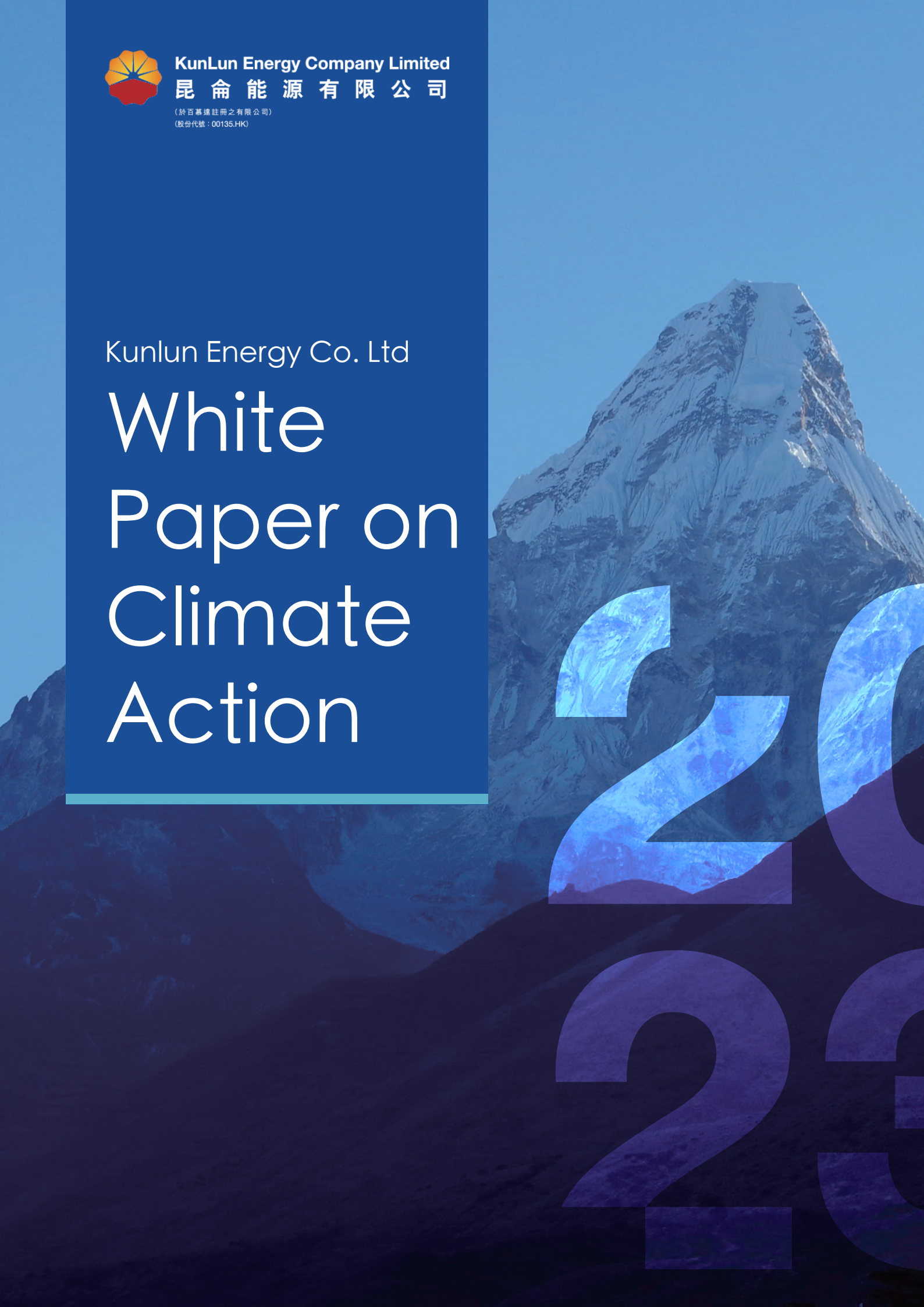
KunLun Energy Company Limited
昆 侖 能 源 有 限 公 司
（於百慕達註冊之有限公司）
（股份代號：00135.HK）

Kunlun Energy Co. Ltd

White Paper on Climate Action



About The Report

Introduction to the Report

Kunlun Energy is pleased to release this inaugural Climate Action Progress Report (hereafter referred to as the "Report"). This document aims to give a more objective and comprehensive disclosure of the Company' s vision, strategy, and practices in addressing climate change, enhance stakeholder understanding and confidence, and foster continuous improvements in climate resilience and sustainability performance.

Scope of the Report

The Report mainly covers Kunlun Energy and relates to its subsidiaries listed in Note 36 "Principal Subsidiaries" in the consolidated financial statements of the Annual Report 2023. The reporting period spans from January 1, 2023, to December 31, 2023, with some data extending moderately to previous and subsequent years to ensure comparability and forward-looking relevance.

Guides and Standards

The Report is prepared with reference to the *Implementation Guidance Climate-Related Disclosures Under HKEx Environmental, Social And Governance Framework, IFRS Sustainability Disclosure Standard" ("IFRS S2"), Greenhouse Gas Protocol - Corporate Accounting and Reporting Standards*, and *Greenhouse Gas Protocol - Corporate Value Chain (Scope 3) Standard*.

Forward-Looking Statements

In addition to historical data, the Report includes forward-looking statements regarding future events. These statements include but are not limited to assumptions, prerequisites, greenhouse gas emission targets, climate risk assessment ratings, financial estimates and action plans for energy conservation and emission reduction, and measures to mitigate climate risks. Actual results or trends related to these events may differ from those projected due to external variables. The forward-looking statements in the Report are current as of July 2024, and Kunlun Energy assumes no obligation or responsibility to revise them.

Data Description

The Report is based on Kunlun Energy and its principal subsidiaries' internal information, including circulars, official documents, and statistical reports, and focuses on the Company' s strategic priorities, climate initiatives, and stakeholder interests.

Term Description

For clarity, "Kunlun Energy" "the Company" and "we" throughout the Report refer to "Kunlun Energy Co. Ltd."

Access to the Report

The Report is available in both Simplified Chinese and English and can be downloaded from Kunlun Energy' s official website (https://www.kunlun.com.hk/s/index.php).

Content

Foreword

Climate change presents a huge global challenge exerting increasingly profound, far-reaching impacts on future economic and social development. Recognizing the critical importance of climate adaptation and mitigation, Kunlun Energy has positioned itself as a leader in the gas industry, particularly in achieving carbon peaking and carbon neutrality. Embracing a path of green and low-carbon development, the Company continuously enhances its strategies and capacity reserves to address climate change. We systematically assess and analyze the impacts of climate risks, identify opportunities within the climate transition trend, and practice comprehensive response strategies.

The Report marks Kunlun Energy' s inaugural climate-related financial disclosure. By fully adopting the disclosure frameworks and requirements of the *Implementation Guidance Climate-Related Disclosures Under HKEx Environmental, Social And Governance Framework* and *IFRS S2*, the Company has established a closed-loop climate management framework encompassing Governance, Strategy, Risk Management, and Metrics and Targets. This framework is integrated into the planning, decision-making, and operational processes across various business segments including urban gas, LNG processing, storage and transportation, and new energy, enhancing commercial resilience amidst climate challenges.

Kunlun Energy proactively meets climate change challenges. Through scenario analysis and financial quantification, the Company evaluates physical risks like extreme heat and extreme precipitation on its natural gas value chain, assets, and equipment. The Company also assesses comprehensive risks and opportunities arising from policy changes, energy supply and demand shifts, and technological advancements. The Report details Kunlun Energy' s climate risk assessment methodologies and results, thus providing stakeholders with transparent and objective insights into climate impact concerns.

- Among the 13 categories of physical risks, significant impacts are anticipated from extreme precipitation, extreme heat, river flooding, and other factors. The potential scope of these impacts varies considerably across categories. For instance, extreme heat is expected to affect regions south of the Qinling Mountains-Huaihe River, while coastal areas are susceptible to extreme precipitation. Over time, the areas affected by higher-risk categories are projected to expand.
- Among the 14 categories of transition risks and opportunities, the regulatory policies related to national energy structure and emission reduction are significant factors affecting the future development of Kunlun Energy. Scenario analyses using the potential cost of carbon from carbon emissions exchanges as a factor show that Kunlun Energy' s existing carbon reduction planning pathway is able to adequately address external mitigation-related risks (transition CVaR greater than 0) and that some of the transition risks arising from the policies can be mitigated based on the trend of increasing revenues from the new energy and comprehensive energy businesses.

Furthermore, Kunlun Energy continues to advance low-carbon goal implementation and updates. We refine targets aligned with peaking carbon emissions by 2030 and achieving net-zero emissions by 2050. Specific targets have been set for business segments and operations such as the LPG, urban gas distribution network, and branch pipeline operations, with ambitions to achieve net-zero emissions by 2035. The Company pursues energy efficiency improvements, optimizes the energy mix, empowers emerging technologies, implements phased emission reduction pathways, and tracks low-carbon performance. These efforts, combined with the closed-loop climate management approach, enhance the efficacy of implementation.

Kunlun Energy firmly believes in collaborative stakeholder efforts to deal with climate change and hopes this climate management and action progress report will foster confidence in low-carbon development initiatives and explore effective climate avenues together to create a sustainable and low-carbon future.

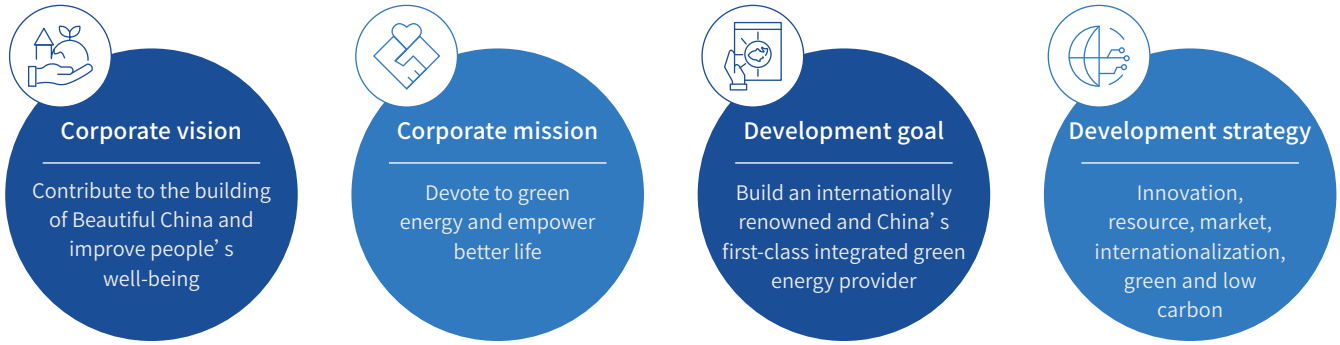
Our Climate Endeavours at a Glance

Ranking among the top natural gas retailers at home, Kunlun Energy seizes upon opportunities presented by the goal of carbon peak and carbon neutrality. We consistently uphold our corporate vision of “contribute to the building of Beautiful China and improve people’ s well-being”, while focusing on developing a diversified business system aligned with emerging energy trends. This entails integrating natural gas and new energy to expand the path toward green and low-carbon development. We strengthen climate governance and risk management capabilities, foster low-carbon technological innovations, optimize comprehensive energy efficiency and supply structures, and rigorously control greenhouse gas emissions. Our goal is to share the tangible benefits of our low-carbon initiatives with society at large.

About Kunlun Energy

Kunlun Energy (stock code 00135.HK) is a Bermuda-registered comprehensive energy company listed on the Main Board of the Hong Kong Stock Exchange and controlled by PetroChina Company Limited. The Company possesses extensive capabilities across urban gas, LNG processing and storage, LPG sales, comprehensive energy, and new energy. The operations span 31 provinces, autonomous regions, municipalities, and the Hong Kong Special Administrative Region. In 2023, Kunlun Energy capitalized on the integration of natural gas and new energy, leveraging its resources and distribution network to accelerate the creation of new growth engines and establish fresh competitive advantages.

▸ Corporate Culture



▸ Key Performance

In 2023, Natural gas sold

49.3 billion m^3

Since 2016, cumulative sales of natural gas reaching approximately

258.1 billion m^3

Equivalent to replacing

343 million tonnes of standard coal

Reducing carbon dioxide emissions by approximately

385 million tonnes

We are awarded “Outstanding” in the State Council's rating of 'Double-Hundred Enterprise' in state-owned enterprise reform
We are shortlisted in China Central SOEs ESG pioneer 50 Index
We are shortlisted in China ESG Listed Company Pioneer 100

Our ESG performance has garnered significant recognition, including selection for the MSCI ESG rating and achieving a BBB rating, positioning us at the industry average level, based on our carbon emissions and comprehensive information disclosure.

We have been invited to participate in the CDP Global Environmental Disclosure Platform for climate information disclosure continuously for 15 years. Since 2021, we have actively responded to climate questionnaires, enhancing transparency in climate-related information.

Participation in the S&P Global Corporate Sustainability Assessment (CSA) has allowed us to showcase our internal initiatives and advancements in information disclosure, particularly concerning our climate strategy.

We are included in 12 indices such as the "Hang Seng SCHK China Central State-owned Enterprises Index," "Hang Seng SCHK China Central SOEs ESG Leaders Index," and "Hang Seng SCHK China Central SOEs Value Index", "Hang Seng SCHK China Central SOEs ESG 40 Index," "Hang Seng SCHK China Central Central State-owned Enterprises ESG Enhanced Index," and "Hang Seng SCHK China Central SOEs ESG Index."

In 2023, locked new energy installed capacityindicators across Xinjiang, Hebei, Shandong, and other regions

4.302 million kW

By the end of 2023, new energy projects completed

25

Comprehensive energy projects

10

The total installed capacity of distributed PV projects is

3.1 MW

Generating electricity

976,000 kWh

Consumed internally

484,800 kWh

Climate Action Milestones

2021

- We joined the China Oil and Gas Methane Alliance, and actively fulfilled member responsibilities by participating in methane emission control cooperation and undertaking research on methane emissions from urban gas services.
- The "CCHP Demonstration Project" at the Hainan LNG Termianl won the First Prize for the 2021 Best Comprehensive Distributed Energy, awarded by the 17th China Distributed Energy International Forum, achieving an annual reduction of standard coal in electricity consumption by 1.51 GWh.
- We launched the study on *Action Plan Towards Carbon Peaking and Carbon Neutrality*, conducting the first on-site research across all business types. This included the approval and analysis of carbon emissions composition, laying the foundation for planning emission reduction paths, targets, and actions.

2022

- We released the *Action Plan Towards Carbon Peaking and Carbon Neutrality (2022 Edition)*, which specified the medium- and long-term emission reduction target: peaking carbon emissions by 2030 and achieving net-zero emissions by 2050.
- We secured the first Carbon Neutral Certificate for natural gas sales, successfully creating a zero-carbon sales model that integrates carbon quotas with natural gas.
- We expanded the development and use of clean energy, procured more green electricity, explored participation in market-based electricity trading, and carried out the green electricity procurement for the first time.

2023

- We standardized the accounting methods for Scope 1 and Scope 2 GHG emissions, continued to improve and organize GHG emission data, and conducted the first research on the verification methodology for Scope 3 GHG emissions.
- The Jiangsu branch' s natural gas stations in Nanjing, Taizhou, and Changshu became carbon neutral and were certified accordingly.

2024

- We have unveiled the *Action Plan Towards Carbon Peaking and Carbon Neutrality (2024 Edition)*, which enhanced and refined targets for carbon peaking and carbon neutrality. The plan outlined a three-step approach towards net-zero emissions, aiming to reach carbon peaking ahead of schedule by 2027 and achieve net zero emissions across our LPG, urban gas distribution network, and branch pipeline operations by 2035.
- We conducted a Scope 3 emissions assessment and identified key links in the value chain' s emissions. We have developed and stockpiled methods and capabilities for Scope 3 assessment and completed its first assessment of GHG emissions across nine Scope 3 categories. This laid the groundwork for ongoing monitoring of emissions progress throughout the value chain and facilitated further emissions reductions in the natural gas industry' s value chain.

Climate Action Highlights 2023

Governance

- **Enhanced climate governance structure:** Integrated climate issues into the agendas of the Board of Directors and the Sustainability Committee as pivotal ESG concerns. Formulated a carbon peaking and neutrality leadership group comprising heads of major functions and business departments to spearhead the comprehensive implementation of the climate strategy. Established a mechanism for division of responsibilities and coordination across different departments.
- **Established a climate incentive and assessment framework:** Published *Statement on Sustainability Linked Remuneration and Recourse Mechanism of Kunlun Energy Company Limited*, which publicly incorporated ESG metrics such as climate change into the performance evaluation criteria for executive directors and management. Introduced remuneration incentives aligned with sustainability principles to effectively embed climate change governance into the operational framework.

Risk Management

- **Enhanced closed-loop climate risk management:** Strengthened climate risk control procedures and tools for identification and evaluation. Conducted assessments of climate risks and opportunities, integrating them into the risk management framework. Developed management strategies, solutions, and supervision plans for identified major risks. Preliminarily assessed impacts and dependencies on 7 transition risks[1], and 13 physical risks[2], and identified 7 climate opportunities.
- **Conducted financial quantification of climate risks:** Launched inaugural financial quantification through climate scenario analysis. Established Kunlun Energy's climate scenario analysis model, and defined analysis parameters. Conducted thorough research and analysis on current and projected impacts of physical and transition risks on finances, operations, and the value chain across various scenarios.

Strategy

- **Prepared a roadmap for achieving net-zero emissions:** Outlined a phased approach comprising three stages: carbon peaking, intensive carbon reduction, and net zero emissions, accompanied by four actions: increasing energy-saving and circular efficiency, expediting the energy transition, deepening technological innovation, and building a green brand, to bolster climate resilience.

1. Transition risk refers to the impact of addressing climate change policies, technological innovations, changes in market sentiment and consumer preferences that affect business and asset valuations.
2. Physical risk relates to the material impacts of climate change, from specific extreme weather events or long-term changes in climate patterns on, for example, operations.

Metrics and Targets

Goals	Progress
GHG Emission	
• By 2030, we will peak CO_2 emissions, and reduce methane emission intensity by **20%** from the 2020 level. • By 2040, we will reduce both CO_2 and methane emission intensities by **40%** from their 2020 levels. • By 2050, we will achieve **net zero emissions**.	• We produced an emission of **1.47** million tCO_2e from the direct operation, with an emission intensity of **0.29** tCO_2e per 10,000 m^3, a **15%** decrease from the 2020 level. • We produced an emission of **142.122** million tCO_2e from value chain operations, with an emission intensity of **28.84** tCO_2e per 10,000 m^3. • We produced **7,150** tons of methane emission, down **12%** from the 2020 level, with a methane emission intensity of **145,100** tons per 10,000 m^3, down **33%** from the 2020 level.
Energy Consumption	
• By 2040, we will achieve an installed capacity of over **1,600** MW of green power and a **60%** share of green power consumption and increase the proportion of non-fossil energy consumption to above **50%**;	• Total energy savings reached **2,400** tons of standard coal. • We purchased **182,873,800** kWh of renewable electricity, accounting for **10.82%** of the total purchased electricity, and obtained **22** green electricity certificates.
Green Operation	
• By 2030, we will completely phase out diesel-fueled vehicles;	• By 2023, **34** diesel vehicles have been phased out, and **28%** of the operating fleet have been new energy vehicles.

