道進行檢測，全力降低用戶端甲烷逸散的可能性。

User end: CR Gas increases the indoor safety inspection rate and enhances users' awareness of safe gas use through management means using special hoses for stove connection, self-closing valves and other intrinsic safety equipment and facilities. It uses laser detectors to inspect outdoor public pipelines to minimize the possibility of methane escape at the user end.

對於燃氣輸配系統甲烷逸散不可監測的情況，華潤燃氣積極探索燃氣管網甲烷洩漏監測技術研發和應用，目前已開展PPB量級甲烷檢測技術和設備的應用。

To address the issue of unmonitorable methane leakage in the gas transmission & distribution system, CR Gas actively explores the development and application of methane leakage monitoring technology in the gas pipeline network, and has carried out the application of PPB-level methane detection technology and equipment.

案例：減少甲烷排放 Case Study: Reducing Methane Emissions

華潤燃氣鄭州分公司在管網改造維修中，推廣不停輸技術應用後，每年減少天然氣對空放散35萬Nm³，減排效果明顯。

In the pipeline network renovation and maintenance, CR Gas Zhengzhou Branch promotes the application of non-stop transmission technology and can reduce the release of natural gas into the air by 350,000 Nm³ every year after the application of non-stop transmission technology, representing a significant emission reduction effect.



不停輸技術應用

The Application of
Non-stop Transmission



案例：BOG回收發電項目

Case Study: BOG Recycling Power Generation Project

長春華潤液化天然氣公司在滿負荷生產情況下，BOG放空量約為200Nm³/h，放空氣體中甲烷含量佔比54-66%，直接排放至大氣，一方面污染環境，另一方面造成氣耗增加。項目利用放空回收氣作為燃料，通過400kW燃氣發電機組輸出電能、餘熱，降低工廠電能、熱能成本，同時避免甲烷排放。

At full production capacity, Changchun China Resources LNG Co., Ltd. releases 200 Nm³ BOG into the air per hour, of which 54-66% is methane. The direct release into the air not only pollutes the environment but also increases gas consumption. This project uses the gas recovered from the air as fuel to generate electric energy and waste heat through a 400kW gas-fired generation unit, so as to reduce the cost of electric energy and heat energy of the plant, while preventing methane emissions at the same time.



BOG回收發電

BOG Recycling Power Generation Project

4.3 污染防治

華潤燃氣嚴格遵守《中華人民共和國環境保護法》《建築項目環境保護管理條例》和《建設項目環境影響評價分類管理名錄》等相關法律法規，在公司內部宣貫《華潤燃氣全面做好生態環境保護工作方案》要求，積極部署開展生態環境保護工作。

4.3 PREVENTION AND CONTROL OF POLLUTION

CR Gas strictly abides by the Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》), Administrative Regulations on the Environmental Protection of Construction Projects (《建築項目環境保護管理條例》), Catalogue of Classified Management of Environmental Impact Assessment of Construction Projects (《建設項目環境影響評價分類管理名錄》) and other relevant laws and regulations, promotes and implements the requirements of the Work Plan of China Resources Gas for Comprehensive Environmental Protection within the Company, and actively carries out environment protection activities.

生態環境影響評估及應對

華潤燃氣要求所有項目在施工前，出具由第三方評估單位提供的環境和社會影響評估報告，並得到政府批示，方可開展項目。除此之外，在項目建設期間，實施「三同時」⁴制度，要求施工方嚴格執行環境影響評價批覆報告中關於廢棄物、污水、噪聲等方面的排放標準及污染防治措施，努力做到全方位避免對生態環境造成污染，保障生態系統的穩定性。

廢棄物管理

華潤燃氣按照「減量化、資源化、無害化」原則和環保管理要求，落實固體廢物的收集、處理和綜合利用，實現固體廢物全部綜合利用或安全處理。我們按照國家《危險廢物貯存污染控制標準》辨識重點產生危險廢棄物的環節及所屬公司，進行重點管控，納入考核管理。我們設置廠內危險廢棄物暫存場所，針對清管廢渣、過濾廢液、過濾器濾芯等危險廢棄物，全部委託有資質的單位進行回收處置或無害化處置，並且在轉移前辦理危險廢棄物轉移、交換批准手續。對於生活垃圾等固體廢棄物，委託環衛部門及時清運；施工棄土及時外運填埋，避免長期堆放產生二次污染。

此外，我們建立廢舊燃氣管道、到期燃氣表等回收利用機制，不斷優化生產設備工藝，從源頭減少廢棄物產生；加強設備維保，減少跑冒滴漏，延長設備使用壽命；加強可降解、回收包裝物的使用，減少包裝廢物。

Environmental Impact Assessment and Response

China Resources Gas requires each project to issue an environmental and social impact assessment report provided by a third-party assessment agency and obtain government approval before the project is implemented. In addition, during the project construction period, the “three simultaneities” system⁴ must be applied and the construction contractor is required to strictly implement the emission standards and pollution prevention measures for waste, sewage and noise stated in the approved environmental impact assessment approval report to avoid pollution to the ecological environment and ensure the stability of the ecosystem in an all-round way.

Waste Management

CR Gas performs the collection, treatment and comprehensive use of solid waste in accordance with the principles of reduction, recycling and harmlessness and the requirements for environmental management, thus achieving the comprehensive use or safe treatment of solid waste. We identify key areas that generate hazardous waste and the companies they belong to in accordance with the Standard for Pollution Control of Hazardous Waste Storage (《危險廢物貯存污染控制標準》) issued by the state to carry out targeted management and control and incorporate them into assessment management. We have set up sites for temporary storage of hazardous waste in factories, and all hazardous waste including pigging waste, filtered waste liquid and filter elements is handed over to qualified agencies for recycling or neutralization. Before hazardous waste is handed over, the approval procedures for the transfer and exchange of hazardous waste must be completed. The sanitation department is commissioned to clear and transport solid waste such as domestic waste in a timely manner; the construction spoil is transported for landfill disposal in time to avoid secondary pollution caused by long-term stacking.

In addition, we have established recycling and reuse mechanisms for waste gas pipelines, expired gas meters, etc., and continuously optimize production equipment and processes to reduce waste generation at source. We strengthen equipment maintenance, reduce tap dripping and leakage and prolong the service life of equipment. We increase the use of degradable and recyclable packaging to reduce packaging waste.

4 三同時制度：同時設計、同時施工、同時投入的原則進行資源配備。

Three simultaneities system: The principle of simultaneous design, construction and production is adopted for resource allocation.



廢棄物管理目標

華潤燃氣將繼續維持目前危險（有害）廢棄物妥善處置率100%的目標；並致力於到2025年，固體（無害）廢棄物達標處置率達到100%並維持。

粉塵及污染物防治

我們嚴格遵循國家《大氣污染物綜合排放標準》，在減少粉塵飛揚方面採取多項緩解措施。在施工現場設置圍欄或圍牆，土方運輸時加蓋擋板，合理堆放建築材料，建立灑水噴淋系統，減少施工過程中的揚塵、粉塵、廢氣等大氣污染物對周圍環境的影響。

水資源管理

華潤燃氣從設計源頭優化用水系統，推廣應用節水器具，安裝雨水、生產用水（如消防噴淋）收集設施，循環用水，達到節水目的，提高用水效率。同時，開展節水宣傳工作，增強員工的水資源危機意識和節水觀念。報告期內，本集團在日常營運中並無出現任何用水問題。

我們亦重視廢水排放管理，對於在管溝開挖、施工現場產生的廢水以及施工人員生活污水，設置配套預處理設施，經處理達標後排入市政污水管網，做好水土保持工作，不影響當地農業生態和植被，減輕對生物多樣性的影響。

水資源使用目標

到2025年，華潤燃氣用水強度（報告期萬元營業收入用水量）相比2020年減少15%。

Waste Management Target

CR Gas will maintain the current target of 100% proper disposal rate for dangerous (hazardous) waste, and is committed to achieving and maintaining 100% compliant disposal rate for solid (non-hazardous) waste by 2025.

Prevention and Control of Dust and Pollutants

We strictly abide by the Integrated Emission Standard of Air Pollutants issued by the state and take a number of measures to reduce dust flying. We set up fences or walls at construction sites, cover with shields during earth and stone transportation, reasonably stack building materials, and establish sprinkler systems to reduce the impact of dust, waste gas and other air pollutants on the surrounding environment during construction.

Water Resource Management

CR Gas optimizes the water system from the source step of design, promotes the application of water-saving appliances, installs rainwater and production water (such as fire sprinkler) collection facilities, recycles water, and improves water efficiency to save water. At the same time, it carries out water-saving publicity to enhance employees' awareness of water resource crisis and water-saving mentality. During the Reporting Period, the Group did not have any problems in sourcing water in its daily operations.

We also put emphasis on the management of wastewater discharge. Pre-treatment facilities are set up to treat wastewater generated from trench excavation and construction sites and domestic sewage of construction workers before such wastewater is discharged into the municipal sewage network, and soil and water conservation work is carried out to avoid affecting the local agro-ecology and vegetation and mitigate the impact on biodiversity.

Water Use Target

By 2025, the water intensity (water consumption per RMB10,000 of operating revenue during the reporting period) of CR Gas will be reduced by 15% compared to 2020.

		單位	Unit	2021	2020
水資源耗用量	Water consumption	噸	tonne	1,483,700	1,368,613
用水強度	Water consumption intensity	噸／每萬港元營業收入	tonne/HK\$10,000 of operating revenue	0.190	0.245

噪音及光污染治理

對於施工噪音，我們嚴格執行國家《建築施工邊界環境噪聲排放標準》所規定的限值，明確要求夜間10點至凌晨6點不得從事高噪聲機械作業；施工期對高噪聲設備周圍設置隔聲屏蔽，優先選用低噪聲的施工設備，避免對市區施工地周遭居民和非市區施工地附近的動物及其生態環境產生影響。

4.4 綠色宣教

華潤燃氣從多方面踐行綠色低碳發展理念，加強綠色理念倡導與宣傳，提升員工綠色低碳意識。

綠色辦公：推進辦公區域節能節電，提倡無紙化辦公，實現信息管理系統全覆蓋，提高辦公效率；提高辦公用品利用率，取消一次性用具和包裝；日常盡可能採用線上會議與線上培訓，降低通勤差旅排放。

綠色交通：積極倡導綠色低碳出行，在基礎設施和交通工具中廣泛應用大數據、5G、人工智能等創新技術，推動構建電氣化、智能化和共享的交通系統，向電力和氫能等低碳能源轉型；在公共領域全面推廣新能源汽車，推進充電樁、換電站、加氫站建設。

綠色建築：計劃未來辦公建築用能通過綠色電力供應；通過翻新和使用高質量的建築材料延長建築使用壽命，降低建築的隱含能耗。

Noise and Light Pollution Control

For construction noise, we strictly follow the limits prescribed in the Emission Standard of Environment Noise for Boundary of Construction Site issued by the state, and clearly stipulate that high-noise mechanical operations are not allowed from 10:00 PM to 6:00 AM. During the construction period, we will set up a sound insulation enclosure around high-noise equipment, and give priority to using low-noise construction equipment to reduce the impact on surrounding residents for an urban construction site or nearby animals and the ecological environment they inhabit for a non-urban construction site.

4.4 PROMOTION AND EDUCATION OF GREEN DEVELOPMENT

CR Gas puts into practice the concept of green and low-carbon development in many aspects, and strengthens the advocacy and publicity of green development concept to enhance employees' awareness of green and low-carbon development.

Green office: We promote energy saving in office areas, advocate paperless office, and achieve full coverage of information management system to improve office efficiency; attain the efficient use of office supplies and eliminate disposable articles and packaging; use online meetings and online training as much as possible in daily operations to reduce emissions from commuting and travel.

Green transport: We advocate green and low-carbon travel, widely apply big data, 5G, artificial intelligence and other innovative technologies in infrastructure and transportation, promote the construction of electrified, intelligent and shared transportation systems, and facilitate the transition to low-carbon energy such as electricity and hydrogen energy; promote new energy vehicles in the public sector, and advance the construction of charging piles, battery swap stations, and hydrogen refuelling stations.

Green building: We plan to supply green power to future office buildings; carry out renovation works and use premium building materials to extend the service life of buildings and reduce the implied energy consumption of buildings.



4.5 環境績效指標表現

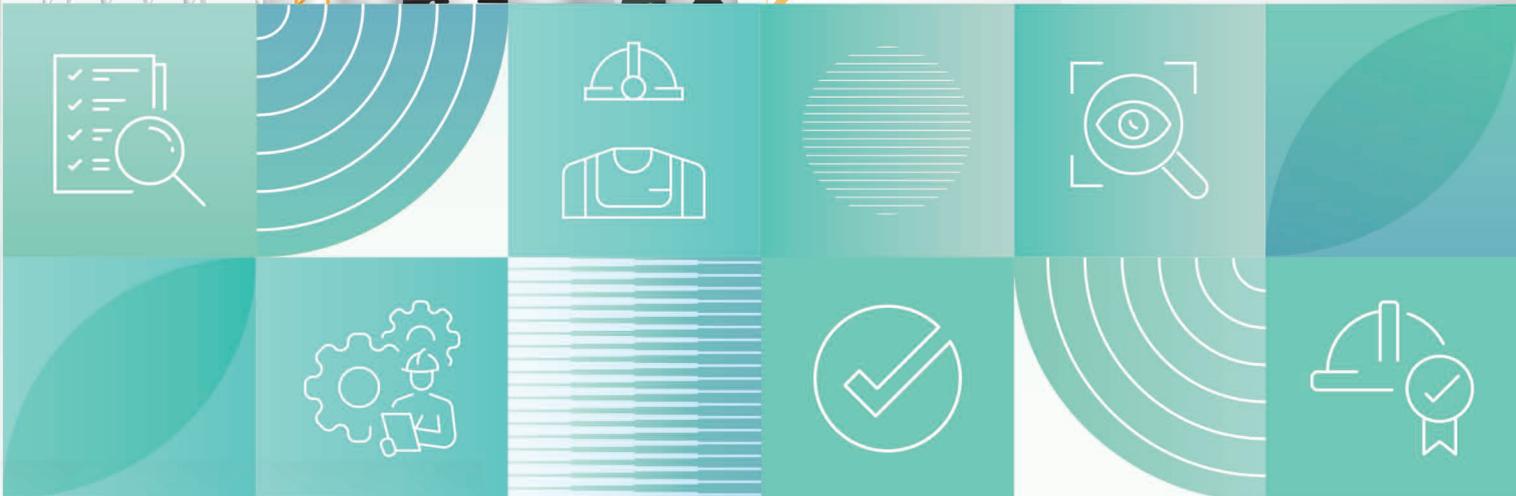
4.5 PERFORMANCE OF ENVIRONMENTAL PERFORMANCE INDICATORS

排放物種類	Type of emissions	單位	Unit	2021	2020	2019	2018
溫室氣體排放總量	Total greenhouse gas emissions	噸二氧化碳當量	tonnes CO ₂ e	145,608.5	202,226.577	243,086.402	252,784.778
溫室氣體排放密度	Greenhouse gas emission density	噸二氧化碳當量/ 億港元營業額	tonnes CO ₂ e/ revenue of HK\$'00 million	0.0186	0.0362	0.0435	0.0494
SOx排放總量	Total SOx emissions	千克	kg	96.06	92.43	96.59	115.23
資源種類	Type of resources	單位	Unit	2021	2020	2019	2018
柴油消耗量	Diesel consumption volume	噸	tonnes	852.92	816.520	987.53	1,200.034
汽油消耗量	Gasoline consumption volume	噸	tonnes	3,917.10	3,892.130	3,910.35	4,549.886
天然氣消耗量	Natural gas consumption volume	萬標準立方米	'0,000 standard m ³	966.323	839.670	954.996	961.229
外購電力消耗量	Externally purchased power consumption volume	萬千瓦時	'0,000 kWh	18,952.555	17,921.937	22,014.732	22,083.148
綜合能源消耗折標煤總量	Total overall energy consumption (converted to standard coal)	萬噸標煤	'0,000 tonnes of standard coal	4.315	4.0116	4.6947	4.8368
柴油消耗密度	Diesel consumption density	噸/億港元營業額	tonnes/revenue of HK\$'00 million	1.091	1.462	1.769	2.345
汽油消耗密度	Gasoline consumption density	噸/億港元營業額	tonnes/revenue of HK\$'00 million	5.011	6.967	7.003	8.893
天然氣消耗密度	Natural gas consumption density	萬標準立方米/ 億港元營業額	'0,000 standard m ³ / revenue of HK\$'00 million	1.236	1.503	1.710	1.879
外購電力消耗密度	Externally purchased power consumption density	萬千瓦時/ 億港元營業額	'0,000 kWh/revenue of HK\$'00 million	24.244	32.081	39.428	43.160
綜合能耗折算標煤密度	Overall energy consumption density (converted to standard coal)	萬噸標煤/ 億港元營業額	'0,000 tonnes of standard coal/ revenue of HK\$'00 million	0.0055	0.0072	0.0084	0.0095
燃氣具包裝材料	Packaging materials of gas appliances	噸	tonnes	1,208.03	957	387.60	374.48