Overview of Climate Action

Aligned with its mission of "devote to green energy and empower better life," Kunlun Energy leverages its synergistic business advantages and firmly establishes four core management concepts: safety and environmental protection, integrity and compliance, openness and innovation, and win-win cooperation, while vigorously implementing five development strategies: innovation-driven, sustainable, market-oriented, capital-based, and cost-efficient. Kunlun Energy systematically plans its approach to climate change, aiming to accelerate the transformation into a fully integrated green energy supplier. This strategic shift supports the commitment to achieving carbon peaking and neutrality and aligns with the UNSDGs.

▸ Overview of Kunlun Energy' s Response to Climate Change

Devote to Green Energy and Empower Better Life

◆ Our Goal

Peak carbon emission by 2030 — **Achieve net zero emission** by 2050

◆ Our Action Pillar

Energy Conservation and Efficiency Promote Emission Control	Low Carbon Development Restructure Energy Mix	Bolster Technology Innovation Zero Carbon, Carbon-Negative Energy	Fortify Management Foundation Build Green Brand
• Advance industrial energy conservation and carbon reduction. • Implement green design and expand green building layout. • Strengthen recycling and promote methane emission control.	• Gradually reduce coal and diesel consumption and popularize cleaner energy use. • Introduce green power to realize low-carbon energy consumption. • Promote the integration of natural gas and new energy business to develop green and low-carbon integrated energy services.	• Strengthen green technology R&D and reserves to drive transition. • Actively participate in the development of zero-carbon, carbon-negative projects. • Work on the key technology of digital intelligent control.	• Establish a green and low-carbon institutional standard system. • Strengthen the digital carbon footprint management and support the industry database. • Drive the upstream and downstream to build a green and low-carbon industrial chain and supply chain. • Deepen the exemplary leadership to enhance the greening driving force.

◆ Our Climate Resilience Capabilities

Climate Risks and Opportunities in Focus

Physical Risks	Transition Risks
• Extreme Heat • Extreme Precipitation • Flood • Warming Trends • Water Scarcity • Sea Level Rise •	• Climate Change Policy • Technological Innovation • Market Sentiment • Consumer Preferences • .....

Climate Impacts and Dependency Pathway Identification

Upstream Value Chain → Direct Operations → Downstream Value Chain

Climate-related Financial Impact Assessment

Risk Exposure | Risk Impact | Asset Exposure | Potential Loss

Climate Risk and Opportunity Response

Accept | Avoid | Control | Share

Internal Assurance

Governance Structure | Policy Assurance | Performance & Incentives | Capability Reserve | Digital Integration

External Drivers

Customers | Value Chain | Industry Partners | Community

Kunlun Energy Climate Change Action under UNSDGs

- Launched new energy power generation projects tailored to local conditions, actively advancing wind power, photovoltaic generation, and differential voltage projects.
- Explored the green electricity and green certificate market, introduced affordable green energy, and promoted the integration of certificate verification and electricity use.

- Utilized digital twin technology to create digital models of oil and natural gas pipelines, stations, and other facilities, enabling real-time monitoring and scheduling of equipment and energy consumption.
- Built energy consumption and carbon emission models and provincial benefit measurement models, and developed basic data and greenhouse gas informatisation platforms.
- Optimized energy demand management, increased investments in energy-efficient equipment, phased out high-energy-consuming machinery, and consistently enhanced energy efficiency.
- Explored low-carbon development pathways, and engaged in zero-carbon, negative-carbon initiatives such as CCUS and carbon sinks.

- Actively developed low-carbon and zero-carbon demonstration stations.
- Established carbon-neutral models in emerging cities, new industrial parks, and new constructions.

- Encouraged suppliers to disclose carbon emissions data, conducted supplier environmental audits, and integrated environmental criteria into supplier assessment systems.
- Implemented methane emission control measures, reduced methane emissions through action plans, and process optimizations, enhanced leak detection and repair, and reduced methane emissions from operations.

- Proactively deployed energy-saving and emission reduction strategies, and implemented phased reduction actions across operations.
- Developed a climate governance framework, conducted climate risk identification and management, and enhanced climate resilience and adaptation.
- Strengthened stakeholder communication and organized industry seminars on carbon reduction and environmental protection activities.

Our Climate Governance

Kunlun Energy has formed a three-tier climate change governance structure with defined responsibilities. Through top-down management, supervision, and incentives aligned with sustainability principles, this structure enables efficient identification of climate-related risks and opportunities, formulation and implementation of response plans, comprehensive mitigation of climate impacts, and enhanced climate resilience.

Climate Governance Structure

Kunlun Energy has established a sustainability governance structure with the Board of Directors as the highest decision-making body. The Board receives quarterly updates on climate action and other sustainability issues. The Company has formed a Sustainability Committee comprising key members of the Board. The *Sustainability Committee's Terms of Reference* delineates its role in supporting the Board in assessing climate risks, identifying opportunities, formulating climate strategies and dual carbon goals, and defining response strategies and emission reduction pathways. The Sustainability Committee convenes at least annually and on an ad-hoc basis as needed for critical decision-making. Throughout the year, Kunlun Energy established a dual carbon leadership group composed of heads from major functional and business departments. This group is tasked with enhancing the dual carbon organizational frameworks, operational mechanisms, and support systems. Their mandate also includes clarifying responsibilities across all stakeholders and advancing green and low-carbon development throughout the business area.

In 2023, we approved and released

- *Action Plan towards Carbon Peaking and Carbon Neutrality (2024 Edition)*, planning for climate action systematically.
- *Statement on Sustainability Linked Remuneration and Recourse Mechanism*, incorporating sustainability factor into the management' s remuneration assessment.
- *Scope 3 Greenhouse Gas Emission Results*, laying the foundation for value chain carbon reduction actions.

Governance Levels	Climate Governance Roles	Climate Governance Responsibilities	Frequency of Communication
Governance Level	• Oversee the overall implementation of the climate strategy and the achievement of climate change goals as the highest governance and decision-making body on climate-related matters.	**Board of Directors** • Oversee and guide efforts toward achieving dual carbon goals. • Delegate authority to the Sustainability Committee for climate and other sustainability matters.	• Review the progress of climate-related initiatives through quarterly board meetings.
	• Assess the sustainability and climate efforts, as well as risks and opportunities, and guide the development, implementation and execution of visions, targets, strategies and efforts.	**Sustainability Committee** • Review the climate management policy, strategy, and framework. • Set and monitor climate-related targets, and regularly review their achievement. • Oversee the management of climate risks and opportunities. • Supervise the implementation of the dual carbon program. • Listen to and gather feedback from stakeholders on climate initiatives.	• Convene at least once annually and on an ad-hoc basis for significant decisions.

Governance Levels	Climate Governance Roles	Climate Governance Responsibilities	Frequency of Communication
Management Level	• Define the implementation roadmap for the climate strategy and delineate roles among departments, branches and subsidiaries.	**ESG Reporting Working Group** • Promote external disclosure of climate and other ESG information to comply with policy, regulatory, and trend requirements.	• Collate and summarize progress on climate work regularly. • Disclose climate-related matters to the public annually.
	• Execute the climate and ESG policies, foster inter-departmental communication and coordination and advance climate action and other sustainability initiatives.	**Dual Carbon Working Group** • Clarify responsibilities for implementation. • Identify and assess climate risks and opportunities. • Refine emission reduction pathways, and action plans, and develop specialized work plans, policy frameworks, or procedural documents. • Monitor the progress and outcomes of dual carbon initiatives.	
Execution Level	• Each department, branch and subsidiary, aligned with the overall strategy, develops specific approaches for climate action and related metrics and climate risk assessment supervision, ensuring that climate risk management is assigned to the operational level. They are responsible for collecting and submitting data on energy usage, and disaster evaluations.	**Functional business units, branches and subsidiaries** • Implement dual carbon working requirements, and provide timely feedback and reporting on progress. • Establish a climate risk emergency management mechanism based on the outcomes of climate risk assessments. • Conduct greenhouse gas emission tracking, report data findings, and analyze potential areas for improvement.	• Report on annual dual carbon work, progress, and related data as required.
	• Each project company carries out climate risk management in accordance with the requirements of the functional business units, branches and subsidiaries.	**Project Company** • Actively response to climate risk through human, material and technical means for climate security risk prevention issues.	• Report abreast of issues and problems encountered in practical work.

Climate Response Capacity-Building

To align business strategy and operational decisions with the long-term goals of *Action Plan towards Carbon Peaking and Carbon Neutrality* and avoid climate risks, Kunlun Energy consistently enhances internal and external climate capability. We aim to foster a cohesive framework encompassing government, regulators, the Company, employees, customers, suppliers, industry partners, and the public. This collaboration ensures favorable conditions for achieving our dual carbon objectives methodically and scientifically.

Strengthen Internal Climate Management Capacity

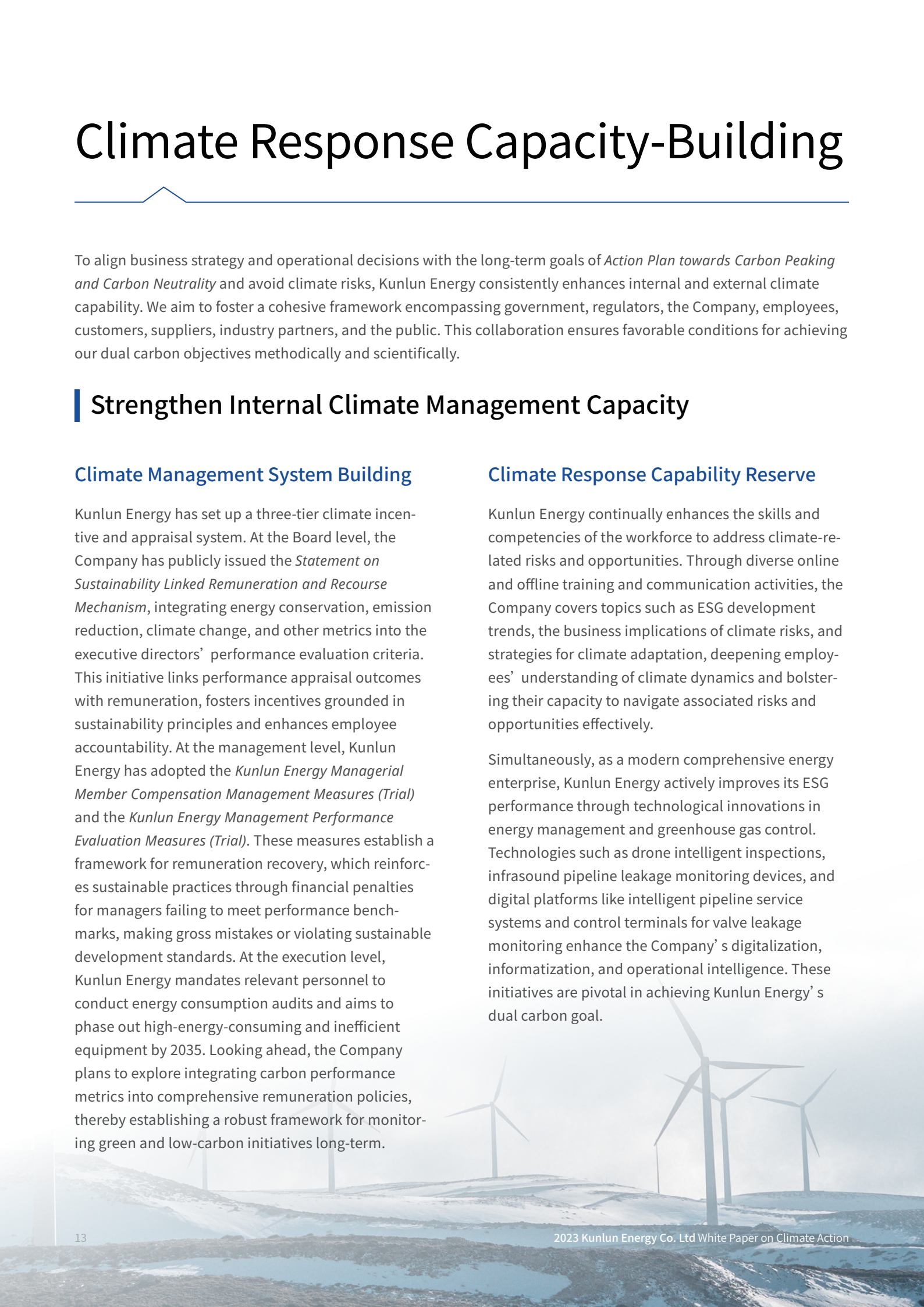
Climate Management System Building

Kunlun Energy has set up a three-tier climate incentive and appraisal system. At the Board level, the Company has publicly issued the *Statement on Sustainability Linked Remuneration and Recourse Mechanism*, integrating energy conservation, emission reduction, climate change, and other metrics into the executive directors' performance evaluation criteria. This initiative links performance appraisal outcomes with remuneration, fosters incentives grounded in sustainability principles and enhances employee accountability. At the management level, Kunlun Energy has adopted the *Kunlun Energy Managerial Member Compensation Management Measures (Trial)* and the *Kunlun Energy Management Performance Evaluation Measures (Trial)*. These measures establish a framework for remuneration recovery, which reinforces sustainable practices through financial penalties for managers failing to meet performance benchmarks, making gross mistakes or violating sustainable development standards. At the execution level, Kunlun Energy mandates relevant personnel to conduct energy consumption audits and aims to phase out high-energy-consuming and inefficient equipment by 2035. Looking ahead, the Company plans to explore integrating carbon performance metrics into comprehensive remuneration policies, thereby establishing a robust framework for monitoring green and low-carbon initiatives long-term.

Climate Response Capability Reserve

Kunlun Energy continually enhances the skills and competencies of the workforce to address climate-related risks and opportunities. Through diverse online and offline training and communication activities, the Company covers topics such as ESG development trends, the business implications of climate risks, and strategies for climate adaptation, deepening employees' understanding of climate dynamics and bolstering their capacity to navigate associated risks and opportunities effectively.

Simultaneously, as a modern comprehensive energy enterprise, Kunlun Energy actively improves its ESG performance through technological innovations in energy management and greenhouse gas control. Technologies such as drone intelligent inspections, infrasound pipeline leakage monitoring devices, and digital platforms like intelligent pipeline service systems and control terminals for valve leakage monitoring enhance the Company' s digitalization, informatization, and operational intelligence. These initiatives are pivotal in achieving Kunlun Energy' s dual carbon goal.



Kunlun Energy Conducts Green Finance and Climate-Related Trainings

In March 2024, Kunlun Energy organized a green finance and climate-related training session in Chengdu for heads of all functional and business departments, branches and subsidiaries. The training featured climate experts who addressed key topics including the utilization of shallow geothermal energy and urban low-carbon green development, construction of near-zero carbon emission parks, and the application of green investment and financing tools. These sessions helped deepen the employee' s understanding of climate change and its implications.

Synergies for Climate Resilience

Kunlun Energy emphasizes collaborative efforts and shared responsibility. We are dedicated not only to building ourself as an internationally renowned and China's first-class integrated green energy provider but also to advocating for low-carbon development principles among multiple stakeholders. Our commitment extends to contributing to the building of Beautiful China and improve people' s well-being.

Kunlun Energy Participates in the Activity - Planting Trees for Carbon Neutrality

Customer

Guided by the principles of "Start from the customer needs, aim for customer satisfaction, and exceed customer expectations", and committed to the mission of "Devote to green energy and empower better life," we strive to achieve "zero harm, zero pollution, zero accident, zero quality defect and energy consumption reduction", thus fulfilling our customers' demand for green energy while delivering high-quality and efficient service.

Supplier

Besides the *Supplier Evaluation Form, Supplier Commitment Letter,* and other management documents, we execute the *Green Procurement Management Measures* to control greenhouse gas emissions across our value chain through collaborative activities.

The Public

We engage in environmental initiatives such as "Planting Trees for Carbon Neutrality" and promote greening initiatives on all suitable company-owned land to educate the public about low-carbon development principles.

Industry Partners

Our focus remains on advancing innovative technologies, particularly in confinement and carbon emission modeling. We participate in the development of national, industry, and group standards, engage in industry-wide exchanges, and contribute to the industry' s green and low-carbon transformation.

Our Comprehensive Climate Risk Management

Kunlun Energy attaches importance to the potential impacts of extreme precipitation, extreme heat, typhoons, and other weather events triggered by climate change on its operations and across its value chain. Adopting the *IFRS Sustainability Disclosure Standard ("IFRS S2")* and referring to the *Implementation Guidance Climate-Related Disclosures Under HKEX Environmental, Social And Governance Framework*, and also considering the emission requirements of domestic "dual carbon" targets, the Company identifies, assesses, and manages climate-related risks and opportunities within its operational segments and upstream and downstream value chain. This approach facilitates targeted decision-making, effective risk prevention, and efficient management, enhancing the Company's resilience to climate change.

Climate Risks and Opportunities Management

Climate risk management capacity-building

- Build a climate risk management structure and clarify the closed-loop management process of "risk identification - risk analysis - risk evaluation - risk prevention and control - monitoring and review", so as to lay a solid foundation for sustained climate risk response

Identify risks and opportunities

- Understand how major business processes (upstream value chain, direct operational segments, downstream value chain) are related to physical risks and transition risks. Identify potential risk points and form a library of climate risks and opportunities for Kunlun Energy

Impact pathway analysis

- Review the value creation process and business model to understand the impact and dependency of all climate risks in the short, medium and long term, and identify the conditions, targets and consequences of the risks

Risk assessment and ranking

- Based on industry benchmarking analysis, internal research results, and external advice, rank risks and opportunities in terms of materiality based on the likelihood of occurrence and the degree of potential impact as key evaluation indicators in the risk and opportunity matrix

Financial and strategic impact evaluation

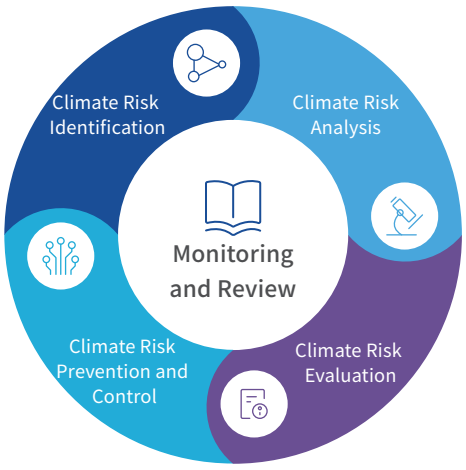
- Based on different climate scenarios, adopt climate scenario analysis and evaluation methods to quantitatively assess financial and market performance under different future climate scenarios, to provide reference for corporate decision-making and enhance strategic resilience

Risk Response and Management

- Adopt risk acceptance, risk avoidance, risk control and risk sharing strategies based on climate risk levels, risk occurrence conditions and management priorities

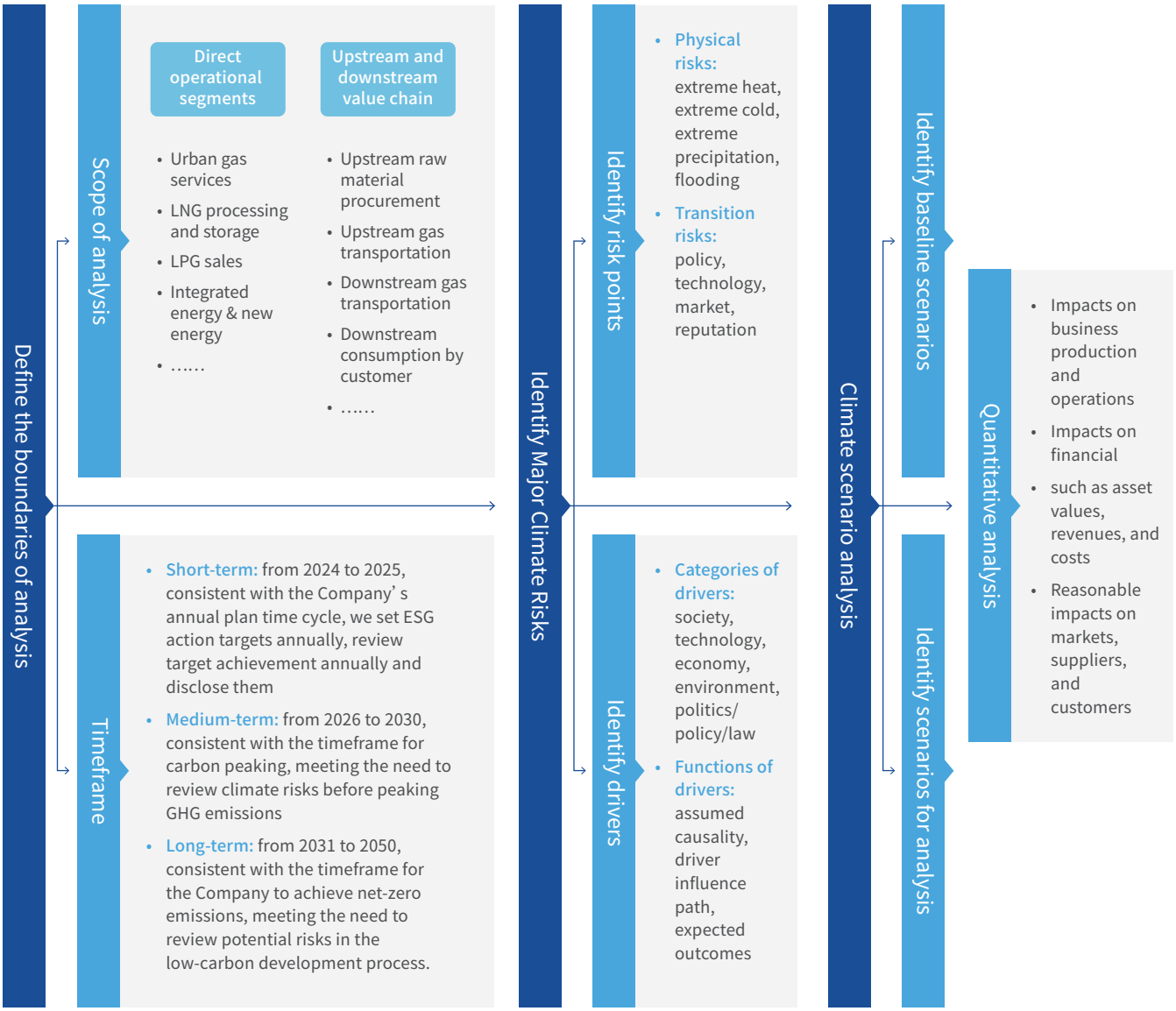
Kunlun Energy Climate Risk Management Process

Kunlun Energy integrates climate change risk management into its existing risk management closed-loop framework. This is achieved through top-level planning by the Board of Directors, overall leadership by the management, and collaborative efforts between the Legal Compliance Department and business departments. The process follows the climate risk management cycle of risk identification, risk analysis, risk evaluation, risk prevention and control, and monitoring and review. The Company comprehensively evaluates management strategies, solutions, and oversight plans for 27 types of climate risks and opportunities.



Kunlun Energy Climate Risk Management Closed Loop Diagram

Process for Climate Scenario Analysis



Considering the overall goal of peaking carbon emissions by 2030 and achieving net-zero emissions by 2050, and the results of risk research conducted by key business units and major branches and subsidiaries in the previous period, Kunlun Energy has identified 27 categories of potential climate risks and opportunities as the basis for this year' s climate risk management. The details are as follows:

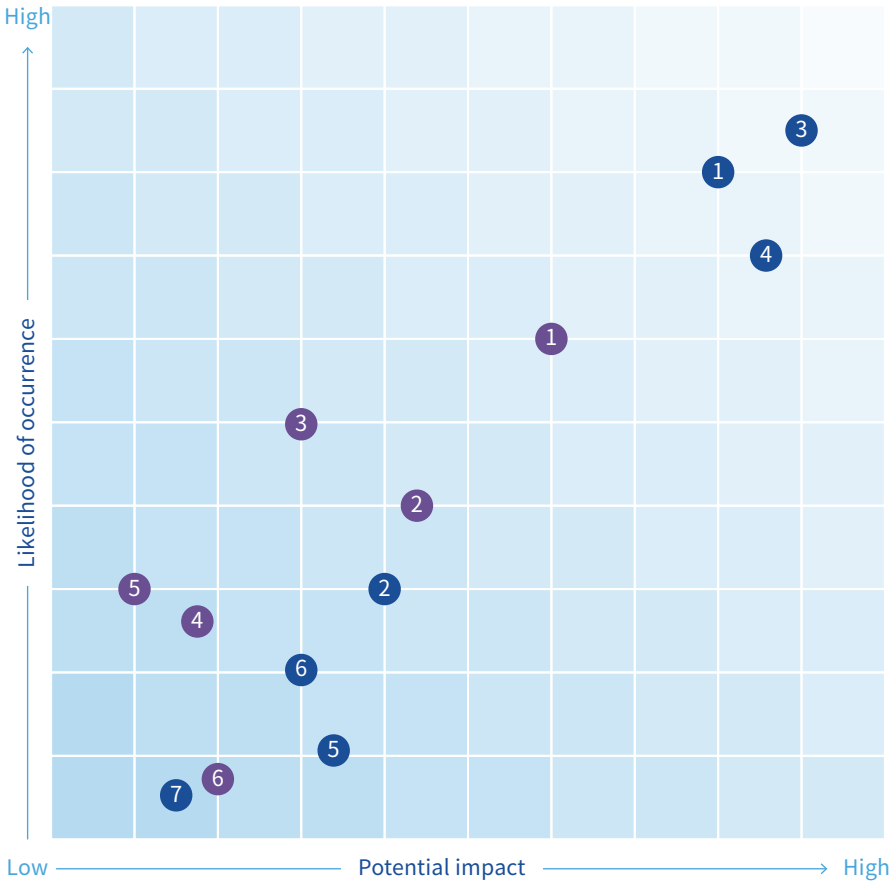
Period	Physical Risk	Transition Risk	Transition Opportunities
Short-term (2024-2025)	❶ Extreme heat ❷ Floods ❸ Cyclones/typhoons/ hurricanes	❶ Emission- or energy-intensive equipment ❷ Methane monitoring and abatement technologies ❸ Stakeholder' s demands for climate risk disclosure ❹ Carbon market mechanism ❺ International gas market	❶ Low-carbon energy use ❷ Clean production upgrade ❸ Digital management systems ❹ Green finance policy ❺ Industry and public concerns
Medium-term (2026-2030)	❶ Extreme cold ❷ Extreme precipitation ❸ Landslide ❹ Flash drought	❶ National energy mix ❷ Emission- or energy-intensive equipment ❸ Methane monitoring and abatement technologies ❹ Renewable energy technologies	❶ National energy mix ❷ Low-carbon energy use ❸ Voluntary emission reductions and carbon assets
Long-term (2031-2050)	❶ Warming trend ❷ Water scarcity ❸ Sea level rise ❹ Wetting trend ❺ Wind speed trend ❻ Drying trend	❶ National energy mix ❷ Renewable energy technologies ❸ International natural gas market	❶ National energy mix ❷ Low-carbon energy use ❸ Voluntary emission reductions and carbon assets

Physical Risk

The exacerbating pace and impact of global climate change, along with the frequent occurrence of abnormal or severe weather events such as extreme heat, extreme precipitation, and rising sea levels, pose significant challenges to Kunlun Energy's operations, production activities, and asset management. Considering the industry' s operating characteristics, geographical business distribution, and climate scenario assumptions, Kunlun Energy analyses the impacts of potential physical climate risks on its operations and assets and develops risk response measures to ensure closed-loop climate risk management.

Physical Risk Materiality Assessment

In 2023, Kunlun Energy identified seven acute physical risks and six chronic physical risks. After assessing each based on the likelihood of occurrence and the level of potential impact[1], we created a matrix to evaluate their significance and prioritise actions on those risk points with higher likelihood and impact level.



Acute risks

1. Extreme heat*
2. Extreme cold
3. Extreme precipitation*
4. Flooding*
5. Landslide
6. Cyclones/typhoons/hurricanes
7. Flash drought

Chronic risks

1. Warming trend
2. Water scarcity
3. Sea level rise
4. Wetting trend
5. Wind speed trend
6. Drying trend

* Climate risks of high significance

Kunlun Energy Physical Risk Materiality Assessment Matrix

1. Likelihood refers to the probability of the risk occurring in the future, while potential impact is determined by the degree and depth of risk impact, referring to the value of potential financial loss.

Kunlun Energy identifies the potential impacts of each physical risk on stakeholders and value chain segments, details the climate risk transmission pathways, and specifies the affected financial indicators.

Physical risk	Potentially affected stakeholder	Potentially affecte value chain segment	Potential influence path	Potential financial impact
Climate change is causing frequent extreme heat and a long-term global warming trend 	• Employees • End-consumers	• Production and operation • Downstream supply chain	• Natural gas sales drop as consumers' demand for heating decreases • Rising temperatures in storage tanks and other equipment and facilities lead to more BOG production • Reduced heat transfer efficiency in condensers leads to lower cooling capacity and higher energy consumption for production • Energy consumption of air conditioners and other refrigeration and cooling equipment will increase and demand for heat-prevention and cooling supplies will climb • Affect the health and safety of employees and cause interruption of production activity or project construction delays	• Increase in operating cost • Decrease in operating income
Abnormal cold events such as extreme cold or cold waves occur 	• Suppliers • Employees • Business customers • End-consumers	• Production and operation • Upstream supply chain • Downstream transport and sales	• A surge in gas demand caused by needs for heating will put more pressure on upstream natural gas procurement and Kunlun Energy' s operation and allocation • Frozen soils crush and damage underground pipelines, increasing the risk of pipeline leaks • Frozen and blocked pipelines or valves increase the risk of pipeline interruptions and affect normal natural gas supply to downstream business customers and consumers • Due to frequent low temperature events, the energy consumption of pipeline insulation and heating equipment increases to ensure the normal operation of transportation activities • Activities such as employee commuting and outdoor inspection is affected, and the risk of frostbite or accidental injury is increased	• Asset impairment loss • Increase in operating cost • Decrease in operating income • Increase in insurance cost
Extreme precipitation or flooding events become frequent due to climate change 	• Employees • Business customers • End-consumers	• Production and operation • Downstream transport and sales	• Increase the pressure on the drainage system of the stations, receiving terminals and other production and operation sites, causing operation interruption, and equipment damage, affecting the employee and production safety, and improving operation and maintenance costs • Rain or flood washouts expose or displace underground pipelines, affecting the safety of pipeline operations and increasing the pipeline maintenance demand • Pipeline deformation or damage will lead to disruptions in natural gas supply to downstream business customers and consumers, affecting normal livelihood and production activities	• Asset impairment loss • Increase in operating cost • Decrease in operating income

Physical risk	Potentially affected stakeholder	Potentially affecte value chain segment	Potential risk influence path	Potential financial impact
Severe weather events such as cyclones/typhoons /hurricanes 	• Suppliers • Employees • Business customers • End-consumers	• Production and operation • Upstream transport and distribution • Downstream transport and sales	• Vessels unable to dock at terminals on time, affecting the stable LNG supply from upstream suppliers • Loading and fleet transport is forced to be suspended, affecting the sales activities of natural gas to downstream business customers and consumers and increasing the pressure on inventory • Typhoons can easily cause thunderstorms, flooding and other weather events, resulting in unstable voltage to shut down factories and increase O&M costs • Severe weather increases the risk of damage to assets and threats the life safety of employeest	• Asset impairment loss • Increase in operating cost • Decrease in operating income
Climate disasters such as flash droughts and water shortages 	• Business customers • End-consumers	• Production and operation • Downstream sales	• Reduce available resources such as recycled cooling water, affect the efficiency of production and operation such as cooling, and indirectly affect the efficiency of sales and supplies which may disrupt the livelihood and production activities of downstream consumers and commercial users	• Decrease in operating income
Sea level rise 	• Employees • Business customers • End-consumers	• Production and operation • Downstream sales	• Seawater intrusion floods production and operation sites in coastal areas, disrupting operation activities and affecting natural gas supplies to downstream business customers and consumers • Seawater corrodes facilities and equipment, affecting production safety and equipment lifetime, and increasing O&M costs	• Asset Impairment loss • Increase in operating cost • Decrease in operating income

Kunlun Energy Physical Risk List

Financial Impact Assessment of Physical Risks

To quantify the impact of physical risks, Kunlun Energy targeted two time horizons: 2030 (short to medium term) and 2050 (long term). Different climate scenarios were selected to study the materiality of physical risk exposures for Kunlun Energy, and its branches and subsidiaries, evaluating the size of potentially impacted assets and losses for high-risk exposures. Simultaneously, Kunlun Energy conducted a preliminary study on the impact of temperature changes on natural gas sales to explore seasonal supply variations.

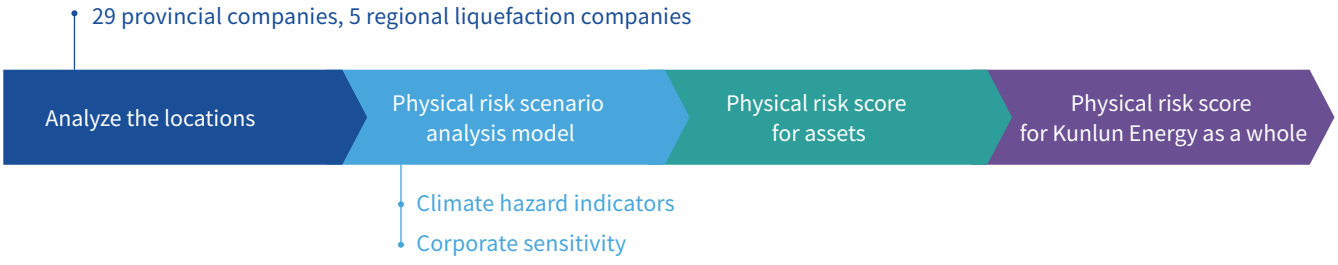
Climate Scenarios and Assumptions

To accurately identify and gauge the impacts of climate disasters on businesses under climate change, we conducted a physical risk analysis based on the SSP2-4.5 intermediate emission scenario and the SSP5-8.5 high-emission scenario from the Shared Socio-economic Pathways (SSP) proposed in the Sixth Assessment Report (IPCC AR6) by the Intergovernmental Panel on Climate Change (IPCC), and underlying data such as domestic climate disasters and geographical distribution.

Physical Risk		
Scenario Name	Shared Socio-economic Pathways (SSP) 2-4.5	Shared Socio-economic Pathways (SSP) 5-8.5
Scenario Description	In this scenario, global socio-economic levels continue to develop at a moderate pace, with climate policies and mitigation measures remaining moderate in intensity. Greenhouse gas emissions hover at current levels before beginning to decline by mid-century.	In this scenario, the global economy grows rapidly but remains heavily dependent on fossil fuel extraction and energy-intensive industries. With minimal climate policy intervention, pressures from climate change intensify, and greenhouse gas emissions increase rapidly throughout the century, nearly doubling by 2050.
Estimated temperature over this century	~2.7°C	~4.4°C
Analysis Boundary	Kunlun Energy' s core office operations and main business segments cover natural gas sales, LNG processing and storage, and LPG sales. The Company operates across 29 provincial companies and 5 regional liquefaction companies. Asset categories include office spaces, LNG plants, and LNG terminals.	
Key Scenario Assumptions	• Assuming that internal factors such as main business, asset size, and risk response measures remain constant, we analyze only the specific climate risks posed by the asset holdings under scenarios in various disaster levels. • Based on available data, we assessed the potential financial impact of physical risks on the Company by measuring the value of the assets alone, excluding operational disruptions, efficiency reductions, or other impact mechanisms.	