強化管理 保障 運營安全

Reinforced Management
To Secure Operational Safety



5

強化管理 保障運營安全

Reinforced Management to Secure Operational Safety

華潤燃氣堅持將安全管理理念貫徹至企業生產運營的各方面，不斷完善企業內部的健康安全政策制度，致力於構建完善的安全網絡，保障員工的職業健康與安全，保障生產經營安全，為所有利益相關方創造一個安全的環境。

5.1 構建安全管理體系

本集團嚴格遵守《中華人民共和國安全生產法》《中華人民共和國消防法》及《中華人民共和國職業病防治法》等國家法律法規和行業標準，制定並修繕了《華潤燃氣EHS管理體系文件》《華潤燃氣崗位EHS責任制度》和《華潤燃氣EHS責任追責制度》《華潤燃氣EHS應急管理指引》《華潤燃氣安全生產事故綜合應急預案》等安全制度，明確EHS責任和指導員工遵守內部規定，落實各項安全管理與風險防控工作。

安全目標與責任：我們與所屬企業簽訂安全生產責任書，以「追求零事故，超越零責任」為目標，將安全生產責任分解至各級單位與崗位。在不斷完善職業健康管理制度的同時，我們設立安全專項檢查，對有毒有害作業場所進行建檔、分級管理及檢測，定期組織員工進行健康檢查，保障員工職業健康。

相關方安全管理：針對相關方成員，華潤燃氣制定《相關方安全管理制度》，明確公司的職業健康與安全政策同樣適用於外部供應商和承包商，設立相關方准入門檻，將職業健康安全納入資格預審評分項目，定期組織檢查考核，並從安全職責、目標管理、監督考核等方面對全過程進行管理。

CR Gas adheres to implementing safety management concepts into all aspects of production and operation of the enterprise, constantly improving internal corporate health and safety policies and systems, and is committed to building a sound safety network to protect the occupational health and safety of employees and safeguard production and operational safety, so as to create a safe environment for all stakeholders.

5.1 ESTABLISHMENT OF SAFETY MANAGEMENT SYSTEM

The Group strictly complies with national laws and regulations and industrial standards, such as Work Safety Law of the People's Republic of China (《中華人民共和國安全生產法》), Fire Protection Law of the People's Republic of China (《中華人民共和國消防法》) and Law of the People's Republic of China on the Prevention and Treatment of Occupational Diseases (《中華人民共和國職業病防治法》). We have formulated and improved the safety systems of CR Gas EHS Management System Document (《華潤燃氣EHS管理體系文件》), CR Gas Job EHS Accountability System (《華潤燃氣崗位EHS責任制度》), CR Gas EHS Accountability System (《華潤燃氣EHS責任追責制度》), CR Gas EHS Emergency Management Guidelines (《華潤燃氣EHS應急管理指引》) and CR Gas Comprehensive Emergency Response Plans for Safe Production Incidents (《華潤燃氣安全生產事故綜合應急預案》), clarified EHS responsibilities and guided employees to comply with internal regulations, and implemented various safety management and safety risk prevention and control tasks.

Safety Goals and Responsibilities: We sign with subordinate enterprises the responsibility document for safe production, with a view to achieving the goals of preventing accident and not to incur liability. All levels of units and positions assume their respective responsibility for safe production. In addition to constantly improving the occupational health management system, we set up special safety inspection, file, classify, manage and detect toxic and harmful workplaces, and conduct regular health checks for employees to ensure their occupational health.

Safety Management of Related Parties: For members of related parties, CR Gas formulates the Safety Management System for Related Parties, makes clear that the occupational health and safety policies of the Company are also applicable to external suppliers and contractors, sets the entry threshold for relevant parties, includes occupational health and safety in the pre-qualification scoring items, carries out regular inspections and assessments, and conducts management from the aspects of safety responsibility, target management, supervision and assessment throughout the process.



案例：華潤燃氣組織開展安全大排查工作 Case Study: Safety Overhaul of CR Gas

2021年11月，華潤燃氣組織開展了安全大排查工作，主要針對相關方管理，包括制度落實，危險作業管理，安檢管理以及應急管理等方面，涵蓋安檢、抄表、巡線、場站運行、物業等16項主要業務。同時為更好的督促整治工作，加大管理力度，華潤燃氣開發了安全專項整治填報系統，督促成員公司進行填報並對所有隱患進行閉環管理。

In November 2021, CR Gas carried out a safety overhaul with a focus on the management of relevant parties, including the implementation of measures, hazardous operations management, safety inspection management and emergency management, covering 16 key business activities including safety inspection, meter reading, line patrol, station operation and property management. Meanwhile, in order to better supervise rectification efforts and strengthen management, we developed a safety rectification reporting system and urged member companies to report and conduct closed-loop management of hidden dangers.



相關方安全大排查
Safety Overhaul with Relevant Parties

安全管理體系認證：我們積極開展職業健康管理體系認證工作。2021年，共有76家公司獲得ISO45001認證；66家公司獲得安全生產標準化認證，認證等級為二級及以上的公司為22家。

報告期內，華潤燃氣沒有違反職業健康與安全相關的法律法規。2021年全年未發生較大及以上人身傷亡事故、設備事故、火災事故。

Safety Management System Certification: We actively carry out occupational health management system certification. In 2021, a total of 76 companies obtained ISO45001 certification; 66 companies obtained the safe production standards certification, with 22 companies at certification level 2 or above.

During the reporting period, CR Gas did not violate any laws and regulations related to occupational health and safety. There were no major or serious casualties, equipment accidents and fire accidents in 2021.

5.2 提升安全技能

為提升員工安全意識、增強企業安全文化認同感，華潤燃氣為員工提供多元的安全培訓計劃與課程，通過開展安全知識宣貫、競賽等活動，提高各層級員工的EHS素質和能力，進一步保障員工職業健康安全。

5.2 IMPROVEMENT OF SAFETY SKILLS

In order to boost employees' safety awareness and their recognition of corporate safety culture, CR Gas provides employees with a variety of safety training schemes and courses. We enhance the EHS quality and capabilities of employees at all levels through activities such as safety knowledge publicity and competition to ensure the occupational health and safety of employees.

案例：開展長效全員安全教育培訓工作

Case Study: Long-term Safety Education and Training for Employees

為持續提升華潤燃氣各級管理人員安全管理水平和一線作業人員業務能力，華潤燃氣安全管理部聯合人力資源部學創中心，依託華潤集團EHS管理系統培訓模塊，開展長效全員安全教育培訓，第一階段主要面向區域公司負責人、業務分管副總、安全及業務部門負責人，第一階段全部區域公司累計參與560人次，平均分數93分，參與率88.6%。

In order to continuously improve the safety management capabilities of managers at all levels and the professional ability of front-line personnel of CR Gas, the Safety Management Department of CR Gas worked with the Learning and Innovation Centre of Human Resources Department to carry out long-term safety education and training for employees, based on the training module of China Resources Group's EHS management system. The first phase of training primarily targeted persons in charge of regional companies, deputy managers in charge of business lines and persons in charge of safety and business departments. The first phase of the training recorded a total attendance of 560 from regional companies, with an average score of 93 points and a participation rate of 88.6%.

案例：組織員工參加2021年全國安全知識網絡答題競賽

Case Study: Arranging Employees to Participate in the 2021 National Online Quiz on Safety Knowledge Competition

華潤燃氣結合安全生產月活動安排，積極發動員工參與「測測你的安全力」—全國安全知識網絡答題競賽。從6月1日至6月30日，華潤燃氣共計15,528人參賽，總積分為1,270,577分，位列華潤集團各業務單元第一名。

On the basis of the arrangements of the Safe Production Month, CR Gas motivated employees to participate in the National Online Quiz on Safety Knowledge Competition with the theme of Test Your Safety Power. From 1st June to 30th June, a total of 15,528 personnel from CR Gas participated in the competition and got a total score of 1,270,577, ranking first among all business units of China Resources Group.



為確保員工的健康安全，華潤燃氣為員工配備個人防護裝備，並定期為全體員工安排健康檢查；對任職高危崗位的員工實行輪替和強制休假；設置專職人員負責安全檢查等，如季度安全標兵和安全人員，以調動更多員工投身安全建設工作。

2021年，公司在安全培訓方面共投入2,804.77萬港元，開展安全培訓740,816小時，共計338,874人次參與，安全培訓覆蓋率達100%。

To ensure the health and safety of employees, CR Gas prepares employees with personal protective equipment and arranges regular health checks for all employees, implements rotary and compulsory leave for employees holding high-risk positions; sets up full-time personnel responsible for safety inspection and other work such as quarterly safety guards and safety personnel, in order to motivate more employees to participate in safety initiatives.

In 2021, the Company invested HK\$28,047,700 in conducting 740,816 hours of safety training sessions, with a total attendance of 338,874 and coverage of safety training up to 100%.

		單位 Unit	2021	2020	2019
安全培訓投入	Safety training investment	萬港元 HK\$'0,000	2,804.77	2,194	2,246
安全培訓總時數	Total hours of safety training	小時 Hour	740,816	699,939	596,897
安全培訓參與人次	Attendance of safety training	人次 Attendance	338,874	273,253	263,187
安全培訓覆蓋率	Coverage of safety training	百分比 %	100	100	100

5.3 強化安全監察及應急管理

華潤燃氣高度重視安全生產，制定完善的安全制度體系及指引，指導安全生產有序進行；定期開展各項安全檢查活動，以排除生產過程中可能出現的各項風險；組織多元化安全培訓及宣貫活動，提升安全軟實力，充分保障員工健康與安全。

安全審核

本公司高度重視安全檢查，持續優化分級分類審核機制，定期開展安全審核工作。對於安全審核結果相對較差的成員公司，我們會有針對性地進行對口幫扶提升。2021年，華潤燃氣共抽調413人次，對8個大區79家區域公司進行安全審核，下發高風險隱患糾正預防通知書486份，明確了整改對象和標準並督促落實整改，提升了安全管理水平。

5.3 STRENGTHENING SAFETY SUPERVISION AND EMERGENCY RESPONSE MANAGEMENT

CR Gas attaches great importance to safe production, and has formulated a complete set of safety measures and guidelines to guide orderly safe production. We regularly carry out safety inspections to eliminate risks that may arise in the production process, and conduct a variety of safety training and publicity activities to boost our soft power in safety and protect the health and safety of employees.

Safety Audits

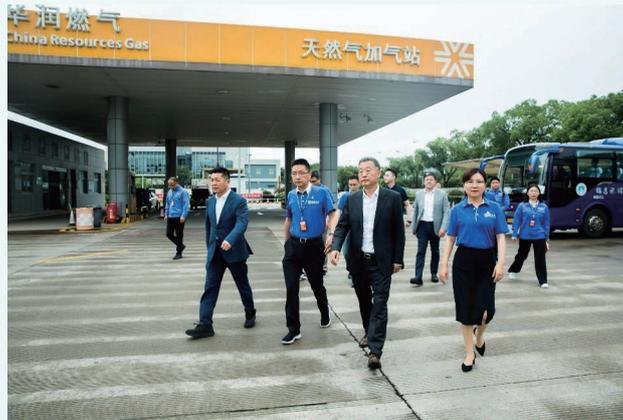
The Company takes safety inspections very seriously, continuously enhances the hierarchical and classified audit mechanism, and regularly conducts safety audits. For member companies with relatively poor safety audit results, we will provide targeted support to help them make improvements. In 2021, CR Gas dispatched 413 personnel to conduct safety audits on 79 regional companies in 8 regions, and issued 486 notices on correction and prevention of high-risk hidden dangers to clarify the rectification objects and criteria and supervise the implementation of the rectification items, thus improving safety management.

案例：華潤集團董事長王祥明赴蘇州華潤燃氣開展安全督導檢查

Case Study: China Resources Group Chairman Wang Xiangming Conducted Safety Supervision and Inspection on Suzhou China Resources Gas

6月19日，華潤集團董事長王祥明一行赴蘇州華潤燃氣開展安全督導檢查。在蘇州華潤燃氣綜合能源產業園，王祥明董事長到訪了園內L-CNG加氣站及充電站、LNG應急調峰站等地，對其採取的安全措施和安全保供工作進行了現場檢查，調研了部分新技術和系統的使用情況。

On 19th June, Mr. Wang Xiangming, Chairman of China Resources Group, and his delegation went to conduct safety supervision and inspection on Suzhou China Resources Gas. In the Integrated Energy Industrial Park of Suzhou China Resources Gas, Chairman Mr. Wang Xiangming visited the L-CNG filling station, EV charging station, and LNG emergency peak shaving station, conducted on-site inspection on the safety measures and assurance measures for safety supplies adopted, and investigated the use of some new technologies and systems.



王祥明董事長在蘇州華潤燃氣開展安全督導檢查

Chairman Mr. Wang Xiangming Conducted Safety Supervision and Inspection on Suzhou China Resources Gas



案例：開展2021年度「安全生產月」活動暨安全大檢查活動 Case Study: 2021 Safe Production Month and Major Safety Inspection

華潤燃氣總部於2021年5月20日發佈《關於開展2021年度安全生產月活動暨安全大檢查的通知》。各區域公司和成員企業圍繞「落實安全責任，推動安全發展」的活動主題，結合華潤燃氣年度EHS工作安排和常態化疫情防控要求，開展了深入學習貫徹落實習近平總書記關於安全生產重要論述、持續推進「安全生產專項整治集中攻堅戰」和「涉穩安全風險專項整治」、開展事故警示教育與安全宣傳、危險作業專項整治、安全生產應急救援演練和安全特色活動等6大系列活動內容。

On 20th May 2021, CR Gas issued the Notice on the 2021 Safe Production Month and Major Safety Inspection (《關於開展2021年度安全生產月活動暨安全大檢查的通知》). Under the theme of Performing Safety Responsibilities and Promoting Safe Development, regional companies and member companies, based on the annual EHS arrangements of CR Gas and regular epidemic prevention and control requirements, conducted in-depth study on implementation of General Secretary Xi Jinping's important expositions on safe production, continued to promote the Special Rectification of Safe Production and Special Rectification of Safety Risks Related to Stability, and carried out six series of activities, including accident warning education and safety publicity, special rectification of dangerous operations, emergency rescue drills for safe production, special safety activities, etc.