Physical Risk Analysis Process

Based on the asset operation location and industry information, combined with the results of the physical risk materiality matrix, and with reference to professional climate models and datasets[1], we selected 10 representative climate risk types, including river flooding, extreme heat, extreme precipitation, water scarcity, and warming trend. These risk types were used to conduct impact assessments, and the specific analysis pathways are as follows:

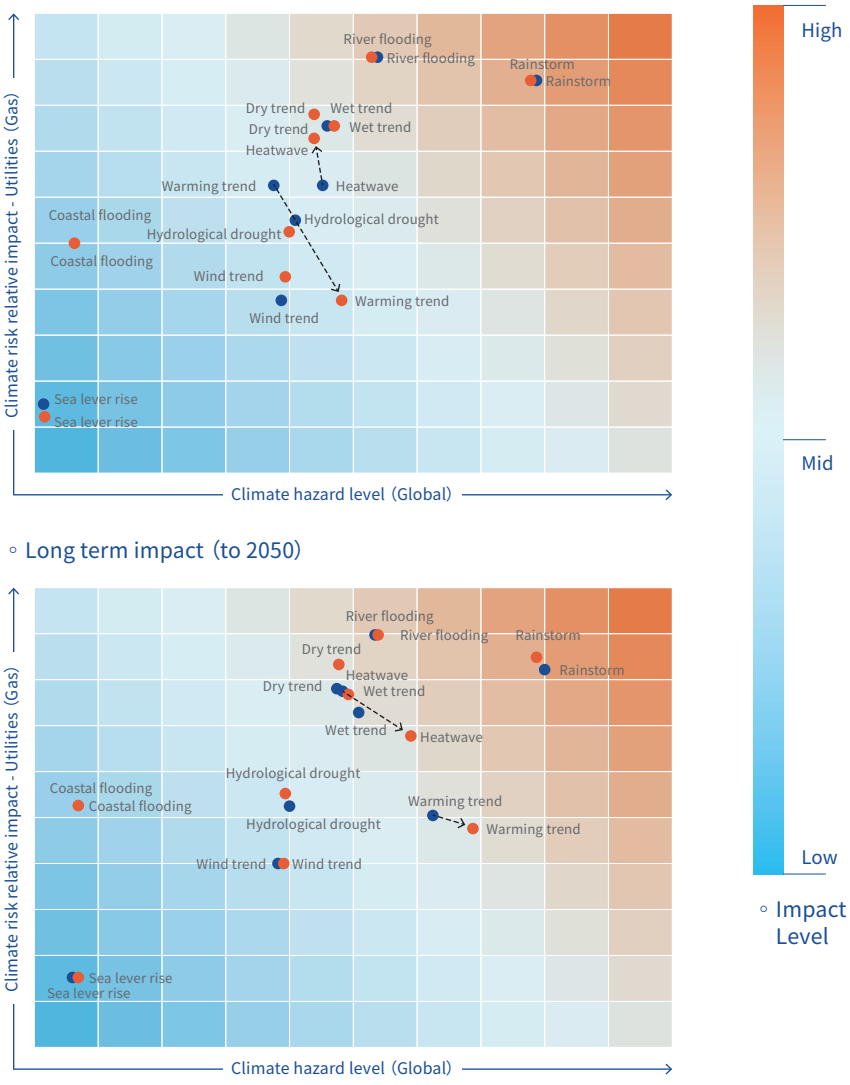


1. The assessment model is sourced from the Physical Risk Assessment Model developed by Miotech (https://www.mio-tech.com/zh-CN), which enables benchmarking analysis of the level of climate risk among industry players.

Score for Physical Risk Impact Exposure

Based on the operating location and industry information of each asset, Kunlun Energy assesses the risk exposure at each asset point using climate hazard indicators and sensitivity indicators as key metric[1]. This process yields a composite score (ranging from 0 to 100) of the physical risk exposure over various time periods and scenarios to assess the impact of materiality. The analysis results are detailed below:

◦ Short to medium term impact (to 2030)



◦ Long term impact (to 2050)

SSP245 (intermediate emission scenario) SSP585 (high emission scenario)

Matrix for Evaluating the Physical Risk Impact Exposure in Different Time Horizons[2]

Analysis of findings

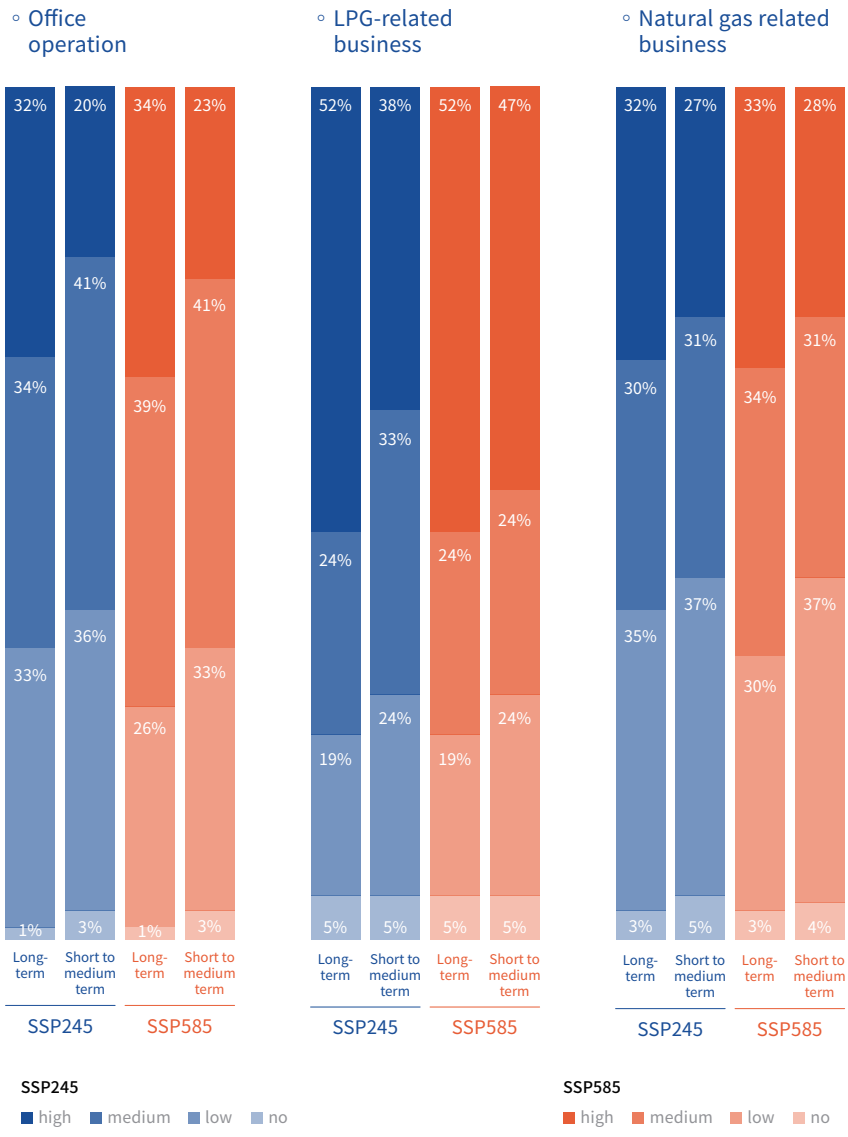
- Over time and across scenarios, extreme precipitation and river flooding potentially have significant impacts on Kunlun Energy's asset value. Extreme heat, water scarcity, drying trends, wetting trends, wind speed trends, and warming trends have moderate impacts on Kunlun Energy. Conversely, the potential impact of sea level rise and coastal flooding on Kunlun Energy is relatively low.
- The risk levels for all physical risks, except water scarcity and wind speed trends, show an increasing trend in both the SSP2-4.5 intermediate emission scenario and the SSP5-8.5 high emission scenario. Notably, the increasing risk levels for extreme heat and warming trends are more pronounced than for other physical risks. Moreover, extreme heat becomes a significant risk in the high-emission scenario over a long-term horizon.

1. Climate hazard indicators measure the frequency and intensity of specific climate hazards in the regions where Kunlun Energy's assets are located. Sensitivity indicators assess Kunlun Energy's capacity to withstand climate hazards, including industry sensitivity and regional sensitivity.
2. The composite physical climate risk exposure score is a relative measure that reflects the potential maximum impact on the business if no mitigating actions are taken. A specific physical risk is considered highly material to Kunlun Energy when it falls in the high-risk quadrant (the upper right-hand quarter) of the Physical Risk Scenario Assessment Matrix, both in comparison to other industries and to other enterprises within the same industry.

Analysis of the Size of Potentially Impacted Assets

The results indicate that Kunlun Energy is primarily exposed to extreme precipitation and river flooding. Extreme heats reach a high-risk level under the Long-Term High Emissions Scenario and are therefore included in the quantitative analyses of potentially impacted assets. Extreme precipitation and extreme heat are more likely to affect operational terminals, while river flooding may lead to impairment losses on assets. To better understand the magnitude of materiality risk and to develop appropriate response strategies for our branches and subsidiaries in various regions, we will further explore the impact of materiality risk from the perspectives of business segments and regional distribution.

▸ Extreme Heat



Size of Assets Exposed to Extreme Heat Risks

Analysis of findings

For extreme heat, the proportion of assets in each production and operational segment exposed to high risk tends to increase over time.

Office operation

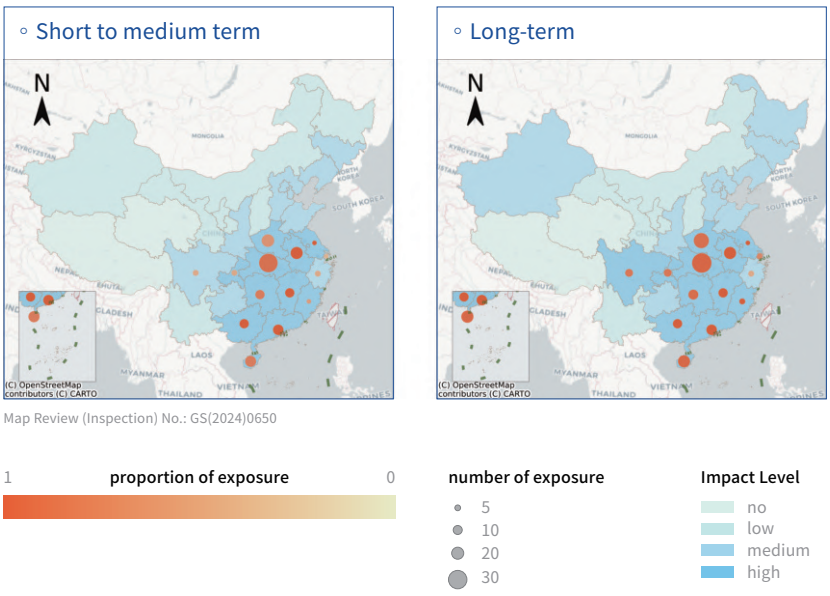
Over time, more than 10 percent of assets have their exposure levels elevated to high. This means that over one-third of assets are exposed to high-impact extreme heat in various scenarios.

LPG-related business

Due to the influence of geographical distribution, with over half of LPG-related business assets expected to face high-risk extreme heat impacts in the long term.

Natural gas related business

The natural gas-related business shows a relatively even distribution of assets across low, intermediate, and high-risk levels across different scenarios and time periods. Only a small number of assets in both scenarios see their risk levels rise to high in the long term.

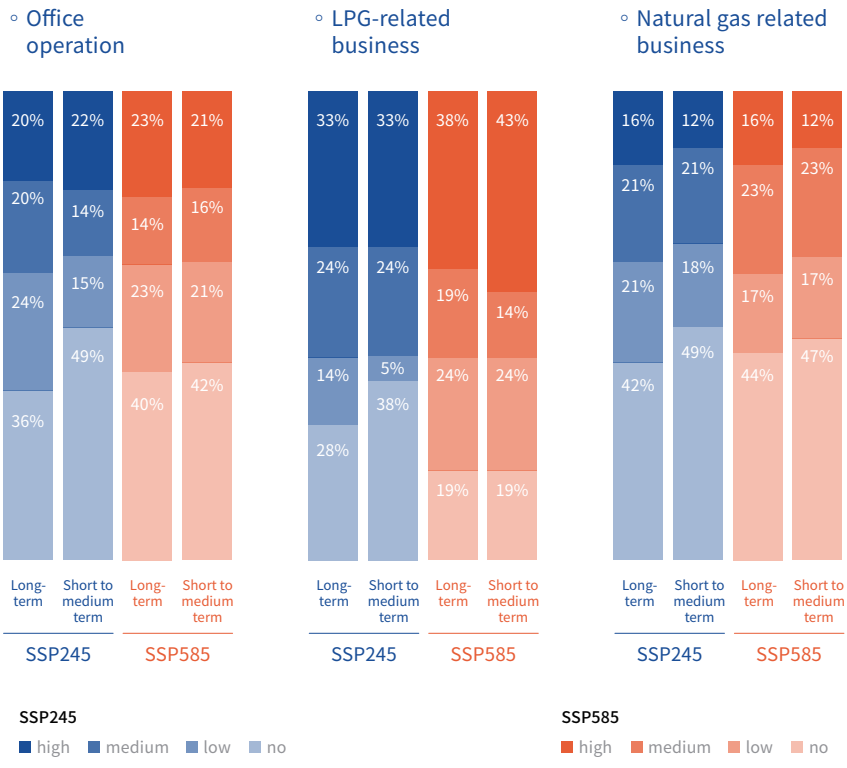


Distribution of Assets Related to Natural Gas Business Exposed to High-Risk Extreme Heat in SSP2-4.5 Intermediate Emission Scenario[1]

Analysis of findings

In the future, natural gas-related business assets south of the Qinling Mountains-Huaihe River will be increasingly susceptible to high-risk extreme heat. As the size of affected assets will expand forward over time, the geographic boundary of high-risk areas gradually moving north. Consequently, some assets in Sichuan will shift from medium to high risk. Additionally, natural gas-related assets in Henan, Anhui, Jiangsu, Fujian, Guangdong, Hainan, Guangxi, Hunan, Jiangxi, Hubei, and Chongqing will consistently face high-risk extreme heat.

▸ Extreme Precipitation

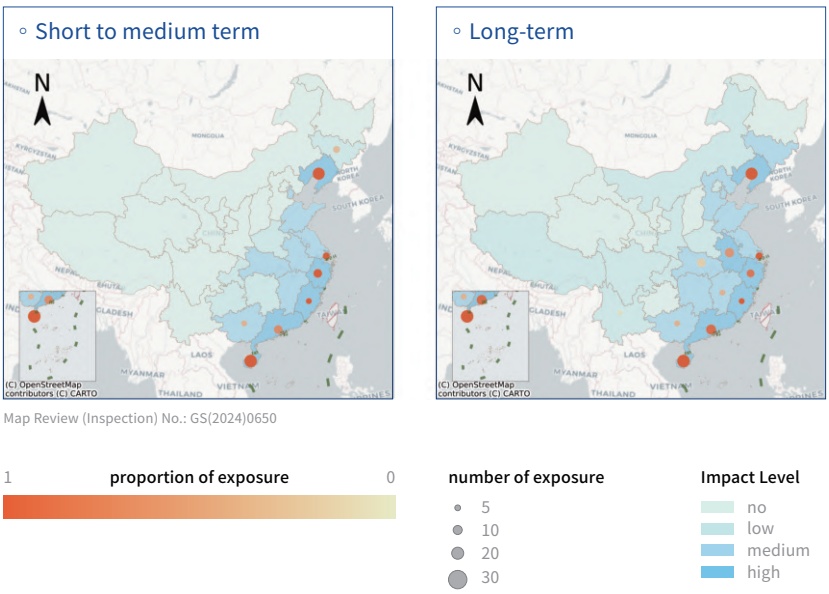


Size of Assets Exposed to Extreme Precipitation Risks

Analysis of findings

Based on available data on asset location and size, nearly 1/3 of LPG assets are exposed to extreme precipitation events at a high-risk level in the future; office operation-related assets are closely followed, with nearly 1/5 of office operation-related assets exposed to extreme precipitation events at a high-risk level. The scale of assets potentially exposure to extreme precipitation events is expected to increase over time. However, there is uncertainty regarding the level of potential extreme precipitation impacts.

1. This part only analyzes the impact of physical risks on relevant assets in the regions where Kunlun Energy has business distribution (including 31 provinces, autonomous regions and municipalities).



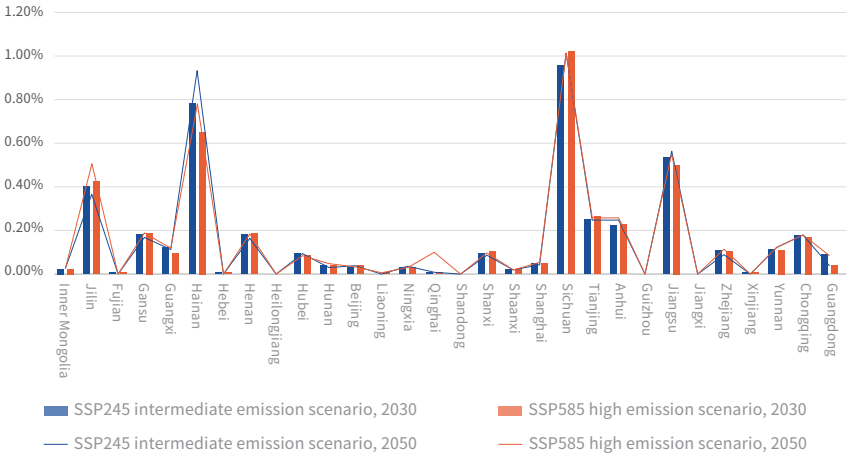
Distribution of Assets Related to Natural Gas Business Exposed to High-Risk Extreme Precipitation in SSP2-4.5 Intermediate Emission Scenario[1]

Analysis of findings

In the future, natural gas-related assets in coastal areas will be increasingly vulnerable to high-risk extreme precipitation. The size of affected assets is projected to expand over time, with the geographic boundary of potential high-risk areas shifting gradually west and south. As a result, some assets in Yunnan, Anhui, Jiangxi, and Hubei will transition from medium to high risk. Additionally, natural gas-related assets in Liaoning, Shanghai, Zhejiang, Fujian, Guangdong, Guangxi, and Hainan will consistently face high-risk extreme precipitation.

▸ River Flooding

River flooding is one of the most serious climate disasters in China, causing significant economic losses. Over the past 30 years, due to global warming, heavy rainfall and flooding events in large and mega-cities have increased. We use a specific climate risk financial loss model to simulate and analyze the potential financial loss of each branch from river flooding. The analysis determines the ratio of asset loss for each branch and subsidiary of Kunlun Energy to the Company's overall operating performance, known as the Climate Value at Risk (CVaR).



Changes in Climate Value at Risk (CVaR) Caused by River Flooding In Each Regional Branch and Subsidiary

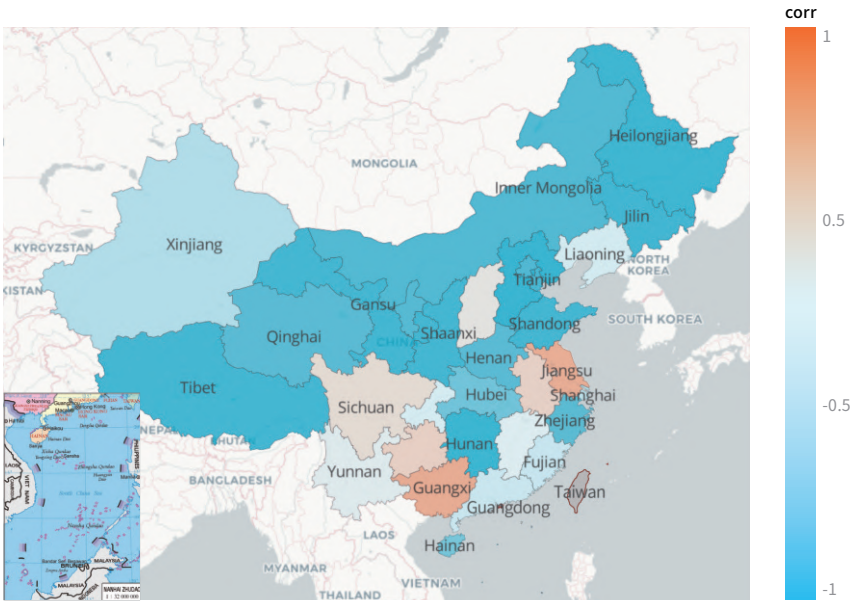
Analysis of findings

- Overall, the Jilin, Hainan, Sichuan, and Jiangsu branches experienced slightly higher potential financial losses due to river flooding compared to other regions.
- The Heilongjiang, Shandong, Guizhou, Jiangxi branches are not easily affected by river flooding in any scenario or timeframe.

1. This part only analyzes the impact of physical risks on relevant assets in the regions where Kunlun Energy has business distribution (including 31 provinces, autonomous regions and municipalities).

▸ Impact of Temperature Rise on Annual Changes in Natural Gas Sales

According to publicly available information, natural gas demand in China varies with seasons. Lower temperatures in winter and higher temperatures in summer both increase the demand for natural gas. Additionally, extreme weather events also drive up natural gas demand. We use the average monthly temperature, monthly natural gas sales, and the number of residential, commercial, and industrial customers in each province and city in 2023 as the basic data set to analyze the impact of temperature changes on the seasonal sales of natural gas for Kunlun Energy.



Map Review (Inspection) No.: GS(2024)0650

Correlation between Average Monthly Temperatures and Natural Gas Sales[1]

Analysis of findings

- In the north-central and northwestern regions, gas sales increase as temperatures drop in winter. As global temperatures rise in future scenarios, if the average temperature rise in the northern region is consistent with the global temperature rise trend, there may lead to a decline in winter gas sales in some northern parts.
- In the south-central region, excluding Hunan, Hubei, and Zhejiang, gas sales rise with higher temperatures in summer. Therefore, as global temperatures rise in future scenarios, if the average temperature rise in the southern region is consistent with the global temperature rise trend, there may be opportunities for higher summer gas sales in the southern region.

Physical Risk Response

Under the influence of global warming, every 0.5°C increase in temperature in the future will significantly alter the frequency and intensity of extreme weather and climate events in most parts of the world[1]. Consequently, Kunlun Energy, as one of the largest domestic sales enterprises of end-use natural gas in China, keeps abreast of temperature changes and climate risks. The Company enhances its supply and demand allocation capacity and risk response capability to better manage physical risk impacts. Kunlun Energy mitigates the unnecessary impacts of its operation activities on the climate and environment by reducing fossil energy usage, improving system operational efficiency, avoiding the generation of BOG, monitoring methane leakage in real time, etc. Meanwhile, the Company addresses the challenges posed by abnormal weather events and enhances climate resilience by adopting measures such as optimising facility designs, strengthening early warning for extreme weather, and formulating contingency plans in advance.

1. This part only analyzes the impact of physical risks on relevant assets in the regions where Kunlun Energy has business distribution (including 31 provinces, autonomous regions and municipalities).
2. The information is sourced from UN IPCC' s climate science report.

Kunlun Energy Physical Risk Response Strategy

Climate-Adaptive Design

Kunlun Energy has integrated climate risk considerations into the new project site selection. This involves identifying potential climate risk points and avoiding disaster-prone areas such as seismic and subsidence zones. The Company also installs sound drainage systems to reduce the likelihood of exposing to the impacts of landslides, floods, and other events on production activities and infrastructure. At the same time, to address sea level rise, coastal flooding, and seawater corrosion, we set specifications for building elevations in coastal areas. We mandate the use of corrosion-resistant materials for receiving terminals and wharf facilities and ensure the operational effectiveness and extend the service life of these facilities through regular maintenance. Additionally, we deploy wave protection equipment at the front of the wharfs to prevent seawater intrusion and install cast-in-place piles to reinforce buildings against large-scale cyclones.

Abnormal Temperature Protection Measure

In order to address extreme heat and prevent BOG production due to excessive pressure within storage tanks, Kunlun Energy enhances the insulation and cooling of these tanks. Continuous temperature monitoring is implemented, and an automatic rain shower system will be activated when the temperature reaches a specified threshold to cool the tanks. Remote monitoring using machine and equipment is prioritised and we avoid high-temperature hours as long as possible for outdoor inspection activities. Additionally, employees are provided with heat allowances and anti-heat medication to ensure their safety while working outdoors.

To address extreme cold events like cold waves, Kunlun Energy installs anti-freezing protection devices on critical equipment and employs electric heat tracing around the pipeline to prevent freezing and blockages, thus ensuring uninterrupted gas supply during winter. Furthermore, the Company equips employees with cold-resistant clothing and safety gear to minimize the risk of frostbite.

Kunlun Energy Tianjin Subsidiary Comprehensively Arranged Cold Wave Response

To deal with continuous heavy snowfall and cold wave conditions, Kunlun Energy Tianjin Subsidiary initiated its extreme weather emergency plan. The Subsidiary closely monitored key users and areas with significant demand changes, enhanced inspections and frequency of pipelines, regulatory facilities, and other gas supply infrastructure, and conducted thorough checks on critical equipment and facilities. To prevent frost blockages and other malfunctions, inspections focused on insulation equipment such as electric heat tracing bands, electric heaters and insulation equipment, and critical process component such as cut-off valves and regulators. Safety production management personnel was required to maintain 24-hour communication to ensure timely and orderly emergency command and material deployment, guaranteeing stable production operations and downstream supply.

Effectively Implement Clean Production

To strengthen energy management and implement energy-saving and emission-reduction measures to mitigate potential risks from climate change, Kunlun Energy has developed its “14th Five-Year Plan for Energy Conservation”. This plan carefully develops and implements targets for energy and water conservation and key initiatives for energy saving and emission reductions and regularly assesses energy management indicators. We also establish the energy benchmarking frameworks for urban gas pipelines, CNG, LNG filling stations, LNG receiving terminals, LNG plants, and LPG storage facilities. We carry out refined energy management and assessment work tailored to the characteristics of our business activity, monitor the energy use and greenhouse gas emissions and evaluate the outcomes of energy-saving and emission abatement measures. Additionally, Kunlun Energy conducts periodic clean production audits to identify potential for energy savings and technological improvements. Optimisation of process parameters and technology upgrades helps reduce BOG generation and emissions from combustion. Deploying high-efficiency electrical and thermal equipment, equipment retrofitting for enhanced efficiency, wastewater recycling, etc. further contribute to achieving targets of saving energy andwater and minimising the impact of climate physical risks on the overall operation activity. Simultaneously , we consistently increase the proportion of low-carbon energy use and develop scenarios of renewable energy applications to reduce the dependence on natural resources and mitigate the environmental impacts of production and operations, minimising the time and cost required to resume normal operations and production after the occurrence of accidents.

Recycling of BOG Heating and Cooling Water in Hainan LNG Storage Station

The Hainan LNG Storage Station has implemented a water bath heater to raise the temperature of BOG for use in compressing the BOG inlet. Subsequently, the low-temperature recycling water from the heater is directed into the BOG compressor' s cooling system. This process facilitates further heat exchange to lower the BOG temperature at the compressor outlet. Thus, the system effectively recycles water for both heating and cooling purposes in handling BOG, resulting in reduced water consumption and energy demand.

Recycled Water Quality Improvement and Usage Reduction in Huanggang Plant

The Huanggang Plant optimised the use process of recycled water treatment chemicals to reduce procurement costs of chemicals while improving the recycled water quality, thereby decreasing waste-water discharge. Compared with the system's design water consumption, the recycled water usage decreases by approximately 1,500 m^3 per day in summer and 2,500 m^3 per day in winter, reducing the demand for water during production activities and effectively mitigating the risk of water shortages.

Extreme Weather Early Warning Mechanism

To detect and respond promptly to abnormal weather events, Kunlun Energy dedicates specialised staff working 24-hour shifts to monitor national weather forecasts and extreme weather early warnings published by the China Meteorological Administration (CMA). Concurrently, Kunlun Energy collaborates closely with the meteorological administration to track weather changes by obtaining disaster weather warnings in advance and receiving weather bulletins from the National Meteorological Information Centre. We also gather the latest early warning messages on extreme weather and geological hazards through the Internet and instant messaging groups to further enhance the dynamic monitoring of geological risks. Additionally, we install lightning early warning systems at coastal operation sites and assign specialised staff to monitor coastal wind speeds, ensuring the safety of vessel receiving operations.

Risk Prevention Emergency Plan

Kunlun Energy develops and regularly updates emergency plans and supply guarantee schemes at all levels to address various scenarios, including but not limited to emergency peak regulation, power restrictions and shutdowns, flooding, and flood seasons. Annual emergency drills and training sessions are conducted to continuously enhance employees' awareness of risk prevention and emergency response capabilities. Upon receiving early weather warnings, corresponding natural disaster emergency plans are activated. Resources are deployed preemptively to ensure a stable downstream gas supply, prevent excessive pressure on inventory, and prepare adequate emergency supplies. Key areas, facilities, and equipment undergo more frequent inspection and monitoring in accordance with plan requirements, with daily patrol results documented. Upon discovering equipment damage or pipeline leakage, we will remotely shut down the gas supply valve in accordance with specialised emergency procedures, or perform manual valve closure and emergency repairs under the premise of ensuring the safety of employees to promptly restore downstream supply.

Zhuozhou, Hebei Subsidiary Coordinated Efforts in Flood Rescue and Post-Disaster Supply Resumption

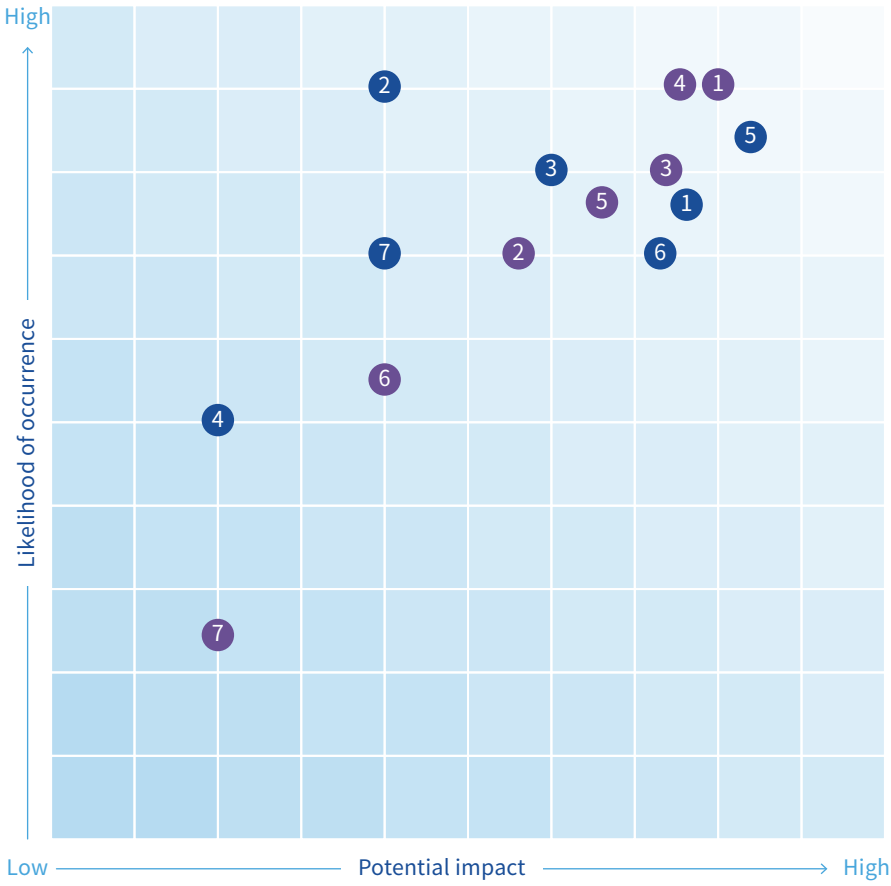
In July 2023, Super Typhoon Doksuri brought persistent heavy rainfall to North China, Huang River and Huai River, and other regions. Kunlun Energy Zhuozhou, Hebei Subsidiary promptly activated its flood emergency plan and established an emergency flood control command center to systematically deploy the shutdown of gas facility valves and electricity disconnection and arrange safe evacuation of personnel. The rescue team, comprising over 1,000 personnel from 11 regional companies in Heilongjiang, Gansu, Shandong, etc. swiftly arrived in Zhuozhou to expedite production resumption and gas supply restoration for guaranteeing the safe and stable supply of natural gas. Additionally, Kunlun Energy formulated a *Special Program for Post-Flood Disaster Investigation and Management*, tailored to the actual conditions of the affected area. The Company deployed a dedicated investigation and management team which implemented an on-site investigation and online tracking working mechanism, immediately arrived at the field, and collaborated with local units to conduct special investigation and management activities in key areas and key infrastructure after the flood disaster.

Transition Risk and Opportunity

Kunlun Energy identifies the business impacts of transition risks and opportunities in policy, law, technology, and markets during the low-carbon development process. Similar to our analysis of physical risks, we compiled a list and matrix of transition risk and opportunity events. We quantified the impacts of future changes in carbon pricing regimes, such as regulations on total GHG emissions and carbon fees, and markets based on selected climate scenarios, to establish a solid foundation for developing a climate transition resilience strategy.

Transition Risk Materiality Assessment

In 2023, Kunlun Energy identified seven transition risks and seven transition opportunities. The Company conducted in-depth analyses and materiality assessments to evaluate the likelihood of occurrence and the potential impact[1] of each risk and opportunity.



Kunlun Energy Transition Risk Materiality Assessment Matrix

Transition Risks

1. National energy mix
2. Carbon market mechanism
3. High-emission or energy-intensive equipment
4. Methane monitoring and abatement technologies
5. Renewable energy technologies
6. International gas market
7. Stakeholder' s demands for climate risk disclosure

Transition Opportunities

1. National energy mix
2. Green finance policy
3. Low carbon energy use
4. Cleaner production upgrade
5. Digital management system
6. Voluntary emission reductions and carbon asset
7. Industry and public concern

1. Likelihood refers to the probability of the risk occurring in the future, while potential impact is determined by the degree and depth of severity of the risk, including the estimated financial loss.

Based on existing information and future trends in policy, market, and technology, and considering the attributes of the industry and business operation, Kunlun Energy has organized the potential impact transmission pathways of various climate transition risks and opportunities.

Transition Risk	Potentially affected stakeholder	Potentially affecte value chain segment	Potential risk influence path	Potential financial impact
Policy				
National energy mix	• Government and regulator	• Downstream sales	• The country faces the challenge of transforming its energy structure, with the proportion of clean energy gradually increasing and the growth potential of fossil energy becoming limited. This shift impacts the forward income of natural gas and LPG-related businesses.	• Lower operating income
Carbon market mechanism	• Government and regulator	• Production and operation	• The country is expanding its carbon market mechanism, setting carbon emission quotas for key emission producers. Future carbon emission trading will be more market-oriented. Kunlun Energy may explore participating in this carbon market, which will require additional investment in manpower and financial resources for carbon inventory, quota purchase and trading, and the allocation of carbon emission personnel.	• Higher operating cost
Technology				
High-emission or energy-intensive equipment	• Government and regulator	• Production and operation	• The development of energy-saving and low-carbon technologies will accelerate the replacement of major energy-consuming equipment. Kunlun Energy's original high-emission and energy-consuming assets, such as oil-fueled transport vehicles and vessels, and oil or gas-fueled refueling and compression equipment, may face early decommissioning or elimination.	• Impairment losses on asset • Higher operating cost
Methane monitoring and abatement technologies	• NGO and industry association • Government and regulator	• Production and operation	• Public methane data collection and monitoring technologies continue to evolve, potentially subjecting methane emissions from natural gas projects to more stringent external regulatory scrutiny. Kunlun Energy must advance the research, development, and application of methane monitoring and abatement technologies to strengthen methane emissions management.	• Higher operating cost
Renewable energy technologies	• End-consumer • Business customer	• Downstream sales	• As renewable energy technologies, such as biomass natural gas, solar, wind, and hydrogen, mature, the cost of using renewable energy may decrease, and the market demand for new energy sources will climb. This will result in a decline in the demand for traditional energy sources like natural gas, LNG, and LPG.	• Lower operating income

Transition Risk	Potentially affected stakeholder	Potentially affecte value chain segment	Potential risk influence path	Potential financial impact
Market				
International gas market	• Supplier	• Upstream procure-ment	• The price of natural gas in the international market is influenced by various factors, such as temperature, economic conditions, geopolitics, and energy policies of different countries. As Kunlun Energy operates in the midstream and downstream of the natural gas industry chain, higher upstream natural gas prices may adversely affect the Company' s gross purchasing and sales margins, as well as its profitability.	• Higher product cost
Reputation				
Stakeholder' s demands for climate risk disclosure	• Govern-ment and regulator • Shareholder and investor	• Direct operation	• Regulatory requirements for public disclosure of climate risks are becoming increasingly stringent, and non-compliant disclosure practices or poor climate performance may damage the Company's reputation. • Investors are placing greater emphasis on a Company's ability to identify and manage climate-related risks. Failure to take significant and impactful steps to address these risks could negatively affect the Company's access to financing.	• Less access to finance • Higher credit risk

Kunlun Energy Transition Risk List

Transition Opportunity	Potentially affected stakeholder	Potentially affecte value chain segment	Potential influence path	Potential financial impact
Policy				
National energy mix	• Government and regulator	• Downstream sales	• Natural gas plays a crucial role in advancing the country's clean energy transformation and ensuring energy security. In the short to medium term, natural gas consumption is expected to rise under policy guidance, fostering continued growth in the natural gas sector. • Increasing the proportion of non-fossil energy is the long-term strategy for national energy structure transformation. Kunlun Energy' s new energy business, encompassing distributed photovoltaic, wind power, comprehensive energy, and other types of new energy, will seize growth opportunities driven by the national energy transformation policy. • As the global energy landscape shifts towards greater reliance on non-fossil fuels, the influx of new energy power generation presents the potential for grid stability. Kunlun Energy' s gas-fired electricity project offers a strategic solution by providing flexible capacity and creating new businesses in this evolving market.	• Higher operating income
Green finance policy	• Government and regulator	• Direct operation	• The development of gas-fired electricity and new energy projects under Kunlun Energy will support the societal shift towards low-carbon transition, aligning with the national green finance policy and enabling access to green financing or refinancing.	• More access to finance
Technology				
Low carbon energy use	• Kunlun Energy	• Production and operation	• Installing distributed photovoltaic systems and replacing traditional vehicles with new energy vehicles will increase the proportion of new energy consumption. This shift will help reduce greenhouse gas emissions and save on electricity purchases and carbon compliance transaction costs.	• Lower operating cost
Cleaner production upgrade	• Kunlun Energy	• Production and operation	• Introducing and applying low-carbon and energy-saving processes and equipment, such as improving filling and compression processes and replacing energy-intensive compressors, will enhance production and operational efficiency, reducing resource consumption costs.	• Lower operating cost

Transition Opportunity	Potentially affected stakeholder	Potentially affecte value chain segment	Potential influence path	Potential financial impact
Technology				
Digital management system	• Kunlun Energy • Employee	• Production and operation	• Applying digital technology and building intelligent pipeline networks and station systems can help identify high-energy consumption and high-emission production and operation points. Timely improvements can avoid methane leakage and energy wastage, improving production efficiency and management, and reducing operational manpower costs.	• Lower operating cost
Market				
Voluntary emission reductions and carbon asset	• Government and regulator • Other companies	• Downstream sales	• The China Certified Emission Reductions (CCER) mechanism has been restarted. Kunlun Energy can leverage renewable energy reserves to develop and form carbon assets according to the relevant voluntary emission reduction methodology. Trading in the voluntary carbon market will generate additional business revenues.	• Higher operating income
Reputation				
Industry and public concern	• Business customer • Shareholder and investor	• Downstream sales	• While ensuring a safe and stable supply of natural gas, Kunlun Energy is actively striving to become a leader in low-carbon development within the industry. This can enhance the company's brand image, improve its reputation, attract more customers and investors, and bolster its market position.	• More access to finance • Lower credit risk

Kunlun Energy Transition Opportunity List

Financial Impact Assessment of Transition Risks and Opportunities

The scenario analysis of Kunlun Energy's transition risk examines the potential carbon cost risk (or opportunity) arising from carbon emissions trading within a policy framework. By selecting publicly available low-, medium-, and high-emission scenarios, we analyze the changes in additional carbon emission reductions, carbon abatement costs, and Climate Value-at-risk (CVaR) of transition from 2023 to 2050. This analysis provides a reference for companies to develop carbon abatement strategies and plan resource allocation to achieve carbon peaking and neutrality targets.