滄州公司開展安全督導檢查
Safety Supervision and Inspection Conducted on Cangzhou Company



達州區域學習《生命重於泰山》專題片
Study of the Feature Film Life is More Important Than Mount Tai in Dazhou



景德鎮公司開展安全宣傳進校園活動
Campus Safety Publicity
Conducted by Jingdezhen Company

安全应急管理

華潤燃氣編製了《生產安全事故綜合應急預案》《突發環境事件綜合應急預案》《生產安全事故管理制度》等，下屬單位建立了三級預案體系，包括生產安全事故綜合應急預案、專項應急預案（21個）、現場處置方案（53個），以應對生產、環保、職業健康等方面發生的各類緊急事件。華潤燃氣及下屬單位通過加強監測預警和應急指揮，不斷完善應急物資和裝備的配備，持續強化應急救援隊伍建設，定期開展員工應急培訓和演練工作，不斷提升公司應急管理水平。

Safety Emergency Management

CR Gas has prepared the Integrated Emergency Response Plan for Production Safety Incidents (《生產安全事故綜合應急預案》), Integrated Emergency Response Plan for Environmental Emergency Events (《突發環境事件綜合應急預案》) and Management System for Production Safety Incidents (《生產安全事故管理制度》), etc. and subordinate units have established a three-tier emergency response system, including integrated emergency response plan for production safety incidents, special emergency response plans (21) and on-site handling plans (53) to address various types of emergencies in production, environmental protection and occupational health, etc. Through strengthened monitoring, early warning and emergency command, CR Gas and its subordinate units continuously improve the allocation of emergency supplies and equipment, incessantly strengthen team building for emergency rescue, and regularly carry out emergency training and drills for employees to boost the emergency response management standards of the Company on an ongoing basis.



5.4 創新安全技術

創新發展是我們迎接挑戰的動力，探索新技術的步伐不曾停止。公司通過大數據、物聯網、人工智能等新科技的利用，致力於實現智慧管理，以先進技術賦能安全高效運營。

5.4 SAFETY TECHNOLOGY INNOVATION

Innovative development is the driving force for us to meet challenges, and we have never stopped exploring new technologies. The Company strives to achieve intelligent management and safe and efficient operations by using advanced technologies such as big data, Internet of Things, artificial intelligence, etc.

案例：華潤燃氣「5G+智慧燃氣」項目 Case Study: "5G + Smart Gas" Project of CR Gas

華潤燃氣作為牽頭企業承擔了「5G+智慧燃氣」項目建設任務，旨在通過5G技術的運用，建立燃氣行業智慧5G標桿。

該項目全面覆蓋「氣源、工程、輸配、市場、服務」五大業務領域，打造全業務域的「5G+智慧燃氣」應用場景，替代了部分的傳統人工職能，如人眼識別、人工判斷和人工操作，實現遠程實時監測管理並提高應急處置效率。

項目已在大亞灣華潤燃氣、中山華潤燃氣、江門華潤燃氣等單位試點落地，新技術的運用能夠有效排除燃氣安全隱患，確保燃氣管網安全運行，提升社會安全指數。

CR Gas has led the "5G + Smart Gas" project which is designed to establish itself as a benchmark smart 5G initiative in the gas industry through the application of 5G technology.

The project covers the five business areas of gas source, engineering, transmission & distribution, marketing and service, creates "5G + Smart Gas" application scenarios across all business areas, replaces some traditional manual functions such as human eye recognition, manual judgment and manual operation, achieves remote real-time monitoring and management, and improves the efficiency of emergency response.

The project has been implemented with GBA China Resources Gas, Zhongshan China Resources Gas and Jiangmen China Resources Gas as pilot units. By applying new technologies, the project can help eliminate gas safety hazards, ensure the safe operation of gas pipeline network, and improve the safety of society.



5G+智慧場站
5G+ Smart Gas Station

未來，華潤燃氣將持續致力於新技術的開發與運用，推出更多安全產品，保障各利益相關方的健康與用氣安全。

5.5 宣傳安全知識

華潤燃氣積極組織各類安全教育活動，向員工及大眾普及安全知識，致力於提高全民安全用氣意識。我們動員各區域公司員工參與公司的相關活動，如「安全教育片觀看」、「安全知識學習」、「安全反思日」等，鼓勵員工與公司一起守護個人健康安全；我們同樣關心大眾用氣安全，不定期在微信公眾號等社交媒體平台開設「安全用氣大講堂」等專題，通過視頻、文字等多種形式普及燃氣安全知識，增強大眾燃氣安全風險防範意識。

In the future, CR Gas will continue to develop and apply new technologies and launch more safety products to ensure the health and gas safety of all stakeholders.

5.5 DISSEMINATION OF SAFETY KNOWLEDGE

CR Gas hosts various safety education activities to disseminate safety knowledge to employees and the public, in an effort to improve people's awareness of gas safety. We motivate employees of regional companies to participate in relevant activities of the Company, such as watching safety education films, safety knowledge learning, and safety reflection day, and encourage employees to work with the Company to protect personal health and safety; We are also concerned about public gas safety. For this end, we offer special broadcasts such as Lectures on Gas Safety on social media including WeChat Official Account from time to time to promote the knowledge of gas safety through videos, texts and other forms, so as to enhance the public awareness of gas safety and risk prevention.

案例：開展燃氣安全進企業宣講活動

Case Study: Corporate Gas Safety Promotion Event

10月27日下午大連華潤燃氣潤然先鋒隊來到大連華銳重工集團股份有限公司，開展第五期燃氣安全進企業宣講活動。本期活動設置1個主會場，6個分會場，覆蓋200餘人次。在宣講中，燃氣安全講師為大家講解燃氣安全知識，主要通過事故分析、節能罩的危害、燃氣洩漏檢測方法、報警器的安裝使用以及燃氣洩漏應急處理措施等方面，為重工集團的員工們普及燃氣安全知識，講解過程大家積極互動，活動獲得了顯著效果。

On the afternoon of 27th October, the vanguard team of Dalian CR Gas went to Dalian Huarui Heavy Industry Group Co., Ltd. (DHHI) to carry out the fifth corporate gas safety promotion event. The event was held in one main venue and 6 sub-venues with a total attendance of more than 200. During the promotion, our gas safety lecturers imparted gas safety knowledge to the employees of DHHI, primarily covering accident analysis, the harm of energy-saving shields, gas leak detection methods, installation and use of alarms, and emergency response measures for gas leak. In the process of lecturing, the participants actively interacted with each other, and the event achieved good results.



大連安全宣講會現場
Safety Promotion in Dalian



5.6 安全績效指標表現

5.6 PERFORMANCE OF SAFETY PERFORMANCE INDICATORS

		單位 Unit	2021	2020	2019
安全生產投入	Investment in safe production	萬港元 HK\$'0,000	70,645	62,445	63,923
安全應急演練次數	Number of safety emergency response drills conducted	次 Number of times	4,278	3,052	2,885
安全生產事故次數	Number of safe production accidents	次 Number of times	0	0	0
員工傷亡人數	Employee fatalities	人 Person	0	0	0
因工傷損失工作日數	Work days lost due to injury	天 Day	0	未披露 Undisclosed	未披露 Undisclosed
安全管理人員持證人數	Number of licensed safety management personnel	人 Person	3,513	2,321	2,685
註冊安全工程師人數	Number of registered safety engineers	人 Person	1,003	958	935
損失工作日事故率 (LTIFR)-員工	Lost time injury frequency rate (LTIFR)- Employee	%	0	未披露 Undisclosed	未披露 Undisclosed
損失工作日事故率 (LTIFR)-承包商	Lost time injury frequency rate (LTIFR)- Contractor	%	0	未披露 Undisclosed	未披露 Undisclosed



以人為本 與員工共成長

Being People-Oriented
and Growing with
Employees Together



6

以人為本 與員工共成長

Being People-Oriented and Growing with Employees Together

華潤燃氣業務的成功是基於我們對員工權益的全力支持和保障。我們始終堅持「以人為本」，善待員工的責任理念，秉承「尊重人的價值、開發人的潛能、升華人的心靈」的宗旨，充分考慮人才的多元化和機會平等，堅持構建多元化企業文化，為員工打造包容、開放和多元的工作環境，提供科學完善的培訓及多元發展平台；打造貼心暖心的人文關懷環境，營造幸福和諧的工作氛圍，攜手員工共同成長。

The success of CR Gas business lies in our full support for and protection of employees' rights and interests. We always adhere to the responsibility concepts of being people-oriented and treating employees well and the purposes of respecting people's value, developing people's potential and sublating people's soul, fully consider the diversity of talents and equal opportunities, and adhere to the creation of a diverse corporate culture. We create an inclusive, open and diverse working environment for our employees, provide a scientific and perfect training and diverse development platform, create a considerate and warm humanistic care environment, as well as a happy and harmonious working atmosphere, and grow together with our employees.

表 集團的員工數據

Table The Group's Employee Data

		2021年		2020年		2019年	
		僱員人數	流失率(%)	僱員人數	流失率(%)	僱員人數	流失率(%)
		Number of Employees	Turnover Rate (%)	Number of Employees	Turnover Rate (%)	Number of Employees	Turnover Rate (%)
總數	Total	52,354	3%	48,205	5%	48,570	5%
男	Male	34,030	3%	31,236	4%	33,028	4%
女	Female	18,324	2%	16,969	6%	15,542	6%
20-30歲	20-30	8,473	6%	8,689	6%	10,703	7%
31-40歲	31-40	21,808	2%	19,410	3%	17,452	3%
41-50歲	41-50	16,392	2%	13,670	2%	14,478	2%
50歲以上	Above 50	5,681	2%	6,436	17%	5,937	15%
管理層員工	Management-level staff	1,777	1%	1,097	4%	1,111	4%
中層員工	Middle-level staff	3,581	1%	2,969	2%	3,137	3%
基層員工	Elementary staff	46,996	3%	44,139	5%	44,322	5%
北方大區	Northern areas	3,462	3%	3,573	7%	3,920	8%
中西大區	Midwest areas	7,325	3%	7,688	4%	8,565	4%
華北大區	North China	6,931	2%	8,767	3%	8,739	2%
華中大區	Central China	3,771	3%	3,304	4%	3,638	8%
華東大區	East China	4,924	4%	4,914	5%	5,534	5%
東南大區	Southeast areas	4,281	4%	4,507	5%	4,993	5%
西南大區	Southwest areas	6,629	2%	6,285	4%	6,874	5%
華南大區	South China	3,855	6%	3,874	6%	4,400	8%
其他地區	Other areas	11,176	2%	5,293	9%	1,907	6%



6.1 助力人才發展

時代高速發展，科技日新月異，我們時刻保持危機感，深知唯有不斷地學習進步才能使員工及企業保持可持續發展源動力。華潤燃氣持續加大培訓資源的投入，面向新入職員工、專業崗位員工及中高層管理人員，均設定了科學系統的培訓體系和多元化的系列培訓課程，同時着力建立公平、公正的用人機制，提供完善的員工職級晉升通道。

持續完善人才梯隊建設培養體系

本集團不斷修繕《培訓管理制度》，根據集團和成員公司的需求制定按職級劃分的年度培訓計劃和目標，制定公司整體年度培訓計劃表的內容，包括培訓項目、形式、主題、對象和費用等。

2021年，我們根據「藍焰」全序列人才培養體系和人才發展地圖，從M—管理序列、P—專業序列、S—操作序列、N—新人序列四大序列開展人才培養：

- **M序列：**按照華潤燃氣管理序列人才培養規劃，2021年第一期華潤燃氣年輕經理人培訓班順利完成，共計畢業學員43人，通過組織學習行動研討等形式，形成優秀區域人才畫像和發展模型1個、十四五專項規劃優化建議47條、推動落實十四五專題報告44篇、策論研究課題成果6個，不斷完善管理序列人才培養體系。
- **P序列：**按照華潤燃氣專業序列課程，通過推動人力資源、財務、市場、工程物資、法律、安全輸配等專業序列課程開發、講師培養及上線工作，輸出21名講師、開展培訓1,011人次、共完成114門課程及上線工作，推動建設專業序列職業發展通道。

6.1 SUPPORTING TALENT DEVELOPMENT

With the rapid development of the era, science and technology are changing with each passing day. We have always maintained a sense of crisis, as only by continuous learning and progress can we maintain the driving force of sustainable development of employees and enterprises. CR Gas has continuously increased its investment in training resources, and set up a scientific and systematic training system and a diverse series of training courses for new employees, professional employees and middle and senior managers. At the same time, the Group has strived to establish a fair and just employment mechanism, providing a sound promotion channel for employees.

Continuous Improvement of Talent Echelon Construction and Cultivation System

The Group has continuously improved the Training Management System. According to the needs of the Group and its member companies, the Group has formulated annual training plans and targets by employment categories, and formulated the overall annual training schedule of the Company, including the schemes, forms, subjects, targets and costs of training.

In 2021, we carried out personnel training from four sequences according to the Blue Flame full sequence talent training system and talent development roadmap: M-management sequence, P-professional sequence, S-skill sequence, and N-new employee sequence:

- **M sequence:** According to the personnel training plan of CR Gas for management sequence, the first phase of Young Manager Training Course of CR Gas in 2021 was successfully completed with a total of 43 graduates. During the course, we, by hosting learning seminars and other activities, developed one excellent regional personnel profiling and development model, collected 47 pieces of advice on improving the 14th Five-Year Plan, generated 44 special reports on the implementation of the 14th Five-Year Plan, and completed 6 policy research projects, in an effort to constantly improve the personnel training system of management sequence.
- **P sequence:** According to the professional sequence courses of CR Gas, we, by promoting lecturer training and the development and launch of professional sequence courses covering human resources, finance, marketing, engineering materials, law, and safe transmission and distribution, trained 21 lecturers, carried out training sessions with a total attendance of 1,011, and developed and launched 114 courses, thus help building career development pathways for professional sequence.

- S 序列：**秉承不斷提升員工技能的原則，2021年我們通過開展培養認證、完善考核機制、推行電子證書等工作，完成79名大區級考評員培養認證，輸出4,471份電子證書，基本完成實操培訓基地建設指引的編製工作，保障華潤燃氣職業技能標準建設及職業技能等級認證資質申請。
- N 序列：**華潤燃氣為加強燃氣新生力量的培養工作，2021年，我們通過建立新人素質模型，舉辦華潤「未來之星」訓練營燃氣營等方式，圍繞華潤燃氣「1+2+N」十四五戰略規劃開展教學，打造了「1+2+N」實景教學基地，與媒體及高校建立「大思政課」青年教育實踐基地，實現了營員專屬檔案的建立，助力建設新員工的成長平台。
- S sequence:** CR gas upholds the principle of improving the skills of employees. In 2021, we completed the training and certification of 79 assessors in different regions and issued 4,471 electronic certificates by carrying out training and certification activities, improving the assessment mechanism and introducing electronic certificates. We basically completed the preparation of guidelines for the construction of practical training bases, and ensured the development of standards for vocational skills and the application for vocational skill level certification of CR Gas.
- N sequence:** In order to strengthen the training of new employees, in 2021, CR Gas carried out teaching activities according to its "1+2+N" 14th Five-Year Plan by establishing a new employee quality model, holding the Future Star training camp/gas camp and by other means. We built a "1+2+N" real-life teaching base, set up a youth education practice base of Great Ideological and Political Courses with certain media and universities, and developed exclusive profiles of campers and trainees, in an effort to build a growth platform for new employees.