Climate Scenarios and Assumptions

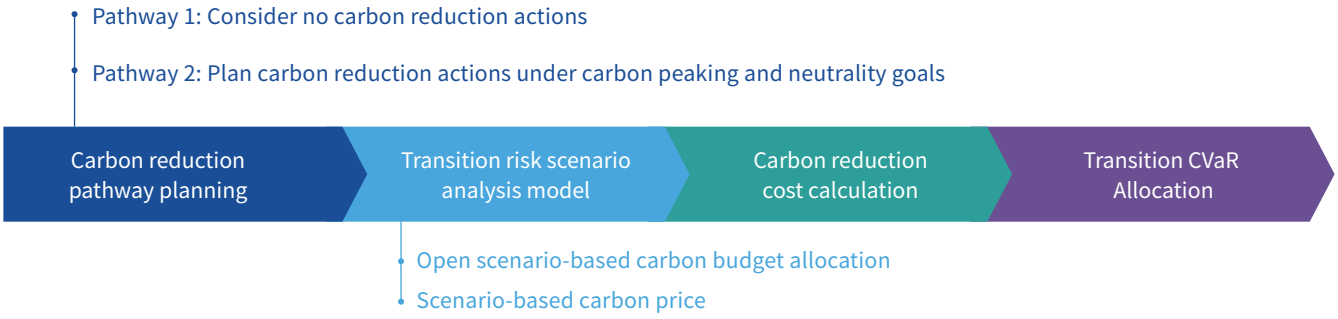
Based on the World Energy Outlook 2023 (WEO 2023) published by the International Energy Agency (IEA), Kunlun Energy has selected the Net-Zero Emissions by 2050 Scenario (NZE) as the low-emission scenario, the Announced Pledges Scenario (APS) as the intermediate-emission scenario, and the Stated Policies Scenario (STEPS) as the high-emission scenario. These scenarios were chosen to analyze the risks and opportunities for the company in response to varying external transition pressures.

Transition Risk			
Scenario Name	IEA - Net Zero Emissions Scenario (NZE2050)	IEA - Announced Pledges Scenario (APS)	IEA - Stated Policies Scenario (STEPS)[1]
Estimated temperature over this century	~1.5°C	~1.8°C	~2.5°C
Scenario Description	In this scenario, the global energy sector will achieve net-zero emissions by 2050 without relying on emission reductions outside the energy sector to meet this target.	The scenario presumes that countries will fulfill their climate commitments, including nationally determined contributions and long-term net-zero targets.	The scenario is based on a sector-by-sector and country-by-country assessment of existing policies and measures (including energy-related policies or national announcements in place as of August 2023), as well as those under development. The scenario explores the potential trajectory of the energy system in the absence of additional policy implementation.
Analysis Boundary	The transition risk scenario analysis covers Kunlun Energy and its branches and subsidiaries, focusing solely on the Company' s own production and operations, excluding the upstream and downstream value chain.		
Key Scenario Assumptions	◆ Within the time frame of the scenario analysis, the government' s carbon tax policy and the carbon market trading mechanism are assumed to be fully effective and operational. ◆ Internal factors, including Kunlun Energy' s operating market and core business activities, remain unchanged. ◆ Kunlun Energy executes carbon reduction initiatives in line with its established carbon reduction pathway plan.		

1. China's national policies involved in this scenario include: (1) Made in China 2025, which aims to transition from heavy industry to high value-added manufacturing; (2) the 14th Five-Year Plan, targeting a reduction in carbon dioxide intensity by 18% and energy intensity by 13.5% from 2021 to 2025, and increasing the share of non-fossil energy in the energy mix to 20% by 2025 and 25% by 2030; (3) the National Determined Contribution and Action Plan to peak carbon dioxide emissions by 2030, aiming to reduce carbon dioxide emissions per unit of GDP by over 65% by 2030 compared to 2005 levels.

Transition Risk Impact Analysis

Given the variations and uncertainties in carbon pricing across different carbon pricing regimes and future climate scenarios, we have selected three distinct climate scenarios and two internal carbon emission pathways of Kunlun Energy as baseline emissions for assessing potential financial impacts. The specific analysis paths are as follows:



Analysis of findings

Forecast of additional carbon emission reductions

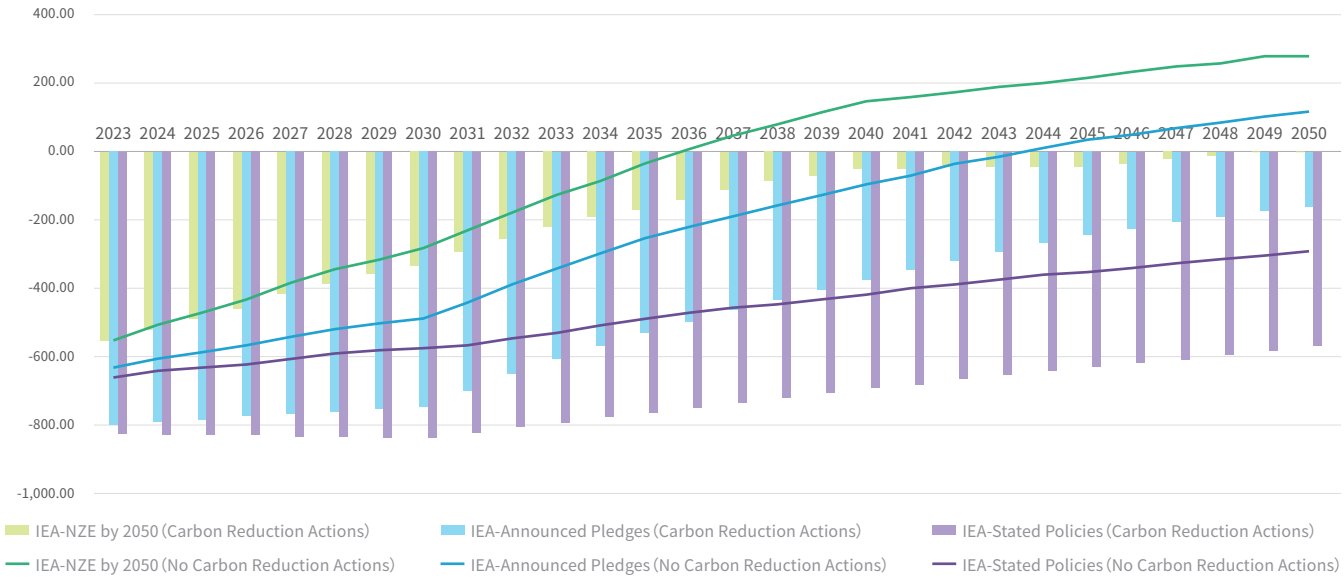
- Under Kunlun Energy' s current carbon reduction pathway, the Company does not generate additional carbon reductions[1] until 2050 in all scenarios, meaning its carbon emissions remain below the carbon budget without requiring further reductions.
- If Kunlun Energy does not consider carbon reduction measures, it will face the need for additional carbon reductions starting in 2036 under the Low Emissions Scenario (IEA - Net Zero Emissions Scenario), and in 2044 under the Medium Emissions Scenario (IEA - Announced Pledges Scenario).

Financial impact of transition risk

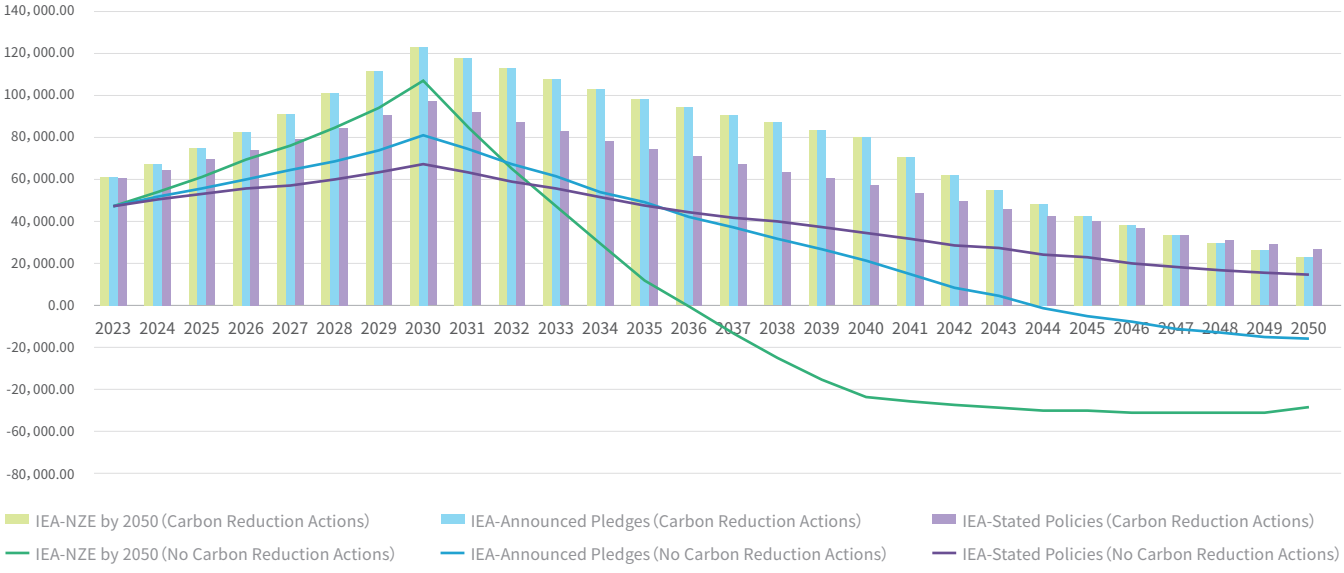
- According to Kunlun Energy' s current carbon reduction pathway, the Company's transition CVaR[2] remains positive across all scenarios. This indicates that, if Kunlun Energy adheres to its current emission reduction plans, it is unlikely to face such transition risks.
- If Kunlun Energy does not consider carbon abatement measures, it is projected to incur additional carbon abatement costs[3] starting in 2036 under the Low Emissions Scenario (IEA - Net Zero Emissions Scenario) and in 2044 under the Medium Emissions Scenario (IEA - Announced Pledges Scenario). These costs are estimated to impact the Company' s financials by approximately 0.01% and 0.08% of Enterprise value[4], respectively, with these impacts expected to increase over time.

1. Additional carbon reductions: These are the extra carbon reductions a company must make to keep its carbon emissions below the carbon budget according to a specified reduction pathway.
2. Transition CVaR: This metric estimates the ratio of the cost of a firm's carbon price to its corporate value over a specified time horizon. A positive CVaR suggests potential carbon benefits under the scenario, but does not necessarily indicate an actual benefit, and is generally characterized as indicating no additional abatement costs.
3. Additional Carbon Abatement Costs: These are the costs a company incurs to reduce carbon emissions beyond its carbon budget.
4. Enterprise value = (market value + liabilities + minority shareholders' equity + preferred shares) - (cash and cash equivalents). The underlying data is taken from Kunlun Energy's 2023 annual report.

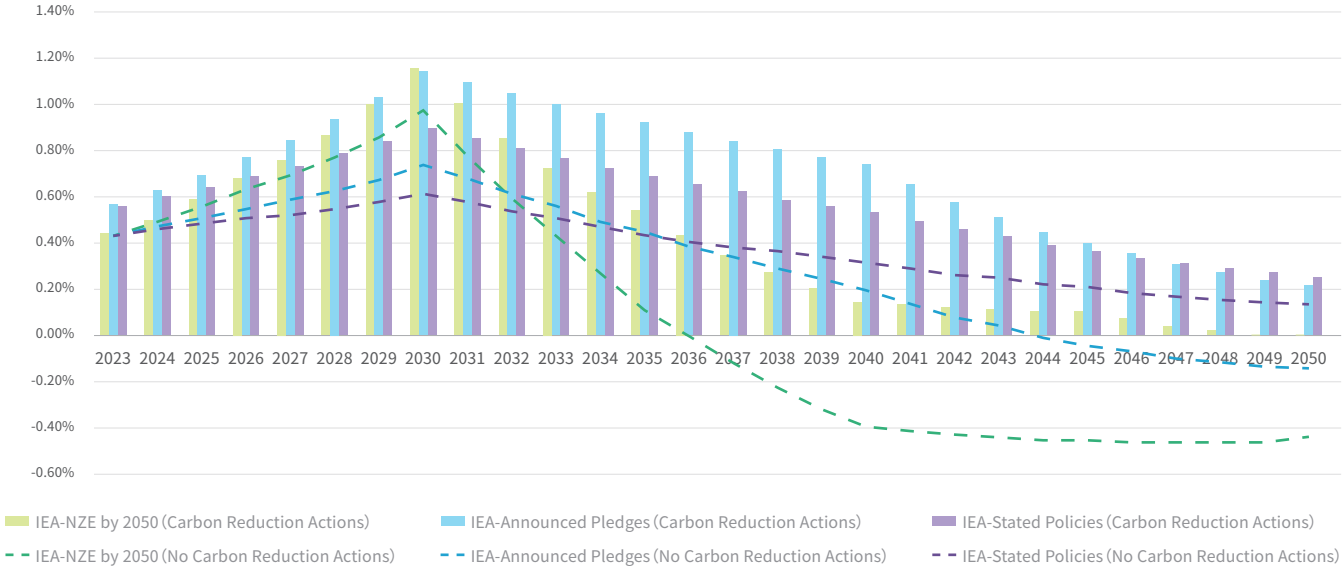
◦ Additional Carbon Emission Reductions Forecast (Unit: 10,000 tonnes)



◦ Emission Reduction Cost Forecast (Unit: RMB 10,000)



◦ Climate Value-at-risk (CVaR%) Forecast



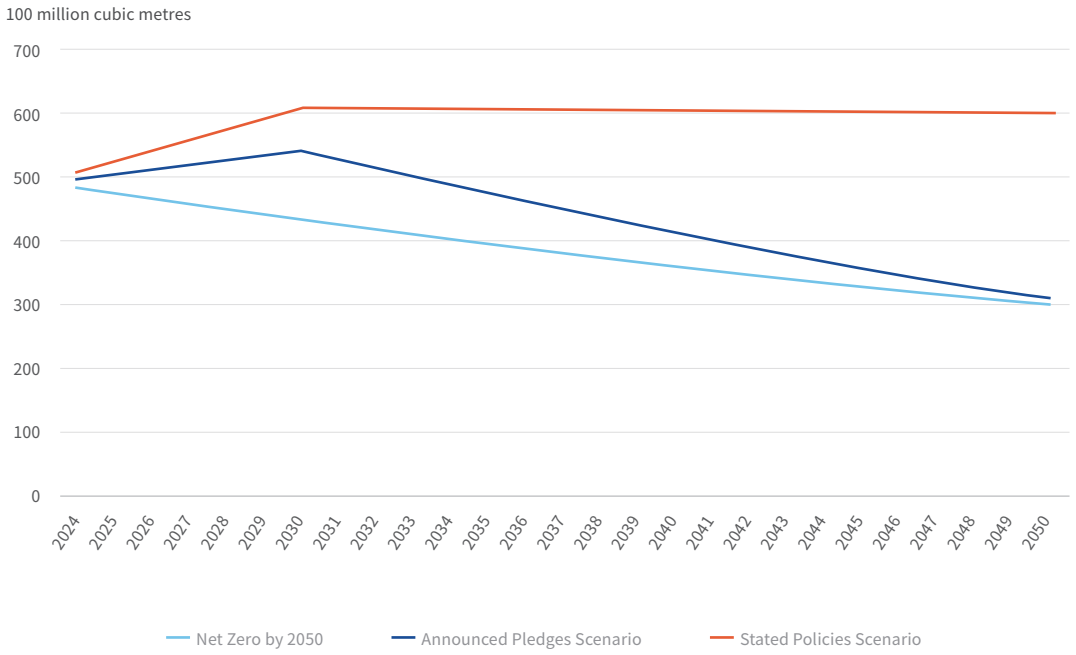
Potential Opportunity Impact Analysis

As a low-carbon fossil energy source, natural gas plays a crucial role in transitioning the national energy structure from “high-carbon” to “low-carbon and zero-carbon”. China's demand for natural gas is anticipated to increase during the phase of “Carbon Peaking”, which lasts until 2030. To understand the impact of future changes in natural gas demand on Kunlun Energy, we analyze the Company's natural gas business using International Energy Agency (IEA) data on energy demand growth in China under various climate scenarios, as well as changes in energy prices in China. Simultaneously, Kunlun Energy is actively developing green and clean energy solutions, with its integrated energy and new energy sectors experiencing annual growth.