學習與創新中心

2021年，華潤燃氣學習與創新中心充分發揮互聯網平台優勢，積極開展課程學習、課程認證、直播授課、雲訓練營、漣漪讀書會等系列線上線下學習活動，圓滿交付年輕經理人培訓班、重燃十四五戰略研討等重點項目。2021年實體院區累計承辦培訓會議105場次，服務8,941人次，交付平均滿意度4.88分（滿分5分）。

員工技能提升發展計劃

華潤燃氣為完善操作序列培訓，助力員工技能的提升，開展「IGIS⁵測量」項目、培訓認證及後續研討學習，共開發《IGIS系統》《IGIS系統測繪流程介紹》兩門課程，輸出3個操作視頻，創新開展測量員燃氣管線管位測量能力培訓及測量員認證培訓，使學員們深入了解和掌握測量專業知識，提高了員工解決工作實際問題的能力，助力地下管網信息精準測繪定位。

Learning and Innovation Centre

In 2021, the Learning and Innovation Centre of CR Gas fully leveraged its advantages as an Internet platform to carry out a series of online and offline learning activities such as course learning, course certification, live teaching, cloud training camp, and Lianyi reading club, and successfully delivered a number of key initiatives including young manager training course, the 14th Five-Year Strategy Seminar, etc. In 2021, our training institute held a total of 105 training sessions with a total attendance of 8,941 and an average satisfaction score of 4.88 (out of 5 points).

Employee Skill Development Scheme

In order to improve skill sequence training and help employees enhance their skills, CR Gas carried out the IGIS⁵ Surveying scheme, training certification, and follow-up discussion and study, developed the two courses IGIS System and Introduction to the Surveying and Mapping Process of IGIS System, created 3 operation videos, innovatively offered training on gas pipeline surveying ability and surveyor certification training to surveyors for learning and mastering professional knowledge of surveying, thus enhancing employees' ability to solve practical problems at work and facilitating the precise positioning of underground pipeline network through surveying and mapping.



案例：智慧化運營 – 全面推廣上線EIS及IGIS系統

Case Study: Smart Operation – Promotion and Launch of EIS and IGIS Systems

2021年為提高員工操作能力，保障工作質量，華潤燃氣分大區開展EIS及IGIS系統上線培訓。

In 2021, in order to improve the operational ability of employees and ensure the quality of work, CR Gas carried out online training on EIS and IGIS systems in different regions.

- IGIS (雲地理信息) 系統真實的記錄了管道的地理坐標、口徑、材質等基本信息，為後期智能化仿真、巡檢、調度指揮等提供最基礎和核心的數字化信息。
- The IGIS System (a cloud-based geographic information service) truly records the geographic coordinates, diameter, material and other basic information of the pipeline, and provides the most basic and fundamental digital information for intelligent simulation, patrol inspection, scheduling and commanding in the future.
- EIS (易巡檢) 系統在IGIS系統的基礎上，集成了管網巡查、檢漏、維保、隱患整改等全過程的閉環數字化管理模塊，能夠對巡檢工作質量進行有效管控。
- Based on the IGIS System, the EIS (Easy Inspection System) integrates modules that enable closed-loop digital management, including pipeline network inspection, leak detection, maintenance, and hazard rectification modules, and is able to effectively control the quality of inspection.

培訓歷時兩個多月，共計授課288課時，共計292名學員參訓並通過考核。

The training lasted more than two months with a total of 288 teaching hours. A total of 292 trainees participated in the training and passed the examination.



各大區開展信息化系統培訓
Major Regions Conducted Training on Information Systems

為提高華潤燃氣各成員公司一線崗位員工的實操能力，持續降低「員工端」安全運營風險、保障員工自身安全。我們致力於建設符合華潤燃氣業務技能標準、滿足業務技能培訓需求的實操培訓基地，通過信息管理系統的高效運轉，實現對一線業務全員開展實操培訓，後續將結合行業技能認證需求，着力打造職業技能內部認證機構。

In order to improve the practical ability of front-line employees in member companies of CR Gas, continuously reduce the operational safety risks of employees and ensure the safety of employees. We made efforts to build practical training bases that meet the business skill standards and business skill training needs of CR Gas, and offer practical training to all front-line business personnel through the efficient operation of our information management system. In the future, we will build an internal vocational skill certification agency based on the skill certification needs in the industry.

案例：華潤燃氣對實操培訓試點基地進行驗收

Case Study: CR Gas Conducted Acceptance Inspection of Pilot Practical Training Bases

2021年10月22日召開課題啟動會，啟動了華潤燃氣實操培訓試點基地的建設工作，試點基地共三個，包括：鄭州公司PE雙封雙堵實操培訓基地、大連公司輸配實操培訓基地、鄭州工程公司實操培訓基地；並於2021年12月30日完成上述實操基地的驗收工作。預計到十四五末，為實現對全部一線業務、全員實施實操培訓，將打造20個實操培訓基地和成熟的運轉體系。

On 22nd October 2021, we held a project kick-off meeting to start the construction of pilot practical training bases of CR Gas. There are three pilot bases, i.e. the practical training base of Zhengzhou Company for double sealing and double blocking of PE pipelines, the transmission and distribution practical training base of Dalian Company, and the practical training base of our Zhengzhou engineering company. We completed the acceptance inspection of the above practical training bases on 30th December 2021. It is expected that by the end of the 14th Five-Year Plan period, we will have built 20 practical training bases and a mature operation system covering all front-line business personnel.



鄭州公司PE雙封雙堵實操培訓基地驗收

Acceptance Inspection of the Practical Training Base of Zhengzhou Company for Double Sealing and Double Blocking of PE Pipelines



本年度所提供的培訓數據：

Data on Training Provided in the Year:

		單位	Unit	2021年	2020年	2019年
培訓總時數	Total hours of training	小時	Hour	790,471	1,076,438	3,267,600
人均受訓時數	Training hours per person	小時	Hour	24.5	38.2	77.8
受訓僱員總百分比	Total percentage of employees trained	%		61.54	58.7	100
按性別劃分的人均受訓時數	Training hours per person by gender					
男	Male	小時	Hour	24.1	37.6	74.7
女	Female	小時	Hour	25.4	39.2	80.9
受僱職級劃分的人均受訓時數	Training hours per person by employment category					
管理層	Management	小時	Hour	47.4	24	56.3
中層員工	Middle-level staff	小時	Hour	25.9	26	52.9
基層員工	Elementary staff	小時	Hour	23.9	113	68.4
按性別劃分的受訓僱員百分比	Percentage of employees trained by gender					
男	Male	%		63	58	100
女	Female	%		59	61.5	100
按受僱職級劃分的受訓僱員百分比	Percentage of employees trained by employment category					
管理層	Management	%		35	56	100
中層員工	Middle-level staff	%		63	60	100
基層員工	Elementary staff	%		62	58	100

6.2 重視員工權益

合規僱傭

華潤燃氣嚴格遵守《中華人民共和國勞動法》《中華人民共和國勞動合同法》《中華人民共和國未成年保護法》《中華人民共和國婦女權益保障法》《性別歧視條例》(中國香港)《種族歧視條例》(中國香港)《殘疾歧視條例》(中國香港)《家庭崗位歧視條例》(中國香港)等法律法規，明確實行平等僱傭政策，杜絕一切形式的用工歧視，反對強迫勞工，禁止僱傭童工，並建立性別、民族、信仰、年齡無差別的招聘、發展及晉升體系。我們倡導並依循《世界人權宣言》、《國際人權公約》等國際人權組織倡議，保障女性員工平等的勞動權利，為殘疾人士提供無障礙工作環境，全力確保所有員工的人權得到保障。集團於本報告期內沒有發現任何歧視、僱傭童工或強迫勞工的違法違規事件。

華潤燃氣積極推動建立對外招聘和對內招聘渠道，同時實行「三本」原則推進校園招聘，即本地生源、本地院校、本地就業者優先考慮，致力在當地擴大各類人才資源供給，達到了多種途徑開展招聘，保障了人才的供給。

健全薪酬福利

華潤燃氣秉承「內部公平性、外部競爭性、為崗位付薪、為績效付薪、為能力付薪」的薪酬理念與原則，致力於打造基於價值貢獻、高效專業的薪酬績效管理機制，從而保障公司戰略目標的實現。2021年集團繼續推進薪酬激勵機制改革，實行薪酬總額打包審批。同時，集團始終按時足額支付勞動報酬，建立具有內部公平性、外部競爭性的薪酬體系，貫徹以崗位價值、寬帶薪酬為導向的薪酬管理理念，保障員工的正常生活，保障員工的價值貢獻被給予公正的評價和公平的回報。

6.2 ATTACHING IMPORTANCE TO EMPLOYEES' RIGHTS AND INTERESTS

Lawful Employment

CR Gas has strictly abided by laws and regulations such as the Labour Law of the People's Republic of China (《中華人民共和國勞動法》), Labour Contract Law of the People's Republic of China (《中華人民共和國勞動合同法》), Law of the People's Republic of China on the Protection of Minors (《中華人民共和國未成年保護法》), Law of the People's Republic of China on the Protection of Rights and Interests of Women (《中華人民共和國婦女權益保障法》), Sex Discrimination Ordinance (Hong Kong, PRC) (《性別歧視條例》(中國香港)), Race Discrimination Ordinance (Hong Kong, PRC) (《種族歧視條例》(中國香港)), Disability Discrimination Ordinance (Hong Kong, PRC) (《殘疾歧視條例》(中國香港)) and Family Status Discrimination Ordinance (Hong Kong, PRC) (《家庭崗位歧視條例》(中國香港)), clearly implemented equal employment policy, eliminated all forms of employment discrimination, opposed forced labour, and prohibits child labour. We have also established a recruitment, development and promotion system without discrimination against gender, race, religion and age. We have advocated and followed international human rights initiatives such as the Universal Declaration of Human Rights and the International Convention on Human Rights. We have guaranteed the equal labour rights of female employees, offered a barrier-free working environment to the disabled, and made every effort to ensure that the human rights of all employees are protected. During the reporting period, there were no cases of discrimination, child labour or forced labour violations in the Group.

CR Gas actively promotes the establishment of external and internal recruitment channels. Meanwhile, campus recruitment has been conducted based on the principle of priority in three local aspects, i.e. local students, local colleges and local employment are given priority, and efforts have been made to expand the supply of all kinds of talent resources in the local area. Such measures can carry out recruitment through a variety of ways to ensure the supply of talent.

Improvement of Remuneration and Welfare

Adhering to the compensation concepts and principles of internal fairness, external competitiveness, pay for post, performance and ability, CR Gas has been committed to building a highly efficient and professional compensation performance management mechanism based on value contribution, so as to ensure the attainment of the Company's strategic objectives. In 2021, the Group continued to promote the reform of the remuneration incentive mechanism by introducing total remuneration package approval. In addition to paying remuneration in full and on time as always, the Group has established an internally fair and externally competitive remuneration system and implemented the remuneration management concept highlighting the value of a position and the broadband pay structure to ensure that employees lead a normal life and that their value contribution has been given fair evaluation and return.



華潤燃氣嚴格按照《中華人民共和國勞動法》及華潤集團的相關規定要求執行帶薪休假制度，並保障員工正常休假。同時，集團嚴格按照國資委及華潤集團的相關政策要求，一方面發揮國企的責任擔當，另一方面，嚴格控制企業濫發超節日福利等，做到合規合法，保障員工享有正當的福利。

華潤燃氣規範高管薪酬分配，完善經理人激勵機制，實現經理人收入能升能降，完成560名直管經理人業績合同簽訂。同時，我們開展薪酬套改工作，規範員工薪酬體系，做好基層員工薪酬分配。

保障員工職業健康

華潤燃氣秉承「人本精神」，密切關注員工身心健康，為員工提供商業保險、高端醫療健康保險、家屬體檢套餐等福利，為員工提供職業健康體檢、職業健康培訓，以保障員工可以在高度滿意的環境中實現自己的價值。同時，集團已推進涵蓋壓力管理、職業心理健康、心理干預、健康生活等多個方面的心理課程服務，全面引導員工運用科學的方法舒解心理壓力，以積極的心態面對生活與工作。

華潤燃氣注重打造「簡單、坦誠、陽光」的組織文化，完善舉報機制，拓展多元渠道舉報，讓員工及時舉報不公平或涉及歧視的案件，在總部層面建立了「信、訪、電、網」四位一體受理信訪舉報的機制，即任何員工可以通過信件、上訪、電話和郵件的方式舉報，保障員工權益。

CR Gas has implemented the paid leave policy in accordance with the Labour Law of the People's Republic of China (《中華人民共和國勞動法》) and the relevant regulations and requirements set out by China Resources Group to ensure that employees are entitled to annual leave. The Group has strictly abided by the relevant policies and requirements of the SASAC and China Resources Group to assume its responsibility as a state-owned enterprise, preventing unnecessary and excessive benefits and holidays while ensuring employees' rightful benefits in compliance with laws and regulations.

CR Gas entered into performance contracts with 560 direct managers to regulate the distribution of executive compensation, improve manager incentive mechanism, and set out that the remuneration of managers can be increased or decreased. Meanwhile, we carried out remuneration package reform to regulate the remuneration system of employees and enhance the distribution of employees' compensation.

Ensuring the Occupational Health of Employees

Adhering to the people-oriented spirit, CR Gas has paid close attention to the physical and mental health of employees, providing employees with benefits such as commercial insurance, high-end medical and health insurance and family body check-up packages as well as occupational health check and occupational health training to ensure self-attainment of employees in a highly satisfied environment. Meanwhile, the Group has promoted services in psychology courses covering stress management, occupational mental health, psychological intervention and healthy lifestyle to offer employees all-round guidance about science-backed techniques to relieve stress and adopt a positive attitude towards life and work.

Focusing on creating a corporate culture with simplicity, frankness and transparency, CR Gas has improved the whistle-blowing mechanism by expanding to multiple reporting channels to allow employees to timely report unfair or discriminatory cases and establishing a four-in-one petition and report handling mechanism to allow employees to report via letter, petition, telephone and email to protect the rights and interests of employees.

案例：華潤燃氣開展「疫」方有難，八方支援倡議

Case Study: Initiative of CR Gas to Render Support to Epidemic-stricken Regions

2021年全國疫情多點復發，為保障員工身體健康、保障當地燃氣用戶穩定服務，華潤燃氣總部以視頻會議的方式傳授抗疫重點防範事項和優秀經驗做法，同時發起捐贈抗疫物資的倡議，確保疫情期間員工的身體健康，並向屬地積極捐資抗疫物資。

In 2021, the epidemic recurred at multiple regions across the country. In order to ensure the health of employees and the stable services for local gas users, the CR Gas headquarters shared key anti-epidemic measures and excellent experience and practices through video conferences, while launching the initiative to donate anti-epidemic supplies to ensure the health of employees during the epidemic and actively donate funds and anti-epidemic supplies to the places where it operates.



6.3 傳遞員工關懷

華潤燃氣秉承「一切從員工的福祉出發」的理念，在按照相關法律提供基本員工福利的基礎上，積極制定全面的福利制度以響應員工需求，包括每年為所有員工提供免費體檢，推行全民社保政策，為99%以上員工購買補充醫療保險、意外傷害保險等商業保險，繳納企業年金，保障員工退休後的生活。我們為受災或重大疫病、重大變故等的員工發放慰問金。此外，我們在國家的帶薪休假制度基礎之上，為員工提供節假日禮品、食宿等額外福利。其中，集團設有哺乳假、公益假等合法員工權益。

6.3 DELIVERING EMPLOYEE CARE

Adhering to the philosophy of being oriented towards the well-being of employees, CR Gas has actively formulated a comprehensive welfare system to respond to the needs of employees on top of providing basic employee benefits in accordance with relevant laws, including free annual physical examination for all employees, implementation of national social security policy, purchase of commercial insurance such as supplementary medical insurance and accidental injury insurance for more than 99% of employees and payment of corporate annuity to safeguard employees' living after retirement. We grant consolation funds to employees affected by disasters or major epidemics or major changes. In addition, we offer holiday gifts, board and lodging and other additional benefits to employees on the basis of the national paid leave system. In particular, the Group assures the legal rights and interests of employees such as lactation leave and leave for participating in charity undertakings.



案例：秦皇島華潤燃氣開展「關愛職工，夏送清涼」一線員工慰問活動
Case Study: CR Gas Qinhuangdao Company Visited Frontline Employees during the Caring for Employees-Staying Cool in Summer activity

2021年夏日高溫季節，為改善一線員工工作條件，確保員工安全度夏，秦皇島華潤燃氣主要領導組成慰問組，奔赴各分公司及部門，為夏日堅守一線的員工送去防暑降溫物品，並檢查暑期加氣站工作開展與安全生產情況。

In the hot summer of 2021, in order to improve the working conditions of frontline employees and ensure their safety in the summer, the management of CR Gas Qinhuangdao Company visited branch offices and departments, delivered heatstroke prevention and cooling products to the frontline employees, and inspected the ongoing work and safe production practices at gas stations in the summer.



員工慰問活動
Caring for Employees



匠人精神 共 美好生活 建 The Spirit of Craftsman Creating a Better Life Together



7

匠人精神 共建美好生活

The Spirit of Craftsman: Creating a Better Life Together

7.1 為客戶提供高品質服務

華潤燃氣始終秉承「以客戶為導向」的服務理念，為客戶供應安全清潔燃氣，提供專業、高效、親切的服務。我們通過向社會公示並承諾提供服務的標準，從穩定供氣、安全保障、預約服務、燃氣具售後服務、熱線接聽、服務質量、意見處理七個方面，制訂了各項服務的目標，年度滿意度提升目標，並接受社會監督。為了進一步保障優質服務，公司對主要服務項目進行交叉審核，針對客戶服務工作中的不足加以改進提升，並推廣優秀的服務理念和管理方法，促進華潤燃氣服務質量提升。

客戶權益保障

華潤燃氣嚴格遵循《中華人民共和國廣告法》《反不正當競爭法》等法律法規要求，持續加強公平營銷管理，規範營銷人員在廣告發佈、售電過程中以及合同簽署等環節的行為，嚴禁出現傳播誤導性、歧義性的產品信息和過度承諾現象，保障客戶的知情權。針對價格方面，華潤燃氣在客服中心及網上營業廳設有價格公示，涉及價格調整的情況均以政府物價部門審批或備案為依據，並通過媒體廣泛告知調價信息，為客戶提供透明的資費信息。在向用戶提供服務及產品時，華潤燃氣始終秉持平等協商、互利共贏的經營理念，恪守雙方自願、公平交易的原則，簽訂合同時明確供用氣雙方權利和義務。

7.1 OFFERING QUALITY SERVICES TO CUSTOMERS

CR Gas has always adhered to the philosophy of offering customer-oriented service, providing customers with safe and clean gas, as well as professional, efficient and friendly services. Through making public and committing to the standards of service provision, we have formulated the objectives of various services from the seven aspects of stable gas supply, safety protection, reservation service, after-sales service of gas appliances, hotline answering, service quality and comment handling, as well as annual satisfaction improvement objectives, and accepted social supervision. In order to further ensure quality services, the Company conducted cross audit on main service items, rectified deficiencies in and improved customer service, and promoted excellent service concept and management methods to facilitate the improvement of service quality of CR Gas.

Protection of Customer Rights

CR Gas is in strict compliance with laws and regulations including the Advertising Law (《中華人民共和國廣告法》) and Anti-unfair Competition Law of the People's Republic of China (《反不正當競爭法》) and continues to strengthen fair marketing practices. We have regulated the conduct of marketing personnel in the process of advertising release, electricity sales and contract signing, strictly prohibiting the dissemination of misleading and ambiguous product information and excessive commitment, and protecting customers' information rights. CR Gas publishes the prices in its customer service centres and on the online business hall. Price adjustments should only be made on the basis of the approval issued by or filing with the pricing authorities of the government and the public should be widely informed of the details of such adjustments via the media to provide customers with transparent information on fees and expenses. In the course of rendering services and products to customers, CR Gas always adheres to the operating philosophy of arms-length negotiation and mutual benefit as well as the principle of willingness of both parties and fair transaction. Rights and obligations of both the gas supplier and user should be specified when entering into contracts.



在客戶私隱保護方面，集團嚴格遵守國家《網絡安全法》和關鍵信息保護等相關法律法規，制定《華潤燃氣客戶隱私保護工作指引》，要求各級員工簽署《保密協議》，在用戶信息系統加密用戶敏感信息，並設置嚴格的分級審批和權限管理要求。同時，公司和外部供應商簽訂有針對保障客戶、消費者信息及隱私的保密協議，在合同裡設置相關條款進行約束，並將相應政策應用於所有業務及公司。

在客戶服務方面，集團確保服務品質，提升供氣質量，確保天然氣質量符合《天然氣》(GB 17820-2018)相關規定，以及天然氣供氣壓力和加臭劑含量符合《城鎮燃氣設計規範》(GB 50028-2006)相關規定，保障客戶得到良好的服務與產品。

In terms of customer privacy protection, the Group has strictly abided by the national Network Security Law (《網絡安全法》) and key information protection and other relevant laws and regulations, and formulated the CR Gas Guidelines for Customer Privacy Protection (《華潤燃氣客戶隱私保護工作指引》). The Group has requested employees at all levels to sign a confidentiality agreement, encrypted user sensitive information on the user information system, and set up a highly regulated system for review and approval as well as authority management requirements. At the same time, the Company and external suppliers have signed confidentiality agreements to protect the information and privacy of customers and consumers, set relevant restrictive terms in the contract, and applied the corresponding policies to all business operations and companies.

In terms of customer service, the Group ensures service quality, improves gas supply quality, and ensures that the quality of natural gas meets the relevant provisions of Natural Gas (GB 17820-2018), and that the natural gas supply pressure and the content of deodorant meet the relevant provisions of Urban Gas Design Code (GB 50028-2006), so as to ensure that customers get quality service and products.

創新管理

華潤燃氣積極擁抱創新，構建創新管理體系，不斷完善創新機制，制定《研發項目管理規定》《研發部崗位設置、職責及考核暫行規定》《研發成果獎勵規定》等制度，2021年新增《華潤燃氣控股有限公司科技項目管理辦法》，通過2017年成立的創新工作領導小組統籌規劃全集團和成員公司的創新工作，並審議創新課題立項。創新工作圍繞行業技術、員工發展、組織管理展開創新研究，為集團發展提供有力支撐。2021年，華潤燃氣學習與創新中心獲得了雲學堂頒發的數字化學習創新獎。

同時，我們加大科研經費投入，制定《研發成果獎勵規定》，激發人才創新活力，組織人員選聘工作，2021年集團為推進設計中心一體化，中心內部選拔人數達到25人，健全長效人才培養體系。此外，我們通過定期召開創新工作會和智慧燃氣工作會，擴大創新工作影響，讓員工了解工作進度和分享創新經驗，持續優化現有運營模式。集團也在內部提高員工對知識產權保護的意識，制定《華潤燃氣設計研究中心專利管理辦法》，規定在合作過程中決不侵犯他人的相關權利，同時為公司自身開發的項目申請專利。公司在2021共申請專利136件，其中發明專利21件。本年度企業獲得專利授權量是78件，其中：發明專利授權量是2件。

Innovation management

CR Gas actively embraces innovation, builds an innovation management system, and constantly improves its innovation mechanism. It has formulated the Regulations on R&D Project Management (《研發項目管理規定》), Interim Regulations on Post Setting, Responsibilities and Assessment of the R&D Department (《研發部崗位設置、職責及考核暫行規定》), and R&D Achievement Award Regulations (《研發成果獎勵規定》), etc. In 2021, the Group newly formulated the Technology Project Management Measures of China Resources Gas Group Limited, so the innovation leading group established in 2017 could make overall plans for the innovation work of the Group and its member companies, and review and approve innovation projects. Such innovation work focuses on industry technology, staff development and institutional management to carry out innovative research, providing strong support for the development of the Group. In 2021, China Resources Gas Learning and Innovation Centre won the Digital Learning Innovation Award issued by Yunxuetang (雲學堂).

At the same time, we have increased investment in scientific research, formulated the R&D Achievement Award Regulations (《研發成果獎勵規定》), stimulated the innovation vitality of talents, and conducted personnel selection and recruitment. In 2021, in order to promote the integration of the design centre, 25 people were selected internally, which improved the talent cultivation system in the long run. In addition, we regularly hold innovation work meeting and smart gas work meeting to expand the impact of innovation work, let employees know the work progress and share experience in innovation, and continue to improve the existing operation model. The Group has also improved employees' awareness of intellectual property rights protection internally, and formulated the Patent Management Measures of CR Gas Design Research Centre (《華潤燃氣設計研究中心專利管理辦法》), stipulating that the Group must never infringe the relevant rights of others in the process of cooperation, and must apply for patents for its self-developed projects at the same time. In 2021, the Company applied for 136 patents in total, among which 21 were patents for invention. In the Year, 78 patents were granted to the enterprise, including 2 patents for invention.



智慧運營

2021集團根據《國家第十四個五年規劃和2035年遠景目標綱要》《關於加快推進國有企業數字化轉型的通知》及《智慧華潤2028戰略》，依託華潤燃氣潤智科技有限公司研發平台，啟動了「5G + 智慧燃氣」項目，通過數字化賦能支撐高效率運營與安全生產。

物聯採集平台：2021年華潤燃氣統一規範表具接入流程，整合表廠平台系統，提升試點公司效能至100%，打破表廠技術限制，實現不同品牌智能表混裝混抄，解決抄表數據安全隱患，同時上線實時預付費控業務模式，通過大數據分析強化表具檔案管理與異常用氣分析，提升用氣安全性。

EIS（易巡檢）及IGIS（雲地理信息）系統：EIS系統針對管網巡查、檢漏、維保、隱患整改等全過程的數字化管理，通過IGIS系統記錄管道的基本信息，為後期智能化仿真、巡檢、調度指揮等提供核心數字化信息，對巡檢工作質量進行有效管控。

「易作業安檢」現場作業平台：解決燃氣入戶安檢痛點難點問題，根據客戶家庭位置、安檢計劃、預約時間靈活智能派單，大幅提升用戶滿意度及用氣安全。同時，平台具備人員定位等各項便利，為安檢技術人員提供信息化支撐，大幅度提高安檢質量與效率。

Smart Operation

In 2021, the Group initiated the “5G+ Smart Gas” project relying on the R&D platform of China Resources Gas Run Zhi Technology Co., Ltd. (華潤燃氣潤智科技有限公司) to support efficient operations and safe production through digital empowerment in accordance with the Outline of the National 14th Five-Year Plan and the Long-Range Objectives through the Year 2035 (《國家第十四個五年規劃和2035年遠景目標綱要》), the Notice regarding Accelerating the Digital Transformation of State-owned Enterprises (《關於加快推進國有企業數字化轉型的通知》) and the Smart China Resources 2028 Strategies (《智慧華潤2028戰略》).

IoT data collection platform: In 2021, CR Gas increased the efficiency of pilot companies to 100% through adopting standard meter connectivity process and consolidating the platform systems of meter manufacturers, solved the potential safety hazards of meter data collection by breaking down the technical barriers among meter manufacturers to allow installation and reading of smart meters of different brands, and improved gas safety by introducing the real-time prepaid business model to strengthen meter file management and abnormal gas consumption analysis through big data analysis.

EIS and IGIS systems: The EIS system digitally manages the whole process of pipe network inspection, leak detection, maintenance, and hidden danger rectification, and records the basic information of the pipeline through the IGIS system to provide core digital information for smart simulation, inspection, and dispatching command at the later stage, thus effectively controlling the quality of inspection work.

Yizuoye Safety Check on-site operation platform: The platform solves the pain points and difficulties of household gas safety check by flexibly and intelligently sending orders according to the customer's family location, safety inspection plan and appointment time to greatly improve user satisfaction and gas safety. Meanwhile, the platform is also equipped with convenience functions such as personnel positioning, providing safety inspection technicians with information support to greatly improve the quality and efficiency of safety inspection.

7.2 真誠與客戶溝通

華潤燃氣將保障客戶順暢溝通作為推進服務的支撐，積極暢通服務渠道，積極提供售後與維修服務、抄表安檢及搶維修服務、線上業務辦理諮詢服務等。

客戶關懷

集團充分踐行「我為群眾辦實事」「防疫不打烊服務不掉隊」，加強疫情常態化管理，合理調配服務隊伍，及時響應客戶需求，通過持續開展百城萬戶隱患整改讓利行動等，實現嚴重隱患整改率從70%提升到76.4%，保障客戶端的穩定安全用氣。

此外，我們秉持做好服務客戶的「最後一公里」，提升客戶服務效率的理念，通過對3家區域開展網格化管理試點，推動60餘家區域上線客戶體驗實時評價和服務在線管理功能，達到了人員上門服務規範化，客戶反饋高效化的效果，保障且提升了服務質量。

7.2 GENUINE COMMUNICATION WITH CUSTOMERS

Regarding smooth customer communication as a pillar of service improvement, CR Gas has actively kept service channels open and offered after-sales and maintenance, meter reading, safety inspection, emergency repair, and online business handling and consultancy services, etc.

Caring for Customers

Adhering to the concepts of truly helping people in need and around-the-clock anti-epidemic efforts and services, the Group has strengthened regular epidemic management and reasonably allocated service teams to respond to the needs of customers in a timely manner. The rectification rate of serious hidden dangers improved from 70% to 76.4% by means of continuous campaigns such as rectification of hidden dangers in 100 cities and 10,000 households, so as to ensure stable and safe gas consumption on the users' side.

Committed to the improvement of last-mile customer service and customer service efficiency, we adopted grid management in 3 pilot regions and launched real-time customer experience evaluation and online service management functions in more than 60 regions, achieving standard door-to-door service and efficient customer feedback to guarantee and enhance service quality.

案例：滄州區域積極打造零隱患社區

Case Study: Cangzhou Region Strived to Build Zero-risk Communities

2021年7月25日至10月25日，滄州華潤燃氣陸續開展了6場活動，成功打造6個零隱患社區，整改嚴重隱患635處，豐富了售後網格綜合服務業務，保障了客戶的安全。

From 25th July to 25th October 2021, CR Gas Cangzhou Company carried out 6 activities and rectified 635 serious hidden dangers to successfully build 6 zero-risk communities, expanding its comprehensive after-sales grid services to ensure the safety of customers.



華潤燃氣員工開展售後服務

Employees of CR Gas Carrying out After-sales Services



案例：中山區域公司開展安全用氣專題培訓

Case: Zhongshan Regional Company organizing gas safety training

2021年12月31日，中山區域公司為了營造穩定的輿論氛圍、培養用戶良好的安全用氣意識、用氣習慣，通過安全用氣專題培訓，普及安全用氣知識。

On 31st December 2021, Zhongshan Regional Company promoted gas safety knowledge through special gas safety training to create a stable atmosphere of public opinion and cultivate users' good awareness of gas safety and gas use habits.



安全用氣培訓會議
Gas Safety Training

客戶投訴處理跟進機制

我們將解決客戶投訴作為改善服務的起點，積極傾聽和回應客戶反饋與建議，爭取第一時間作出響應。華潤燃氣積極應對客戶投訴，通過精選投訴管理優秀經驗案例並開展學習，提高各個工作流程的反饋速度，確保投訴得到及時有效處理。此外，各成員公司對客戶投訴進行剖析和歸納，對重點和頻發事件進行跟進並制定工作改進計劃，建立起高效的投訴預防處理機制。

2021年，華潤燃氣開展客戶滿意度調查，覆蓋全部區域公司，訪問超過1.4萬戶居民用戶，3,889個工商用戶，並實施調查過程質量抽檢，調查結果顯示客戶滿意度得分達到91分，在益普索全球數據庫內的341家企業中排名前1%。

Follow-up Mechanism for Customer Complaints

We treat solving customer complaints as the starting point of improving service by actively listening to and responding to customer feedback and suggestions, and striving to respond as soon as possible. CR Gas has actively responded to customer complaints, selected excellent experience cases in complaint management for conducting studies, and improved the feedback speed of each workflow, thereby ensuring that complaints can be dealt with in a timely and efficient manner. In addition, each member company also carries out analysis on and prepares summaries of customer complaints, conducts follow-up work and formulates work improvement plan in relation to key and frequent incidents, so as to set up an efficient complaint prevention and handling mechanism.