Analysis of findings

Trends in Natural Gas Sales

Assuming consistent growth rates for both the Company and the market demands in China, natural gas sales for the Company are projected to decline continuously in the future under the low-emissions scenario. In contrast, under the medium and high-emissions scenarios, natural gas sales are expected to peak around 2030 before declining. By 2030, natural gas sales will exceed 60 billion cubic metres. From 2030 to 2050, the decline in natural gas sales stabilizes in the high-emissions scenario but accelerates in the medium-emissions scenario, with average annual declines projected to reach up to 2.74%. This underscores the pressing need for the Company to proactively address climate risks associated with the transition.

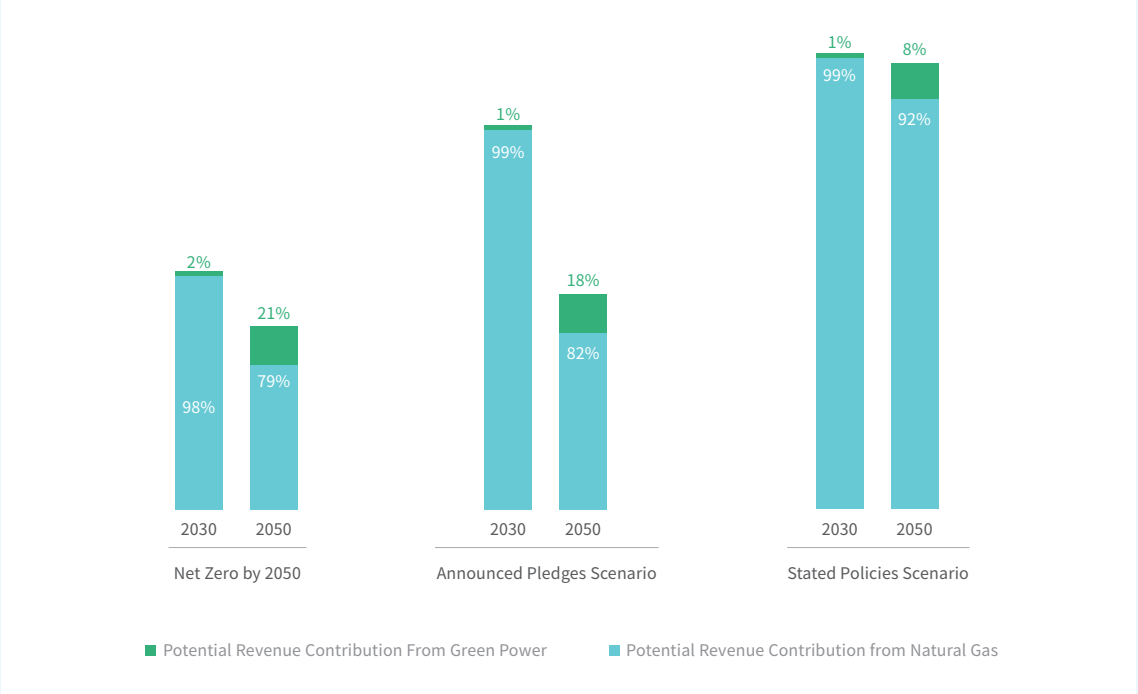


Calculation of Kunlun Energy’ s Natural Gas Sales Pathway Under each Scenario

Analysis of findings

Changes in Revenue Trends in the Natural Gas Business and the Integrated Energy and New Energy Business

We use the energy trend forecast by the International Energy Agency (IEA) as the underlying data to evaluate the revenue trend of Kunlun Energy's natural gas business as well as integrated energy and new energy business. The analysis indicates that under future scenarios, revenues from the natural gas business are expected to decline gradually. However, revenues from the integrated energy and new energy business are projected to increase, thereby offsetting potential impact on the sales segment of the natural gas due to emissions reduction policies. Across different scenarios, the contribution of integrated energy and new energy business to overall revenues is anticipated to be higher in the low-emissions scenario compared to medium and high-emissions scenarios. By 2050, the integrated energy and new energy businesses' contribution to revenues is expected to substantially increase compared to 2030, reaching a peak of 21% in the net-zero emissions scenario.



Revenues contribution of Kunlun Energy' s natural gas, integrated & new energy business under each scenario

Transition Risk Responses

In order to bolster operational resilience amidst broader low-carbon transformations, Kunlun Energy leverages expertise in the natural gas sector to foster comprehensive energy and new energy sources, supporting the Company' s low-carbon initiatives across business domains. Concurrently, Kunlun Energy commits to advancing cleaner production and technological innovation, optimizing energy efficiency. The Company enhances climate change and emission reduction management framework, monitors policy dynamics and refines greenhouse gas emission calculations and monitoring. Kunlun Energy also establishes tiered emission reduction targets and assigns responsibilities across departments and subsidiaries. Further details on specific initiatives are outlined in the "Our Climate Ambitions and Progress" section.

Expand Low-Carbon Business Opportunities

Leveraging its strengths in the natural gas sector, Kunlun Energy continues to explore low-carbon applications within the industry, providing clean and green energy solutions to users. The Company actively engages in the technological development and construction of new energy sources, including wind power, photovoltaic, and hydrogen energy, aiming to progressively achieve green and low-carbon development.

Gas-fired electricity project

In response to the State's call to promote the new power system, we have collaborated with major domestic power groups to build natural gas-fired electricity projects to enhance the security of power supply and system regulation capacity.

Comprehensive energy project

To meet user demands, Kunlun Energy is providing comprehensive energy services, combining cooling, heating, and electricity from natural gas and other sources. To date, the Company has constructed ten comprehensive energy projects.

New energy project

Kunlun Energy is actively investing in centralized power generation projects such as PV and wind power. The Company has completed 25 new energy projects to date and plans to continue expanding new energy projects in provinces and municipalities primed for.

Continue Green Production Operations

The natural gas sector is the key to Kunlun Energy' s emission reduction efforts at the operational level. We streamline the operational chain and implement various green emission reduction measures, including energy-saving and efficiency improvements, energy mix restructuring, methane fugitive emissions control, and the introduction of digital technologies throughout natural gas processing, pipeline, and transportation. These initiatives collectively promote the decarbonization of production and operations, vigorously advancing the gas industry's progress toward carbon peaking and carbon neutrality.

Improve energy efficiency at stations and plants	• Regular energy-saving diagnostics and cleaner production audits are conducted to benchmark against the industry's advanced level. More pilot application of new energy-saving equipment, technologies, and materials enhances the efficiency of systems and facilities, with a goal of eliminating high energy-consuming and inefficient equipment by 2035.
Increase renewable energy use	• Spaces such as rooftops of terminal stations, offices, and vacant land are utilized for constructing distributed renewable energy systems tailored to local conditions, thereby upgrading the level of clean energy self-supply. • Coal-fired boilers and vehicles are being gradually phased out, and the proportion of clean energy use is being increased.
Enhance methane emissions management efficiency	• Real-time monitoring of methane emissions is being strengthened through various technical means, including PTZ lasers, drones, vehicle-mounted and hand-held terminals, and detection dogs, to improve the timely detection and repair of methane leaks. • Control of key aspects of methane emissions is being enhanced by optimizing the flow parameters of long-lighting lamps and building additional BOG recovery process devices.
Empowered by digital intelligence tools	• Explore the application of digital technology in real-time monitoring of energy consumption, intelligent dispatching, user behavior analysis, and the design of carbon reduction incentive mechanisms. Develop key technologies such as digital twin and green low carbon to continuously improve informatization, digitization, and intelligence in energy and carbon emissions management and control.

Boost Climate Protection Capability

In terms of organizational management, Kunlun Energy bases the climate governance and risk management mechanisms on close attention to external policies and market dynamics. The Company identifies and assesses potential risks and opportunities promptly, reporting to the Board of Directors and the Sustainability Committee to inform decision-making. An assessment mechanism for carbon emission-related indicators has been established, guiding and supervising the implementation of the Low Carbon Action Plan at all levels. Additionally, the Company conducts research on the measurement of emission factors to further enhance internal professional capacity for carbon emission calculation and management.

Policy tracking

- We track and respond to timely climate-related regulations and policies, including those on low-carbon energy development, climate information disclosure, and methane emission control. We analyze and interpret compliance requirements, preparing and deploying response actions proactively.
- Attention is given to the development of national CCER and other carbon markets to identify potential opportunities for carbon asset development and trading. A climate governance structure and process is established, linking employee remuneration to carbon performance to effectively incentivize the development and implementation of climate response actions.

System improvement

- Research is conducted on the actual measurement of greenhouse gas emission factors to enhance the accuracy of emission data measurement, and strengthen the professional capabilities of responsible personnel in statistics and management of carbon emission data.

Conclusion of Climate Risk and Opportunity Analysis

This year, Kunlun Energy conducted a comprehensive climate risk management process that included identifying and assessing climate-related risks and opportunities across its operations and throughout upstream and downstream value chain. The Company employed climate scenario analysis to evaluate the significant physical risk exposure, while quantitatively analyzing the potential impacts of future changes in carbon pricing system and market conditions, as well as the implications of future shifts in natural gas demand across various scenarios. These efforts assess the effectiveness of our existing climate response strategies and continually enhance both the Company' s mitigation and adaptation capability in climate risk management. The findings from the analysis are summarized below:

Physical Risk

Risk materiality assessment

Based on risk survey findings, Kunlun Energy has identified seven acute physical risks and six chronic physical risks during the current year. Among these, extreme heat, extreme precipitation, and flooding are identified as highly significant physical risks. Detailed potential influence paths of each physical risk are provided in the Physical Risks section.

Scenario analysis

The scenario analysis indicates that Kunlun Energy and its branches and subsidiaries face primary exposure to risks from extreme precipitation and river flooding. Under the long-term high-emissions scenario, extreme heat is projected to escalate to ta high-risk level. These three significant risks are further quantitatively assessed across business segments and regional distributions:

- Extreme heat: Overall, the proportion of assets related to different business exposed to high risk is expected to increase over time. For instance, under the low-emission scenario, assets relevant to natural gas business in the southern Qinling Mountains-Huaihe River region are more vulnerable to the impacts of high risk from extreme heat in the future.
- Extreme precipitation: The potential exposure of assets to extreme precipitation is set to expand across all businesses over time, albeit with uncertain impact levels. For instance, in the low-emission scenario, the natural gas business, particularly in coastal regions, is more likely to face the high risk from extreme precipitation in the future.
- River flooding: Utilizing financial loss models and quantification methods, future financial impacts from river flooding are projected to be slightly higher for assets located under branches and subsidiaries in regions such as Jilin, Hainan, Sichuan, and Jiangsu compared to other areas.

Additionally, Kunlun Energy studies the correlation between temperature rises and annual natural gas sales. The study reveals that in north-central and northwestern regions, lower winter temperatures correspond to increased natural gas sales. Conversely, in the southern-central region, excluding Hunan, Hubei, and Zhejiang, higher summer temperatures correlate with elevated natural gas sales.

Response strategies

Kunlun Energy deploys physical risk response strategies from four aspects: improve climate risk prevention capacity for facilities and equipment, strengthen energy saving and emission reduction to mitigate the climate risk impact, closely monitor the occurrence of climate risk events in early warning, and prepare emergency plan and drill in advance to speed up the resumption of supply in case of emergency. Additionally, the Company enhances the risk prevention capacity specific for key risks and areas with high risks.

Transition Risk

Risk materiality assessment

Based on the risk survey findings, Kunlun Energy identifies seven transition risks for the current year. Among these, risks related to national energy structure transformation, high-emission or energy-intensive equipment, renewable energy technologies, and the international natural gas market pose higher likelihoods of occurrence and potential impacts compared to others. Detailed potential influence paths of each transition risk are provided in the Transition Risks and Opportunities section.

Scenario analysis

Scenario analysis of these transition risks specifically examines potential carbon costs stemming from emission trading under the background of policy. Results indicate that without future carbon reduction actions, Kunlun Energy will potentially face additional carbon reduction costs in 2036 and 2044 under low- and medium-emission scenarios, respectively. Conversely, adhering to current carbon reduction plans will pose nearly no potential risk of carbon costs in the future.

Response strategies

For operation, Kunlun Energy explores the potential for energy conservation and efficiency improvement through diverse measures such as energy conservation and efficiency enhancement, energy mix adjustment, methane fugitive emission controls, and digital technology adoption. At the level of organizational management, Kunlun Energy bolsters management resilience by continuously improving the climate change and emission reduction management systems and timely monitoring the external policies and market trend to facilitate the achievement of net-zero pathway and mitigate the impacts of increasingly stringent future regulations on the Company.

Climate Opportunity

Risk materiality assessment

Based on risk survey findings, Kunlun Energy identifies seven transition opportunities for the current year. These include the national energy mix, green finance policies, low-carbon energy use, cleaner production upgrades, digital management systems, voluntary emission reductions and carbon assets, and industry and public concerns. Detailed potential influence paths of these opportunities are outlined in the "Transition Risks and Opportunities" section.

Scenario analysis

The future prospects of Kunlun Energy's natural gas business are analyzed using the data of energy demand growth and price changes in China under the IEA climate scenarios. The analysis indicates that the natural gas segment is projected to experience a slight decline in revenue over time under these future scenarios. Conversely, the integrated energy and new energy business is expected to show a rising revenue trend. By 2050, the contribution of integrated energy and new energy business is anticipated to significantly increase to the company' s operating revenue compared to 2030.

Response strategies

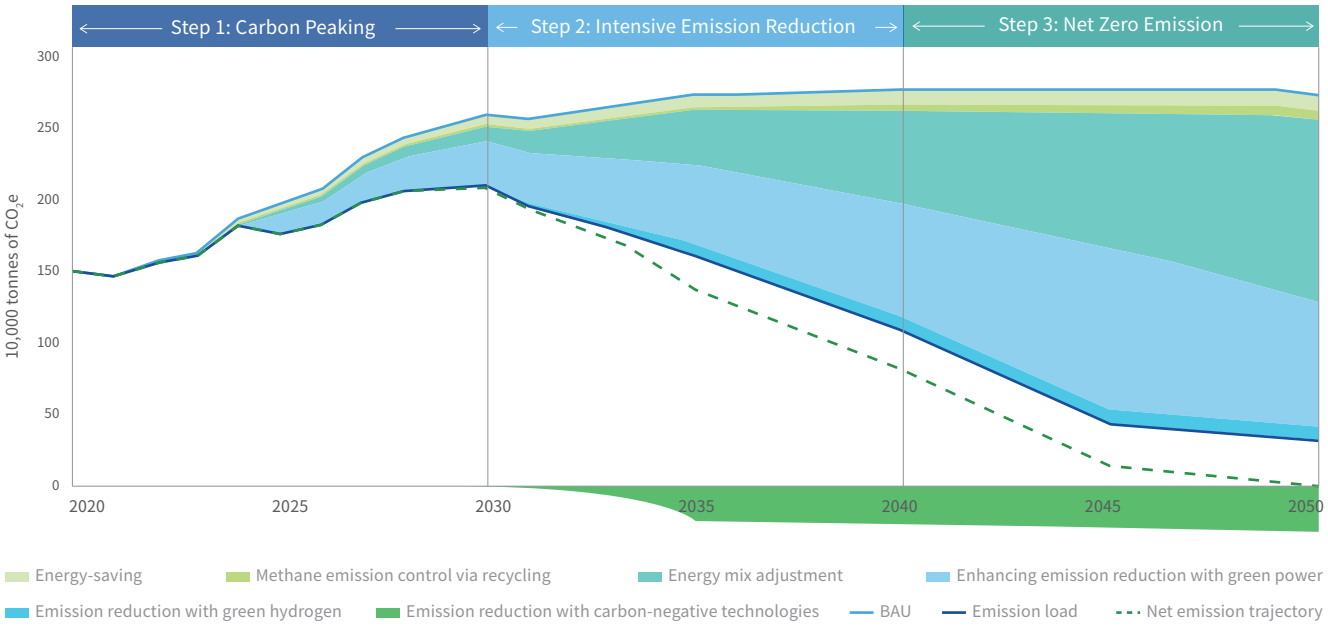
Based on the strengths in natural gas business, Kunlun Energy advances the implementation of green and low-carbon development through adopting the strategies such as further promoting the gas-fired electricity projects, deploying the integrated energy business and actively investing in renewable energy projects.

Our Climate Ambitions and Progress

As one of China’ s largest natural gas suppliers, Kunlun Energy is fully committed to achieving the national "dual carbon" goal and adheres unwaveringly to the path of green and low-carbon development. In pursuit of these goals, the Company has issued the *Kunlun Energy Company Limited Action Plan Towards Carbon Peaking and Carbon Neutrality 2024 Edition*, and actively set targets for carbon peaking and carbon neutrality, along with pathways for emission reductions. The company continually monitors its greenhouse gas emissions, tracks the gaps between actual emissions and target pathways, and evaluates the effectiveness of emission reduction measures. Kunlun Energy is dedicated to advancing the implementation of the "dual carbon" strategy and accelerating green transition.