In 2021, CR Gas conducted a customer satisfaction survey covering all regional companies, interviewed more than 14,000 residential and 3,889 industrial and commercial users, and carried out sampling inspection of survey process quality. The survey results showed that the score of customer satisfaction reached 91 points, ranking top 1% of 341 companies in the Ipsos global database.

7.3 強化供應商管理

華潤燃氣一貫倡導「攜手合作夥伴互惠互利，共同發展，合作共贏」的合作理念，致力於與利益相關方建立積極健康的合作關係，攜手社會各界共建公平競爭環境。同時，我們注重供應鏈管理，主動識別潛在風險，與供應商協作打造安全的可持續供應鏈。

供應鏈管理

華潤燃氣嚴格遵守《中華人民共和國招標投標法》《中華人民共和國招標投標法實施條例》等法律，並結合自身發展狀況制定了內部制度《華潤燃氣採購管理制度》《集中聯合採購管理規定》，我們要求所有供應商都需要達到集團在政策中列出的對環境保護、員工健康與安全、勞工準則等方面的規定，此外對供應商篩選、准入、考核都設置了明確標準，以規範供應鏈管理。

華潤燃氣採用集中聯合採購主要工程物資的方式，為此設置了完善的集採入圍招標評審流程，統一管理從入庫到退出的全部流程。我們針對供應商環境、生產工藝、生產設備、人員專業性等40餘項具體內容進行考察。對於入圍的供應商，我們會實施動態管理對其進行實時管控，包括但不限於飛行檢查、第三方送檢、遠程監造等方式，並對考核標準進行不定時更新，以滿足負責任供應鏈的要求。此外，華潤燃氣每年組織區域公司對供應商進行評價，評價結果將作為考核供應商准入、退出的重要依據。

7.3 STRENGTHENING SUPPLIER MANAGEMENT

CR Gas always advocates the cooperation concept to work together with partners to achieve mutual benefits, common development and win-win situation. We are committed to establishing a positive and healthy cooperative relationship with stakeholders, and work with all sectors of society to build a fair competition environment. At the same time, we pay attention to supply chain management, actively identify potential risks, and cooperate with suppliers to create a safe and sustainable supply chain.

Supply Chain Management

CR Gas has strictly adhered to the Tender and Bidding Law of the People's Republic of China (《中華人民共和國招標投標法》) and Implementation Rules of the Tender and Bidding Law of the People's Republic of China (《中華人民共和國招標投標法實施條例》), and formulated internal systems including the CR Gas Procurement Management System (《華潤燃氣採購管理制度》) and Joint Central Procurement Management Regulations (《集中聯合採購管理規定》) based on its current development status. We require all suppliers to meet the Group's requirements on environmental protection, employee health and safety, and labour standards listed in the Group's policies, and also set clear standards for supplier selection, access and assessment to regulate supply chain management.

CR Gas adopts joint central procurement of major engineering materials, for which it has set up a sound bidding evaluation process for central procurement, and manages all processes from warehousing to withdrawal in a unified manner. We investigate more than 40 specific contents including supplier's environment, production technology, production equipment, personnel professionalism, etc. For shortlisted suppliers, we will implement dynamic management to control them in real time, including but not limited to unannounced inspection, third-party inspection, remote manufacturing supervision, etc., and update the assessment standards from time to time to satisfy the requirements of a responsible supply chain. In addition, CR Gas makes arrangements for regional companies to evaluate suppliers every year, and evaluation results will serve as an important basis for assessing the access and withdrawal of suppliers.



負責任採購

除了推動環保供應鏈建設，華潤燃氣也將帶動本地產業發展作為重要工作之一，積極落實本地化採購政策，明確公司項目建設所需大宗原材料及區域公司所需辦公設施本地優先購買原則，扶持本地供應商，從而推動地方經濟繁榮。2021年，華潤燃氣共聘用2,960家供應商，公司責任採購比例為100%。

同時，華潤燃氣致力於打造廉潔供應鏈，不容許任何腐敗現象的存在。我們恪守行業規範與商業道德，做到誠信合規採購，要求員工遵守回避、保密等相關制度，且參加供應商實地考察的人員須全部簽署《物資考察陽光宣言》，從根源杜絕腐敗。我們也接受來自供應商的監督，建立「雙向互評」的機制供其提出申訴與質疑，共同營造公平、開放的合作氛圍。

Responsible Procurement

In addition to promoting an environment-friendly supply chain, CR Gas also takes driving the development of local industries as one of its important tasks, actively implements local procurement policy, and specifies the principle of preferential purchase of bulk raw materials needed for the Company's project construction and office facilities needed by regional companies, so as to support local suppliers and promote the prosperity of the local economy. In 2021, CR Gas engaged a total of 2,960 suppliers, and its responsible procurement ratio was 100%.

At the same time, CR Gas is committed to building a clean supply chain and does not tolerate any corruption. We abide by industry norms and business ethics, achieve integrity and compliant procurement, require employees to comply with relevant rules such as to recuse oneself and maintain confidentiality. Personnel participating in the field inspection of suppliers must all sign the Declaration of Sunshine Investigation of Goods (《物資考察陽光宣言》), so as to eliminate corruption fundamentally. We also accept the supervision from suppliers and establish a two-way assessment mechanism for them to lodge complaints and questions, so as to jointly create a fair and open cooperation atmosphere.

可持續供應鏈

為倡導可持續供應鏈建設，我們鼓勵供應商提供環保產品，並將環境、職業安全健康、質量等體系認證納入資格預審評分項目，推動供應商加強環境和勞工權益管理。2021年，與集團合作的供應商通過質量、環境和職業健康安全體系認證率100%。

為進一步加強供應商履行社會責任的意識，華潤燃氣不定期組織相關培訓活動，確保供應商與我們努力實現環保、安全、健康生產的步伐一致。通過開展多種形式的交流活動，雙方共同學習進步，助力可持續供應鏈的建設。

Sustainable Supply Chain

To promote a sustainable supply chain, we encourage suppliers to provide environment-friendly products and include environmental, occupational safety and health, quality and other system certification into the pre-qualification scoring items, promoting suppliers to strengthen environmental and labour rights management. In 2021, 100% of the suppliers that cooperated with the Group passed the certification in quality, environmental, occupational health and safety management systems.

In order to further strengthen the awareness of suppliers in undertaking their social responsibilities, CR Gas will conduct relevant training activities from time to time to ensure that suppliers are consistent with our efforts to achieve environmental protection, safety and health production. Through various forms of exchange activities, both parties can learn and make progress together and contribute to a sustainable supply chain.

供應商數據

Supplier Data

地區	Region	單位	Unit	數目 Number
華北地區	North China	家	supplier	484
華東地區	East China	家	supplier	810
東北地區	North-east China	家	supplier	191
華中地區	Central China	家	supplier	456
華南地區	South China	家	supplier	358
西南地區	Southwest China	家	supplier	402
西北地區	North-west China	家	supplier	259
中國港澳台地區	Hong Kong, Macao and Taiwan regions of the PRC	家	supplier	0
海外地區	Overseas	家	supplier	0
供應商總數	Total number of suppliers	家	supplier	2,960



7.4 創新與協調助力發展

創新發展是華潤燃氣迎接挑戰的動力，華潤燃氣建立以設計研究院為核心的創新平台，注重創新發展，以業務需求為導向，圍繞燃氣輸配、政策諮詢推動重點課題研究。2021年，圍繞華潤集團創新發展的要求與華潤燃氣「1+2+N」的戰略方向，華潤燃氣確定以健全創新發展管理機制為基礎，以深入開展創新研發項目求突破，以全面整合創新資源為保障的三大主線，提高研發投入強度，拓展業務邊界，推動能源升級，努力實現創新型組織完善的目標。

同時，華潤燃氣制定併發佈《創新工作指引》《創新項目管理辦法》《專家庫管理指引》三項制度，規範了各級創新機構設置，逐步實現研發項目全流程管理，注重項目成果推廣及知識產權保護，組建科技創新專家委員會，建立專家庫，完善人才配置，全面提高效益並激發組織活力。此外，我們積極開展產學研合作，在能源及燃氣運營領域不斷取得突破和成果，為華潤燃氣創新工作和可持續發展提供有力支撐。

成立多家技術研究院

華潤燃氣以創新工作為重點，建立設計研究院為核心的創新平台，成立中心研究院，圍繞行業發展趨勢展開技術研究，為集團發展提供有力的技術支持。我們加大創新研發力度，提升設計質量，發揮技術優勢，同時加強信息化應用，打造智慧燃氣建設，為公司主業提供有力支撐。

7.4 INNOVATION AND COORDINATION TO SUPPORT DEVELOPMENT

Innovation development is the driving force for CR Gas in face of challenges. CR Gas has established an innovation platform with Design Research Institute as the core, focusing on innovation and development, taking business demand as the guidance, and promoting key research topics around gas transmission and distribution and policy consultancy. In 2021, with the focuses on innovative development requests of China Resources Group and the "1 + 2 + N" gas strategic direction, CR Gas confirmed to increase research investment and efforts, expand business boundaries, promote energy upgrade, and achieve the aim of perfecting itself as an innovative institution by adopting three major measures of improving innovative development management mechanism, making breakthroughs through in-depth innovative research projects and comprehensively integrating innovative resources.

At the same time, CR Gas formulated and issued the Innovative Work Guidelines (《創新工作指引》), Innovative Project Management Methods (《創新項目管理辦法》), and Expert Pool Management Guidelines (《專家庫管理指引》). These three systems helped regulate the establishment of innovative institutions at all levels, and gradually achieved whole process management of R&D projects, focusing on the promotion of project results and the protection of intellectual property rights. A technological innovation expert committee was established to build an expert pool for enhancing talent management and holistically boosting efficiency and stimulating institutional vitality. In addition, we actively carried out industry-university-research cooperation, and continuously achieved breakthroughs and results in the fields of energy and gas operations, providing strong support for the innovative work and sustainable development of CR Gas.

Setting up a Number of Technology Research Institutes

Focusing on innovation, CR Gas has established the Design Research Institute as its core innovation platform. The Group has established the Central Research Institute to carry out technical research around the industry development trend and provide strong technical support for the development of the Group. We have strengthened innovation and research efforts and improved design quality to give full play to technological advantages. At the same time, we have strengthened information application to facilitate smart gas constructions, providing strong support for the Company's main business.

深化協作

華潤燃氣積極開展外部學標桿活動，設計研究中心多次與研究院交流對標，共同致力技術研究進步，為集團高質量發展奠定基礎。

我們積極探索行業發展思路，洞察產業趨勢，助推行業標準化的制定。華潤燃氣作為中國城市燃氣協會標準工作委員會委員單位，代表集團主編《高層建築燃氣設施設計施工技術規範》《燃氣用鋁合金襯塑環壓連接技術規程》2項中燃協團體標準。

此外，我們多次組織參加國內燃氣行業協會會議，包括中國土木工程學會燃氣分會氣源專業學術會議、中國城市燃氣協會標準委員會會議、上海LNG2019等，把握行業發展趨勢、學習政策信息、了解及掌握行業重大技術突破和應用。

一直以來，華潤燃氣創新工作始終堅持戰略驅動，結合行業特點制定管理制度，營造良好的創新氛圍，以重點企業及重點項目為抓手，提高關鍵課題自主創新能力，取得了較好的經濟效益和人才效益，開創了創新工作新局面。

7.5 參與社區建設

華潤燃氣一直以來積極履行企業的社會責任，制定了一些內部條例，如《華潤燃氣控股有限公司慈善公益活動管理辦法》《華潤燃氣權責運行手冊》等，以指導切實履行社會責任。我們在抗擊災情、鄉村振興、捐資助學、關愛特殊群體、志願服務等領域都有所行動，旨在建設一個更加和諧的社會。

2021年，華潤燃氣共捐贈615.8萬港元，動員員工參與志願活動共98,000人次，志願活動總時長約254,000小時，投入446.54萬港元幫扶專項扶貧資金。

Deepening Cooperation

CR Gas has actively carried out benchmarking activities for external learning. The Design Research Centre has exchanged benchmarking with external research institutes for many times, and they are jointly committed to technological research and progress, laying a foundation for the quality development of the Group.

We have actively explored industry development ideas, discerned the industry trend, and promoted the formulation of industry standards. As a member of the standards working committee of China City Gas Association, CR Gas edited two group standards of the association, i.e. Technical Code for Design and Construction of Gas Facilities in High Rise Buildings and Technical Specifications for Aluminium Alloy Lined Crimp Ring for Gas on behalf of the Group.

In addition, we have held and participated in domestic gas industry association meetings, including Gas Source Academic Meeting of Gas Branch of China Society of Civil Engineering, Standards Committee Meeting of China City Gas Association, Shanghai LNG 2019, etc., so as to grasp the development trend of the industry, learn policy information, understand and keep abreast of major technological breakthroughs and applications in the industry.

CR Gas has always carried out its innovative work in a strategically-driven way, formulated a management system by incorporating industry characteristics, and created a good atmosphere for innovation. With key enterprises and key projects as the starting point, CR Gas has reinforced its independent innovation capabilities on key topics and achieved better economic benefits and talent advantage to open up a brand-new situation in innovative work.

7.5 PARTICIPATION IN COMMUNITY BUILDING

CR Gas has always been actively undertaking its corporate social responsibilities, and has formulated some internal regulations, such as the Measures for the Management of Philanthropy and Charity Activities of CR Gas Holding Co., Ltd. (《華潤燃氣控股有限公司慈善公益活動管理辦法》), and Operation Manual of Rights and Responsibilities of CR Gas (《華潤燃氣權責運行手冊》), so as to guide the practical implementation of social responsibilities. We have taken actions in the areas of disaster relief, rural revival, education donation, care for special groups, and voluntary service to build a more harmonious society.

In 2021, CR Gas donated HK\$6.158 million in total and motivated 98,000 employees to participate in voluntary activities, with a total duration of about 254,000 hours, and invested HK\$4,465,400 in special poverty alleviation funds.



抗擊災情

華潤燃氣始終積極響應國家號召，主動承擔社會責任。一旦有災情發生，我們都會盡自己所能，馳援一線，加入救災陣營，向受災地區伸出援手。

Fight against Disasters

CR Gas always actively responds to the call of the nation and takes on its social responsibilities. Every time a disaster occurs, we spare no effort in offering emergency aids and supporting disaster relief to extend a helping hand to the disaster-stricken areas.



案例：鄭州公司全力確保燃氣供應

Case Study: Zhengzhou Company Strived to Ensure Gas Supply

2021年7月，鄭州市遭受特大暴雨侵襲，多地道路橋樑坍塌、河道受損、房屋建築淹沒，導致燃氣管網、場站遭受毀滅性破壞。面對此次特大危機，鄭州華潤燃氣第一時間啟動自然災害I級應急響應，迅速調集人員、設備、物資，組織1,100多人加入一線搶險，24小時內接警70餘起，100%完成搶險處置，發出預警信息30餘次，實現了重大災害時供氣保通率達98.5%。

In July 2021, Zhengzhou was hit by heavy rainstorms. The rainfall collapsed roads and bridges, damaged river channels, and flooded houses and buildings, resulting in devastating damage to the gas pipeline network and stations. In the face of the catastrophic crisis, CR Gas Zhengzhou Company immediately initiated level I emergency response to natural disasters to quickly assemble personnel, equipment and materials, dispatching more than 1,100 people to join the rescue, receiving over 70 police reports within 24 hours, accomplishing 100% risk disposal, sending out over 30 early warning messages and achieving a gas supply rate of 98.5% during the major disaster.



鄭州市區深夜巡查塌方區域燃氣管線

Late-night Inspection of Gas Pipelines in the Subsidence Area in Zhengzhou

捐資助學

集團相信讓孩童得到優質教育是消除貧困的長遠方法。為此，華潤燃氣通過捐贈獎助學金、開展助學公益活動等方式，為貧困學子提供幫助，助其完成學業。

Education Aid

The Group believes that providing children with quality education is a long-term solution to eliminate poverty. To this end, CR Gas assists poor students to complete their studies by means of scholarships and study grants and launching charitable education aid activities.

案例：開展愛心助學活動

Case Study: Carrying out Education Support Activity

2月4日，華潤燃氣江門區域開展「潤燃」黨員先鋒隊愛心助學活動，總經理蔣厚貴帶領「潤燃」黨員先鋒隊，與江門市慈善會、江門一中老師們組成慰問組，一同前往江門一中的幾位學生家中進行慰問。本次受助的是江門一中的3位品學兼優的貧困學生，此次助學活動由員工共捐款1.5萬元，先鋒隊為學生們送上了慰問金和慰問禮包。

The Run Ran Party member vanguard team of CR Gas carried out an education support activity in Jiangmen region on 4th February. Led by general manager Jiang Hougui, the team, together with Jiangmen Charity Association and teachers from Jiangmen No. 1 Middle School, visited homes of several students from Jiangmen No. 1 Middle School to deliver educational grants and gift packages. Altogether 3 low-income students with outstanding character and academic performance received a total donation of RMB15,000 from employees of the Company for this education support activity.



關愛特殊群體

特殊群體需要社會各方的關愛，華潤燃氣通過長期而持續的工作，關心、慰問和救助貧困群體、殘障人士、留守兒童、孤寡老人、退伍老兵、「三無」和「五老」人員，希望他們能夠得到和諧美好的生活。

Caring for Groups with Special Needs

Caring from society is essential to groups with special needs. With long-term and continuous efforts, CR Gas has extended its care, arranged visits and offered aids to the poor, the disabled, left-behind children, lonely senior citizens, retired veterans, the “three withouts people” and “senior Party members, veteran specialists, aged teachers, veterans and old models”, hoping that they can enjoy a harmonious and beautiful life.

案例：開展「關愛殘疾人，服務永無限」活動

Case Study: Launching the Caring for the Disabled with Unlimited Service

9月14日，濟寧華潤燃氣聯合當地社區開展了「關愛殘疾人，服務永無限」活動，為小區的殘疾人士免費上門檢查燃氣管道和燃氣灶使用情況。工作人員檢查後對現場發現的用氣隱患進行了整改，還為其贈送並安裝了燃氣灶，排除了安全隱患，保障了他們的日常用氣安全。

On 14th September, CR Gas Jining Company and the local community jointly carry out the Caring for the Disabled with Unlimited Service activity, offering free door-to-door inspections of gas pipelines and gas stoves to the disabled people in the community. The staff conducted on-site rectification of hidden dangers identified during inspections and installed free gas stoves for them to eliminate potential safety hazards and ensure gas safety in their daily life.



關愛殘疾人活動
Caring for the Disabled

鄉村振興

華潤燃氣勇擔央企責任，堅持貫徹落實鄉村振興戰略，透過「人才培育、產業扶貧、基礎設施建設」等方面落實支持工作，將助力美麗鄉村建設作為首要工作任務。

Rural Revitalization

CR Gas bravely undertakes the responsibility of being a state-owned enterprise directly under the central government, adheres to the implementation of the rural revival strategy, renders support through talent cultivation, industrial poverty alleviation, infrastructure construction and other aspects, and takes the construction of beautiful rural structures as the primary task.

案例：建設「氣化鄉鎮」助力鄉村振興

Case Study: Implementation of the Gas in Towns and Villages Project to Facilitate Rural Revival

為響應湖北省政府在「十四五」規劃和二〇三五年遠景目標綱要中提出的積極推進「氣化鄉鎮」工程建設號召，華潤燃氣積極承擔了工程建設工作。該項工作旨在加快鄉鎮燃氣管網鋪設，使老百姓用上清潔、安全、環保的天然氣。自項目啟動以來，華潤燃氣根據襄陽市政府規劃及公司燃氣管線佈局，制訂了涵蓋57個鄉鎮的燃氣開發計劃，並成立專項建設小組，逐步實施鄉鎮天然氣建設，加快補齊農村基礎設施短板和公共服務短板。2021年1季度、襄陽華潤燃氣已完成9個鄉鎮的「氣化鄉鎮」工程建設投運，2個鄉鎮管道在建中，3個鄉鎮完成規劃。

In response to the call of the Hubei provincial government to promote the Gas in Towns and Villages project in support of the Outline of the 14th Five-Year Plan and Long-Range Objectives through the Year 2035, CR Gas has undertaken project construction to speed up the building of gas pipeline networks in towns and villages, allowing people to use clean, safe and eco-friendly natural gas. Since the initiation of the project, CR Gas has formulated a gas development plan covering 57 towns and villages in line with the plan of the Xiangyang municipal government and the gas pipeline layout of the Company, and established a work group on project construction to implement step by step the building of gas pipeline networks in towns and villages to shore up weaknesses in rural infrastructure and public service. In the first quarter of 2021, Xiangyang CR Gas completed the construction of and put into operation the Gas in Towns and Villages project in 9 towns and villages, with another 2 under construction and another 3 completing planning.



志願服務

華潤燃氣堅持「奉獻、友愛、互助、進步」的志願服務精神，不斷充實擴大員工志願者隊伍，動員大家投身志願服務，到多個地方開展志願者活動和服務，促進美好社區的建設。

Volunteer Services

Adhering to the voluntary service spirit of dedication, fraternity, mutual support and improvement, CR Gas has continuously expanded its staff volunteer teams, motivated them to participate in voluntary services, carried out volunteer activities and services in many places, and promoted the construction of a better community.

案例：青年志願者開展學雷鋒活動

Case Study: Young Volunteers Carried out Learning from Lei Feng activities

2021年3月，青島能源華潤燃氣西海岸公司的青年團員到別家村開展了「志願紅扮靚鄉村藍」學雷鋒志願服務進鄉村活動。青年團員到美麗鄉村開展安全宣傳活動，發放200餘份燃氣安全宣傳材料，普及安全知識，提升了居民的用氣安全意識。志願者們還為貧困戶送去了米、面等生活用品和口罩等防護用品，幫助老人打掃衛生，送溫暖、獻愛心。

In March 2021, the youth league members of Qingdao Energy CR Gas West Coast Company carried out the Learning from Lei Feng volunteer service in Biejia Village. They conducted safety education activities in the beautiful village and distributed more than 200 copies of gas safety promotional materials to promote safety knowledge and increase safety awareness of the villagers in the use of gas. Volunteers also delivered daily necessities such as rice and noodles as well as protective equipment such as masks to poor households, and helped the elderly clean up to send their warmth and love.

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可持續發展績效指標 Sustainability Performance Indicators

環境績效

ENVIRONMENTAL PERFORMANCE

指標	Index	單位 Unit	2021	2020	2019	2018	2017
環保總投入	Total environmental investment	萬港元 HK\$'0,000	4,417.69	2,827.69	2,839.66	2,903.55	2,453.52
節能減排技術改造投入	Investment in technological upgrade for energy saving and emission reduction	萬港元 HK\$'0,000	4,202.99	2,722.42	2,729.56	2,745.47	2,320.89
環保培訓參與人次	Participants of environmental protection training	人次 Attendance	191,127	161,425	143,242	139,416	121,231
環保培訓總時長	Total hours of environmental protection training	小時 Hour	348,967	292,267	251,726	242,712	211,054
環保培訓總投入	Total investment in environmental protection training	萬港元 HK\$'0,000	174.29	131.84	110.10	111.95	94.63
硫化物排放總量	Total sulphur oxides emissions	千克 kg	96.06	92.43	96.59	115.23	未披露 Undisclosed
溫室氣體排放總量 ⁽¹⁾	Total greenhouse gas emissions ⁽¹⁾	噸二氧化碳當量 tonnes CO ₂ e	145,608.5	202,226.577	243,086.402	252,784.778	未披露 Undisclosed
溫室氣體直接排放量 (範圍一) ⁽²⁾	Direct greenhouse gas emissions (scope 1) ⁽²⁾	噸二氧化碳當量 tonnes CO ₂ e	35,494.2	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed
溫室氣體間接排放量 (範圍二) ⁽³⁾	Indirect greenhouse gas emissions (scope 2) ⁽³⁾	噸二氧化碳當量 tonnes CO ₂ e	110,114.3	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed
溫室氣體排放密度	Greenhouse gas emission density	噸二氧化碳當量/ 萬港元營業額 tonnes CO ₂ e/ revenue of HK\$'0,000	0.0186	0.0362	0.0435	0.0494	未披露 Undisclosed
綜合能源消耗折算標準煤總量	Total overall energy consumption (converted to standard coal)	萬噸標準煤 '0,000 tonnes of standard coal	4.3147	4.0116	4.6947	4.8368	4.8452
綜合能耗折算標準煤密度	Overall energy consumption density (converted to standard coal)	萬噸標準煤/ 億港元營業額 '0,000 tonnes of standard coal/revenue of HK\$'00 million	0.0055	0.0072	0.0084	0.0095	未披露 Undisclosed
萬港元營業收入綜合能耗 (可比價)	Overall energy consumption per HK\$'0,000 revenue (at comparable price)	噸標準煤/萬港元 tonnes of standard coal/ HK\$'0,000	0.0046	0.0052	0.0062	0.0070	0.0080



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可持續發展績效指標 Sustainability Performance Indicators

指標	Index	單位 Unit	2021	2020	2019	2018	2017
萬港元增加值綜合能耗 (可比價)	Overall energy consumption per HK\$'0,000 value added (at comparable price)	噸標準煤／萬港元 tonnes of standard coal/ HK\$'0,000	0.0167	0.0181	0.0230	0.0238	0.0248
柴油消耗量	Diesel consumption volume	噸 tonnes	852.92	816.520	987.530	1,200.034	未披露 Undisclosed
柴油消耗量密度	Diesel consumption density	噸／億港元營業額 tonnes/revenue of HK'00 million	1.091	1.462	1.769	2.345	未披露 Undisclosed
汽油消耗量	Gasoline consumption volume	噸 tonnes	3,917.10	3,892.130	3,910.350	4,549.886	未披露 Undisclosed
汽油消耗量密度	Gasoline consumption density	噸／億港元營業額 tonnes/revenue of HK'00 million	5.011	6.967	7.003	8.893	未披露 Undisclosed
天然氣消耗量	Natural gas consumption volume	萬標準立方米 '0,000 standard m ³	966.323	839.670	954.996	961.229	未披露 Undisclosed
天然氣消耗密度	Natural gas consumption density	萬標準立方米／ 億港元營業額 '0,000 standard m ³ / revenue of HK'00 million	1.236	1.503	1.710	1.879	未披露 Undisclosed
外購電力消耗量	Externally purchased power consumption volume	萬千瓦時 '0,000 kWh	18,952.555	17,921.937	22,014.732	22,083.148	未披露 Undisclosed
外購電力消耗密度	Externally purchased power consumption density	萬千瓦時／ 億港元營業額 '0,000 kWh/revenue of HK'00 million	24.244	32.081	39.428	43.160	未披露 Undisclosed
燃氣具包裝材料	Packaging materials of gas appliances	噸 tonnes	1,208.03	957 ⁽⁴⁾	387.6	374.48	未披露 Undisclosed
新建項目執行環境和 社會影響評估的比率	Ratio of new construction projects conducting environmental and social impact assessment	百分比 %	100	100	100	100	100

社會績效

SOCIAL PERFORMANCE

指標	Index	單位 Unit	2021	2020	2019	2018	2017
安全培訓投入	Safety training investment	萬港元 HK\$'0,000	2,804.77	2,194	2,246	2,032	1,552
安全培訓總時長	Total hours of safety training	小時 Hour	740,816	699,939	596,897	594,970	763,359
安全培訓參與人次	Participants of safety training	人次 Attendance	338,874	273,253	263,187	249,812	258,865
安全培訓覆蓋率	Coverage of safety training	百分比 %	100	100	100	100	100
安全應急演練次數	Number of safety emergency response drills conducted	次 Number of times	4,278	3,052	2,885	2,816	2,593
安全生產投入	Safe production investment	萬港元 HK\$'0,000	70,645	62,445	63,923	43,620	33,311
安全生產事故數	Number of safe production accidents	次 Number of times	0	0	0	0	0
員工傷亡人數	Employee fatalities	人 Person	0	0	0	0	0
因工傷損失工作日數	Work days lost due to injury	天 Day	0	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed
安全管理人員持證人數	Number of licensed safety management personnel	人 Person	3,513	2,321	2,685	2,978	2,485
註冊安全工程師人數	Number of registered safety engineers	人 Person	1,003	958	935	892	790
供應商通過質量、環境和職業健康安全管理体系認證的比例	Percentage of certified suppliers under the quality, environmental and occupational health and safety management systems	百分比 %	100	100	96	95	95
供應商受到經濟、社會或環境方面處罰的個案數量	Number of suppliers being imposed with economic, social or environmental penalties	個 Number	0	0	0	0	0
責任採購比率	Responsible procurement coverage	百分比 %	100	92.0	93.9	85.1	84.2
新增就業人數	Number of newly employed employees	人 Person	2,051	2,071	539	6,020	1,890



指標	Index	單位 Unit	2021	2020	2019	2018	2017
女性管理者比例	Ratio of female managers	百分比 %	23.19	15.50	24.90	27.00	24.70
殘疾人僱傭人數	Number of disabled persons employed	人 Person	86	81	61	94	93
少數民族員工人數 ⁽⁴⁾	Number of ethnic minorities employed ⁽⁴⁾	人 Person	1,634	1,700	1,388	1,102	1,087
員工總人數	Total number of employees	人 Person	52,354	48,205	48,570	48,031	42,011
女性員工人數 ⁽⁴⁾	Number of female employees ⁽⁴⁾	人 Person	18,324	16,969	15,542	16,330	15,434
男性員工人數 ⁽⁴⁾	Number of male employees ⁽⁴⁾	人 Person	34,030	31,236	33,028	31,701	26,577
20-30歲員工人數	Number of employees aged 20-30	人 Person	8,473	8,689	10,703	12,204	未披露 Undisclosed
31-40歲員工人數	Number of employees aged 31-40	人 Person	21,808	19,410	17,452	16,027	未披露 Undisclosed
41-50歲員工人數	Number of employees aged 41-50	人 Person	16,392	13,670	14,478	14,309	未披露 Undisclosed
> 50歲員工人數	Number of employees aged > 50	人 Person	5,681	6,436	5,937	5,491	未披露 Undisclosed
管理層員工人數	Number of management staff	人 Person	1,777	1,097	1,111	1,067	未披露 Undisclosed
中層員工人數	Number of middle-level staff	人 Person	3,581	2,969	3,137	3,181	未披露 Undisclosed
基層員工人數	Number of elementary staff	人 Person	46,996	44,139	44,322	43,783	未披露 Undisclosed
北方地區員工人數	Number of employees from Northern areas	人 Person	3,462	3,573	3,920	2,202	未披露 Undisclosed
中西地區員工人數	Number of employees from Midwest areas	人 Person	7,325	7,688	8,565	8,579	未披露 Undisclosed
華北地區員工人數	Number of employees from North China	人 Person	6,931	8,767	8,739	7,716	未披露 Undisclosed
華中地區員工人數	Number of employees from Central China	人 Person	3,771	3,304	3,638	3,859	未披露 Undisclosed
華東地區員工人數	Number of employees from East China	人 Person	4,924	4,914	5,534	5,441	未披露 Undisclosed

指標	Index	單位 Unit	2021	2020	2019	2018	2017
東南地區員工人數	Number of employees from Southeast areas	人 Person	4,281	4,507	4,993	4,891	未披露 Undisclosed
西南地區員工人數	Number of employees from Southwest areas	人 Person	6,629	6,285	6,874	7,402	未披露 Undisclosed
華南地區員工人數	Number of employees from South China	人 Person	3,855	3,874	4,400	4,520	未披露 Undisclosed
其他地區員工人數	Number of employees from other areas	人 Person	11,176	5,293	1,907	3,421	未披露 Undisclosed
員工流失率	Employee turnover rate	百分比 %	3	5	5	6	未披露 Undisclosed
男性員工流失率	Male employee turnover rate	百分比 %	3	4	4	5	未披露 Undisclosed
女性員工流失率	Female employee turnover rate	百分比 %	2	6	6	7	未披露 Undisclosed
20-30歲員工流失率	Turnover rate of employees aged 20-30	百分比 %	6	6	7	8	未披露 Undisclosed
31-40歲員工流失率	Turnover rate of employees aged 31-40	百分比 %	2	3	3	3	未披露 Undisclosed
41-50歲員工流失率	Turnover rate of employees aged 41-50	百分比 %	2	2	2	3	未披露 Undisclosed
> 50歲員工流失率	Turnover rate of employees aged > 50	百分比 %	2	17	15	17	未披露 Undisclosed
管理層員工流失率	Turnover rate of management staff	百分比 %	1	4	4	2	未披露 Undisclosed
中層員工流失率	Turnover rate of middle-level staff	百分比 %	1	2	3	3	未披露 Undisclosed
基層員工流失率	Turnover rate of elementary staff	百分比 %	3	5	5	6	未披露 Undisclosed
北方地區員工流失率	Turnover rate of employees from Northern areas	百分比 %	3	7	8	12	未披露 Undisclosed
中西地區員工流失率	Turnover rate of employees from Midwest areas	百分比 %	3	4	4	6	未披露 Undisclosed



指標	Index	單位 Unit	2021	2020	2019	2018	2017
華北地區員工流失率	Turnover rate of employees from North China	百分比 %	2	3	2	2	未披露 Undisclosed
華中地區員工流失率	Turnover rate of employees from Central China	百分比 %	3	4	8	6	未披露 Undisclosed
華東地區員工流失率	Turnover rate of employees from East China	百分比 %	4	5	5	6	未披露 Undisclosed
東南地區員工流失率	Turnover rate of employees from Southeast areas	百分比 %	4	5	5	7	未披露 Undisclosed
西南地區員工流失率	Turnover rate of employees from Southwest areas	百分比 %	2	4	5	6	未披露 Undisclosed
華南地區員工流失率	Turnover rate of employees from South China	百分比 %	6	6	8	9	未披露 Undisclosed
其他地區員工流失率	Turnover rate of employees from other areas	百分比 %	2	9	6	4	未披露 Undisclosed
接收應屆畢業生人數	Number of fresh graduates employed	人 Person	485	545	592	785	866
勞動合同簽訂率	Coverage of labour contracts	百分比 %	100	100	100	100	100
社會保險覆蓋率	Coverage rate of social insurance	百分比 %	100	100	100	100	100
人均帶薪休假期數	Average paid leave days per person	天 Day	11	11	11	11	11
員工平均工資水平	Average salary of employees	萬港元 HK\$'0,000	12.95	9.79	10.39	10.27	9.08
年度新增職業病和企業累計職業病	New occupational disease and accumulative occupational disease during the year	例 Case	0	0	0	0	0

指標	Index	單位 Unit	2021	2020	2019	2018	2017
體檢及健康檔案覆蓋率	Coverage for physical examination and health archiving	百分比 %	100	100	100	100	100
人均培訓投入	Training investment per person	港元 HK\$	1,315.21	1,398	2,100	2,076	2,322
人均培訓時長	Training hours per person	學時 Hour	24.5	38.2	77.8	64.8	87.0
員工培訓覆蓋率	Employee training coverage	百分比 %	100	100	100	100	100
產品合格率(百尊)	Rate of qualified products (percentage)	百分比 %	100	100	100	100	100
客戶滿意度	Customer satisfaction	百分比 %	95.0	94.0	93.2	91.7	91.0
困難員工幫扶投入	Investment in employees in hardships	萬港元 HK\$'0,000	273.56	304.87	287.84	468.91	450.09
救助困難員工投入	Investment in employees in difficulty	萬港元 HK\$'0,000	35.5	44.77	42.69	147.20	138.49
走訪慰問困難員工家庭投入	Investment in visits and comforts delivered to families of employees in difficulty	萬港元 HK\$'0,000	50	59.06	54.33	106.84	92.33
資助困難員工子女入學投入	Investment in the education of children of employees in difficulty	萬港元 HK\$'0,000	7.4	7.42	6.86	75.98	69.24
社會捐贈總額	Total social donations	萬港元 HK\$'0,000	511.00	778.25	907.50	633.60	485.80
公益志願服務投入總時長	Total hours devoted to charity and volunteer service	萬小時 0'000 Hours	25.4	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed	未披露 Undisclosed
員工志願活動人次	Participants of volunteer activities	人次 Attendance	98,000	12,000	28,630	23,483	21,782
扶貧專項資金投入	Special funds for poverty alleviation	萬港元 HK\$'0,000	446.54	312.18	488.23	311.22	71.90



註：

1. 參考國家發改委委託國家應對氣候變化戰略研究和國際合作中心編製的《工業其他行業企業溫室氣體排放核算方法與指南報告》(試行)和《中國石油和天然氣生產企業溫室氣體排放核算方法與報告指南》(試行)對華潤燃氣2021年度溫室氣體排放進行核算。
2. 溫室氣體範圍一排放量，根據汽柴油、天然氣總消耗量進行計算，相關排放因子來自《中國石油和天然氣生產企業溫室氣體排放核算方法與報告指南》(試行)中「常見化石燃料特性參數缺省值」附錄。
3. 溫室氣體範圍二排放量，外購電力的排放因子選取2022年3月10日中國生態環境部辦公廳發佈的《關於做好2022年企業溫室氣體排放報告管理相關重點工作的通知》中對其他行業企業溫室氣體排放核算要求明確的全國電網排放因子，即0.5810tCO₂/MWh。
4. 2021年優化了數據統計口徑，已對過往數據進行重列。

Notes:

1. The greenhouse gas emissions of CR Gas in 2021 were calculated with reference to the Accounting Method and Reporting Guide for Greenhouse Gas Emissions from Industry and Other Sectors (for Trial Implementation) (《工業其他行業企業溫室氣體排放核算方法與指南報告》(試行)) and the Accounting Method and Reporting Guide for Greenhouse Gas Emissions from Chinese Petroleum and Natural Gas Production Enterprises (for trial implementation) (《中國石油和天然氣生產企業溫室氣體排放核算方法與報告指南》(試行)) developed by the National Climate Change Strategy Research and International Cooperation Center under the engagement of the National Development and Reform Commission.
2. Scope 1 emissions of greenhouse gases were calculated based on the total consumption of gasoline, diesel and natural gas, and the relevant emission factors were derived from the Appendix "Default Values of Special Parameters of Common Fossil Fuel" of the Accounting Method and Reporting Guide for Greenhouse Gas Emissions from Chinese Petroleum and Natural Gas Production Enterprises (for trial implementation) (《中國石油和天然氣生產企業溫室氣體排放核算方法與報告指南》(試行)).
3. For Scope 2 emissions of greenhouse gas, selected for the emission factor of purchased electricity was the national grid emission factor, being 0.5810tCO₂/MWh, as specified in the GHG emission accounting requirements for enterprises in other industries in the Notice on Doing a Good Job in the Management of Corporate Greenhouse Gas Emissions Reporting in 2022 (《關於做好2022年企業溫室氣體排放報告管理相關重點工作的通知》) published by the General Office of the Ministry of Ecology and Environment of China on 10th March 2022.
4. With the optimization of data collection in 2021, historical data has been restated.

附錄：《環境、社會及管治報告指引》內容索引

Appendix: ESG Reporting Guide Content Index

環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
環境 Environmental			
A1： 排放物 Emissions	一般披露 General Disclosure	有關廢氣及溫室氣體排放、向水及土地的排污、有害及無害廢棄物的產生等的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste	P34-46
	A1.1	排放物種類及相關排放數據 The types of emissions and respective emissions data	P47-48, 90
	A1.2	溫室氣體總排放量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算） Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P47, 90
	A1.3	所產生有害廢棄物總量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算） Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	由於廢棄物定量數據的統計範圍和計算標準，還未能真實反應華潤燃氣在該方面的工作成效，華潤燃氣將在2022年調整確定該方面數據後在2022財年的ESG報告中披露。
	A1.4	所產生無害廢棄物總量（以噸計算）及（如適用）密度（如以每產量單位、每項設施計算） Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	As the statistical scope and calculation standards of quantitative waste data failed to truly reflect the results of CR Gas' efforts in this area, CR Gas will disclose relevant data in its ESG report in fiscal year 2022 after adjusting the data in this area in 2022.
	A1.5	描述減低排放量的措施及所得成果 Description of measures to mitigate emissions and results achieved	P37-45
	A1.6	描述處理有害及無害廢棄物的方法、減低產生量的措施及所得成果 Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	P44-45



環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
A2 : 資源使用 Use of Resources	一般披露 General Disclosure	有效使用資源 (包括能源、水及其他原材料) 的政策 Policies on the efficient use of resources, including energy, water and other raw materials	P34
	A2.1	按類型劃分的直接及 / 或間接能源 (如電、氣或油) 總耗量 (以千個千瓦時計算) 及密度 (如以每產量單位、每項設施計算) Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility)	P47, 92
	A2.2	總耗水量及密度 (如以每產量單位、每項設施計算) Water consumption in total and intensity (e.g. per unit of production volume, per facility)	P45
	A2.3	描述能源使用效益計劃及所得成果 Description of energy use efficiency initiatives and results achieved	P34-35
	A2.4	描述求取適用水源上可有任何問題, 以及提升用水效益計劃及所得成果 Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	P45
	A2.5	製成品所用包裝材料的總量 (以噸計算) 及 (如適用) 每生產單位佔量 Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	P47, 91
A3 : 環境及天然資源 The Environment and Natural Resources	一般披露 General Disclosure	減低發行人對環境及天然資源造成重大影響的政策 Policies on minimising the issuer's significant impact on the environment and natural resources	P44
	A3.1	描述業務活動對環境及天然資源的重大影響及已採取管理有關影響的行動 Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	P44-46
A4 : 氣候變化 Climate Change	一般披露 General Disclosure	識別及應對已經及可能會對發行人產生影響的重大氣候相關事宜的政策 Policies on identification and handling of significant climate-related issues which have impacted, and those which may impact, the issuer	P36
	A4.1	描述已經及可能會對發行人產生影響的重大氣候相關事宜, 及應對行動 Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them	P36

環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
B1： 僱傭 Employment	一般披露 General Disclosure	有關薪酬及解僱、招聘及晉升、工作時數、假期、平等機會、多元化、反歧視以及其他待遇及福利的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare	P68
	B1.1	按性別、僱傭類型、年齡組別及地區劃分的僱員總數 Total workforce by gender, employment type, age group and geographical region	P62, 93
	B1.2	按性別、年齡組別及地區劃分的僱員流失比率 Employee turnover rate by gender, age group and geographical region	P94
B2： 健康與安全 Health and Safety	一般披露 General Disclosure	有關提供安全工作環境及保障員工避免職業性危害的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards	P50, 69
	B2.1	因工作關係而死亡的人數及比率 Number and rate of work-related fatalities	P59, 92
	B2.2	因工傷損失工作日數 Lost days due to work injury	P59, 92
	B2.3	描述所採納的職業健康與安全措施，以及相關執行及監察方法 Description of occupational health and safety measures adopted, how they are implemented and monitored	P69



環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
B3 : 發展及培訓 Development and Training	一般披露 General Disclosure	有關提升員工履行工作職責的知識及技能的政策。描述培訓活動 Information on policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	P63-66
	B3.1	按性別及僱員類別(如高級管理層、中級管理層等)劃分的受訓僱員百分比 The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	P67
	B3.2	按性別及僱員類別劃分,每名僱員完成受訓的平均時數 The average training hours completed per employee by gender and employee category	P67
B4 : 勞工準則 Labour Standards	一般披露 General Disclosure	有關防止童工或強制勞工的: (a) 政策;及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour	P68
	B4.1	描述檢討招聘慣例的措施以避免童工及強制勞工 Description of measures to review employment practices to avoid child and forced labour	P68
	B4.2	描述在發現違規情況時消除有關情況所採取的步驟 Description of steps taken to eliminate such practices when discovered	未出現使用童工及強制勞工的情況,不適用 Not applicable because there were no cases of child and forced labour

環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
B5： 供應鏈管理 Supply Chain Management	一般披露 General Disclosure	管理供應鏈的環境及社會風險政策 Policies on managing environmental and social risks of the supply chain	P80-81
	B5.1	按地區劃分的供應商數目 Number of suppliers by geographical region	P82
	B5.2	描述有關聘用供貨商的慣例，向其執行有關慣例的供貨商數目、以及有關慣例的執行及監察方法 Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	P82
	B5.3	描述有關識別供應鏈每個環節的環境及社會風險的慣例，以及相關執行及監察方法 Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored	P80
	B5.4	描述在揀選供應商時促使多用環保產品及服務的慣例，以及相關執行及監察方法 Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored	P82



環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
B6 : 產品責任 Product Responsibility	一般披露 General Disclosure	有關所提供產品和服務的健康與安全、廣告、標籤及私隱事宜以及補救方法的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress	P74-75
	B6.1	已售或已運送產品總數中因安全與健康理由而須回收的百分比 Percentage of total products sold or shipped subject to recalls for safety and health reasons	主營業務不適用 Not applicable to the major business operations
	B6.2	接獲關於產品及服務的投訴數目以及應對方法 Number of products and service related complaints received and how they are dealt with	P79
	B6.3	描述與維護及保障知識產權有關的慣例 Description of practices relating to observing and protecting intellectual property rights	P76
	B6.4	描述質量檢定過程及產品回收程序 Description of quality assurance process and recall procedures	主營業務不適用 Not applicable to the major business operations
	B6.5	描述消費者資料保障及私隱政策，以及相關執行及監察方法 Description of consumer data protection and privacy policies, and how they are implemented and monitored	P75

環境、社會及管治指標索引 Reference Table of ESG Indices			披露頁碼 Pages of Disclosure
B7: 反貪污 Anti-Corruption	一般披露 General Disclosure	有關防止賄賂、勒索、欺詐及洗黑錢的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料 Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing bribery, extortion, fraud and money laundering	P15-18
	B7.1	於匯報期內對發行人或其僱員提出並已審結的貪污訴訟案件的數目及訴訟結果 Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases	P19
	B7.2	描述防範措施及舉報程序，以及相關執行及監察方法 Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored	P17-19
	B7.3	描述向董事及員工提供的反貪污培訓 Description of anti-corruption training provided to directors and staff	P18
B8: 社區投資 Community Investment	一般披露 General Disclosure	有關以社區參與來了解營運所在社區需要和確保其業務活動會考慮社區利益的政策 Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	P84
	B8.1	專注貢獻範疇（如教育、環境事宜、勞工需求、健康、文化、體育） Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	P84-89
	B8.2	在專注範疇所動用資源（如金錢或時間） Resources contributed (e.g. money or time) to the focus area	P84, 96



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