Carbon Peaking and Carbon Neutrality Goals

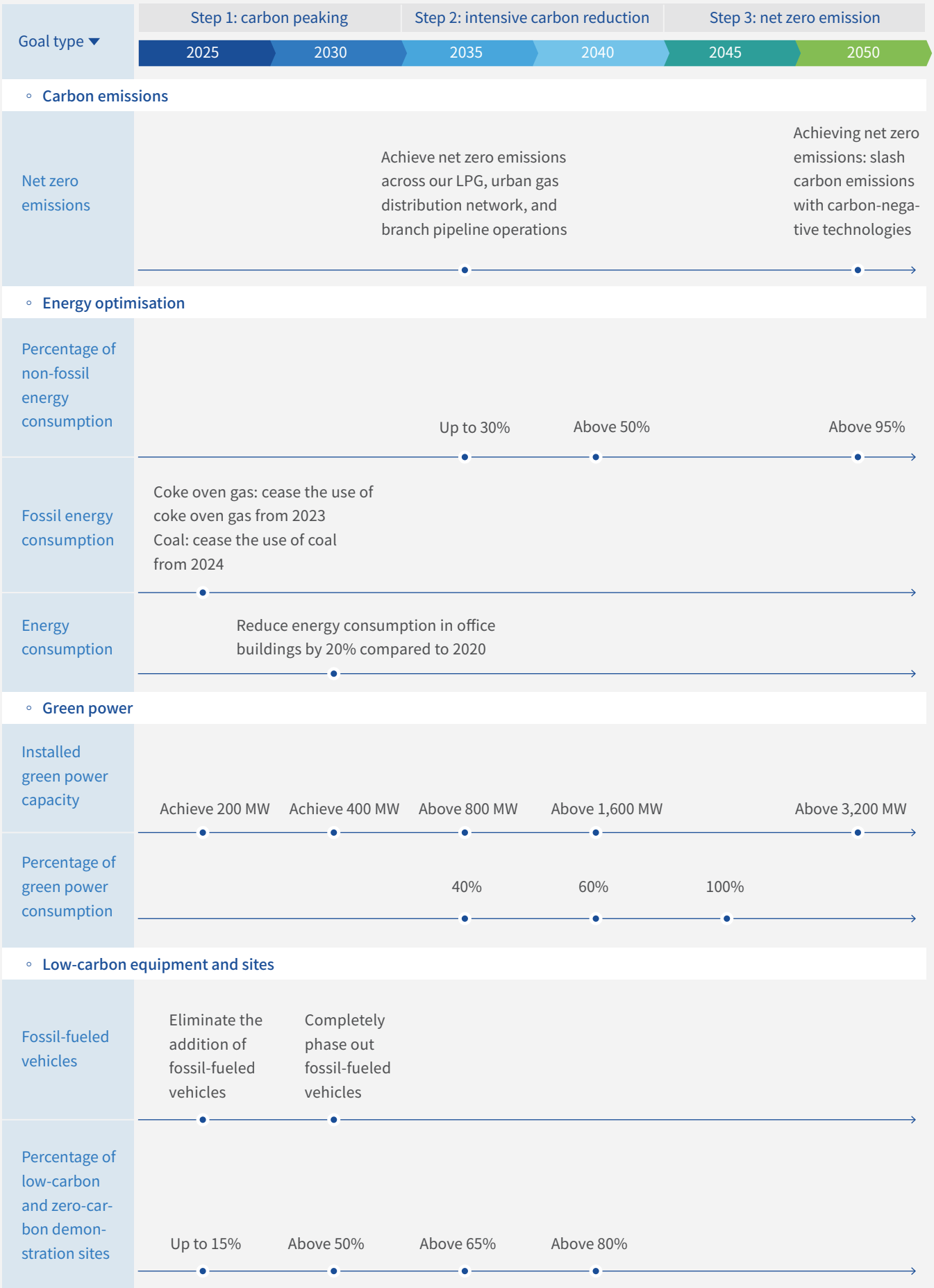
We have set the overarching goal of "carbon peaking by 2030 and net zero emissions by 2050". We strive to achieve carbon peaking in advance by 2027 and net zero emissions across our LPG, urban gas distribution network, and branch pipeline operations by 2035. A panorama of the net-zero path is planned in three stages: in the first step, carbon peaking by 2030; in the second step, intensive carbon reduction between 2031 and 2040; and in the third step, net zero emissions between 2041 and 2050.



Kunlun Energy Panorama of the Net-Zero Path

2030	**Step 1: carbon peaking**	Our focus will be on holistic energy-saving and carbon reduction, phasing out coal and oil and establishing low-carbon and zero-carbon demonstration sites.	Peak CO_2 emissions	Reduce methane emission intensity by 20% from the 2020 level
2040	**Step 2: intensive carbon reduction**	Our focus will be on renewable energy development, including comprehensive wind-PV-gas-power hydrogen utilization demonstrations, progressive electrification of end-use energy consumption, and expansion of low-carbon and zero-carbon demonstration sites.	Reduce CO_2 emission intensity by 40% from the 2020 level	Reduce methane emission intensity by 40% from the 2020 level
2050	**Step 3: net zero emission**	Our focus will be on renewable energy expansion. We will intensify the electrification of end-use energy consumption and further expand the applications of green hydrogen and carbon-negative technologies.	Net zero emissions	

Focus in each step of the Kunlun Energy Net-Zero Pathway

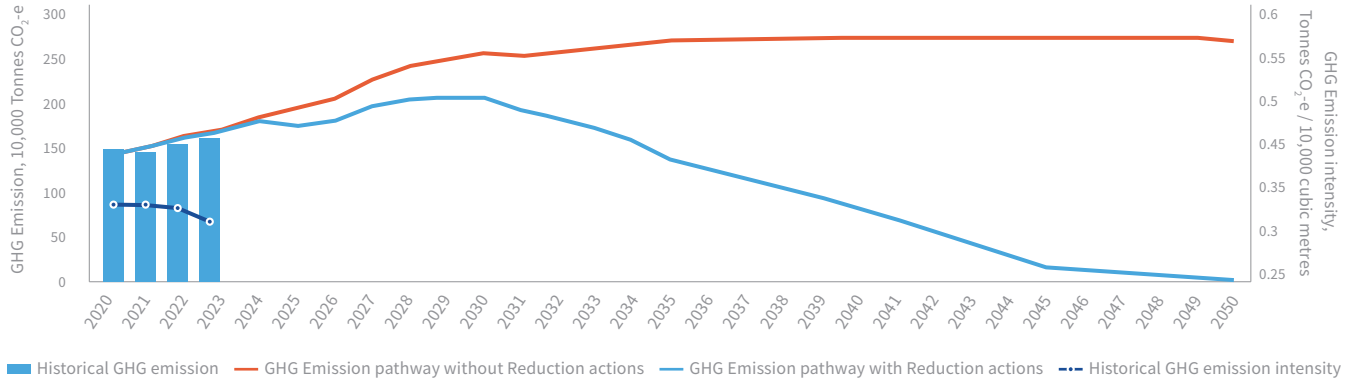


Specific Goals for Three Steps of the Kunlun Energy Action Plan Towards Carbon Peaking and Carbon Neutrality

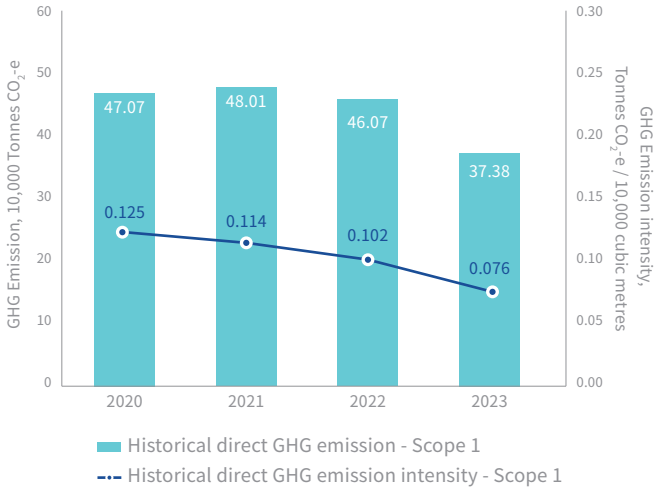
Progress in Greenhouse Gas Emissions

Kunlun Energy actively pursues a carbon-neutral and net-zero pathway, continuously monitoring and assessing greenhouse gas emissions annually to evaluate energy-saving and emission reduction outcomes. Over the past three years, the Company's total annual greenhouse gas emissions have consistently been below the levels planned in the carbon-neutral net-zero pathway, demonstrating active achievement of carbon emission targets. Furthermore, the overall greenhouse gas emissions intensity[1] has declined annually. Specifically, Scope 1 emissions[2] and their intensity have shown a year-on-year decrease, with emissions dropping by 20.57% and emission intensity decreasing by 39.14% in 2023 compared to 2020. Similarly, Scope 2 emissions[3] have exhibited a general downward trend in recent years.

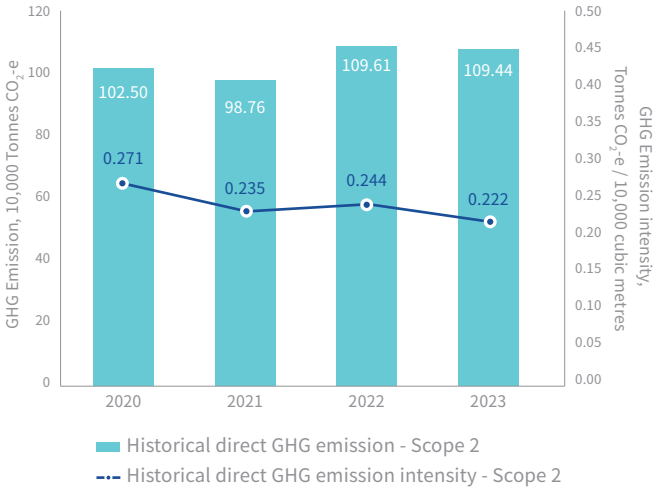
◦ Kunlun Energy Greenhouse Gas Emissions Progress



◦ Kunlun Energy Greenhouse Gas Emission Details



Kunlun Energy Scope 1 Emissions and Intensity[4] Changes from 2020 to 2023



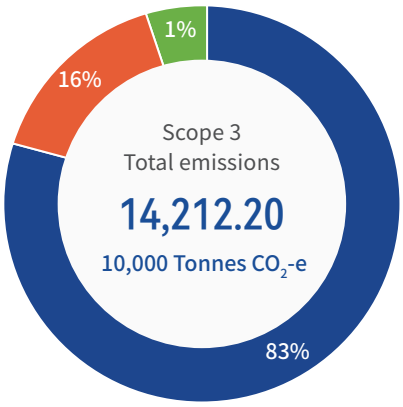
Kunlun Energy Scope 2 Emissions and Intensity[5] Changes from 2020 to 2023

1. GHG Emissions Intensity (Tonnes CO_2-e / 10,000 cubic meters) = Total GHG Emission / Natural Gas Sales.
2. The direct GHG emissions (Scope 1) includes greenhouse gas emissions from the consumption of gasoline, diesel, natural gas and liquefied petroleum gas by the Company.
3. The indirect GHG emissions (Scope 2) includes greenhouse gas emissions from the purchased electricity and purchased steam by the Company.
4. Scope 1 emissions intensity (Tonnes CO_2-e / 10,000 cubic meters) = Scope 1 GHG Emission / Natural Gas Sales.
5. Scope 2 emissions intensity (Tonnes CO_2-e / 10,000 cubic meters) = Scope 2 GHG Emission / Natural Gas Sales.

As part of Kunlun Energy' s sustainability program, we consistently publish annual data on Scope 1 and Scope 2 greenhouse gas emissions, ensuring transparency and completeness in tracking our progress toward our goals. This year, we have further expanded our reporting to include a preliminary assessment of Scope 3 emissions for the first time, marking a key step in identifying and reducing emissions across Kunlun Energy' s value chain.

Scope 3 emissions encompass those generated by Kunlun Energy' s upstream and downstream value chains, excluding Scope 1 and Scope 2 emissions. The Scope 3 Carbon Inventory is based on the *Greenhouse Gas Protocol - Corporate Accounting and Reporting Standards* and refers to the *Greenhouse Gas Protocol - Corporate Value Chain (Scope 3) Accounting and Reporting Standard* and the *Technical Guidance for Calculating Scope 3 Emissions*. This assessment covers the period from January 1 to December 31, 2023, and identifies and quantifies emissions in 9 out of 15 categories. These include upstream production of raw materials and energy, transportation of purchased and sold goods, waste disposal, employee business travel and commuting, and downstream combustion emissions from resold products.

To quantify our Scope 3 GHG emissions, we used a combination of industry averaging and financial expenditure methods. For each identified emission hotspot (emission source), we prioritize acquiring activity data to calculate emissions, such as those in 0.1 billion cubic metres, 10,000 tonnes, and kWh. Due to the complex nature of our business and value chain, when activity data is unavailable, we use purchase amounts to estimate emissions. As a domestic natural gas retailing and comprehensive utilization platform, we recognize the impact of various energy products on Category 1 (purchased goods and services) and Category 11 (use of sold products). We will subsequently work with our value chain partners to promote third-party life-cycle assessment studies to further enhance the accuracy and traceability of our emissions data.



Category	Unit	Emission	Percentage
Category 1. Purchased goods & services	Tonnes CO_2e	22,792,451	16.04%
Category 2. Capital goods	Tonnes CO_2e	184,381	0.13%
Category 3. Fuel- and energy-related activities	Tonnes CO_2e	176,235	0.12%
Category 4. Upstream transportation & distribution	Tonnes CO_2e	82,793	0.06%
Category 5. Waste generated in operations	Tonnes CO_2e	5,084	0.00%
Category 6. Business travel	Tonnes CO_2e	2,725	0.00%
Category 7. Employee commuting	Tonnes CO_2e	10,927	0.01%
Category 9. Downstream transportation and distribution	Tonnes CO_2e	602,602	0.42%
Category 11. Use of sold products	Tonnes CO_2e	118,264,841	83.21%
Total	Tonnes CO_2e	142,122,040	100.00%

Climate Action Measures

Kunlun Energy adheres to the concept of “Green Development, Low-Carbon Future”. The Company continually optimizes business layout, implements climate resilience management, and actively embraces new opportunities related to climate change. We employ various measures, including cleaner production, methane emission control, the construction of new energy projects, and the establishment of zero-carbon demonstration stations to promote coordinated low-carbon development.

Promote Energy-Saving, Efficiency Improvement, and Emission Control

Under the "dual carbon" targets, Kunlun Energy actively promotes energy saving and carbon reduction. The Company implements actions in three key areas: industrial energy conservation and carbon reduction, green design, and methane emission control. These initiatives aim to advance cleaner production, enhance energy efficiency, and control greenhouse gas emissions, thereby integrating low-carbon concepts into practical work.

Industrial Energy Conservation and Carbon Reduction

Tap the potential for energy-saving and carbon reduction

- Conduct regular energy-saving diagnosis and cleaner production audits
- Intensify the adoption and integration of new energy-saving equipment, technologies and materials
- Formulate action plans for energy-saving and carbon reduction on a rolling basis

Replace with energy-efficient equipment

- Benchmark against the industry’ s top performers, strengthen equipment upgrades and enhance motor system efficiencies
- Phase out inefficient and energy-intensive process units

Utilize residual heat, pressure and energy

- LNG plants: retrofit for regenerative heat recovery
- Retail stations: develop pressure differential power generation
- LNG receiving stations: implement cold energy recovery

Boost system efficiency

- Expedite the IT application in energy management
- Refine the gasification process for natural gas
- Optimize large-scale energy systems
- Improve multi-energy supply across regions and integration across installations

In 2023,
the energy saved amounted to standard coal

2,400 tonnes

As of 2023, cleaner production audited plants:	LNG plants	LNG receiving stations	Clean production measures
	5	2	more than 30 measures

As of 2023, low-carbon and zero-carbon demonstration sites:	Built sites	Totaling an installed capacity	Put into operation sites
	17	2.5 MW	10

Kunlun Energy LNG Plants in Huanggang and Taian Passed Cleaner Production Audits

The LNG plants in Huanggang, Hubei, and Taian, Shandong, have actively conducted clean production audits and effectively applied the results. By implementing 12 clean production measures, such as optimizing processes, adjusting parameters, and retrofitting energy-saving equipment, with an investment of RMB 11 million, significant environmental and economic benefits have been achieved. Environmentally, carbon emissions can be reduced by about 12,000 tonnes, and 230,000 tonnes of wastewater can be cut annually. Economically, annual cost savings of RMB 20 million can be realized.

LNG Receiving Stations Optimized Processes to Enhance Low-Carbon Operations, Save Energy, and Generate Revenue

The Tangshan LNG Terminal actively optimizes its processes to enhance system efficiency. By considering seawater temperature changes and fitting a curve to the maximum operating load of the seawater ORV in winter, the station achieves precise management of energy consumption, saving 3.2 million cubic metres of natural gas annually fuel gas consumed by submerged combustion vaporizer (SCV) used to replace ORV. Additionally, the Company optimized the BOG compressor operation mode and tanker loading procedures, resulting in electricity savings of 1.523 million kWh and 280,000 kWh, respectively. Furthermore, the construction of additional vaporizers and ancillary projects at the Jingtang LNG receiving station reduces submerged combustion vaporizer (SCV) fuel gas by 5.79 million cubic meters per year in the future, translating into an 8,500 tonnes reduction in carbon dioxide emissions. This sets a benchmark for emissions reduction across the Company' s receiving stations.

Green Design

Energy Saving Design for Factories

- Energy efficiency retrofits for existing buildings
- Carbon assessment at the design stage of new buildings and acquisition projects, prioritising energy-efficient design
- Enhance the design and construction of unmanned and intelligent stations

Carbon Reduction Design for Office Building

- Design and construct roof distributed photovoltaic after site selection to power for office building
- For energy-saving official equipment, use energy-saving LED lamps, and install time-controlled timer switches

▸ As of 2023

Of more than 10 pipeline projects in operation, unmanned sites designed

15

Of 6 projects in construction preparation and under construction, unmanned sites designed and built

16

Saved from designed unmanned sites

RMB **110** million

Number of laborers has been reduced

8 persons per sites

Equivalent to saving labor costs annually

RMB **0.03** billion

Designing Unmanned, Intelligent Stations for the Chaozhou-Jieyang Branch Pipeline to Reduce Energy Consumption at Resource and Realize Low-Carbon Operations

Natural gas pipeline projects promote unmanned and intelligent field station construction, and fulfill essential functions such as data transmission, monitoring, early warning, and remote control right from the design phase. This approach enables intelligent operations aimed at reducing energy consumption. The unmanned field station demonstration project for the Chaojie branch line implements standardized designs and constructions of unmanned and intelligent field stations encompassing processes, electrical systems, instrumentation, self-control mechanisms, and pipeline operation and maintenance. This initiative aims to achieve green design principles from inception, minimizing resource utilization and promoting low-carbon operations.

Methane Emission Control

Methane Emission Control Management

- Formulate a detailed plan for methane emission control actions and break down methane emission control targets
- Incorporate methane emission control into performance appraisal and refine appraisal details

Production Process Optimisation

- Optimize flow parameters for LNG lamps for accurate metering and reduce emissions from gas combustion
- Expand the application of BOG recovery process installations, enhance BOG recycling, and reduce emissions from flare combustion

Leak Detection and Repair

- Strengthen the real-time monitoring of methane emissions from equipment and facilities during natural gas storage and transport
- Promote methane leak detection and repair with multiple technical means: PTZ laser-based methane alert systems, drone leak detection, combined with in-vehicle mobile and hand-held terminals, and detection dogs
- Build comprehensive emission control facilities for abnormal working conditions in pipeline networks

Methane Control & Emission Skills Upgrading

- Organize plants and receiving stations to study and research the status and application of advanced methane control and emission technologies at home and abroad, and improve methane management skills

In 2023, Kunlun Energy exceeded its methane reduction target,

in 2023, with methane emissions of (against a target of 8.5 thousand tonnes in 2023) **7.2** thousand tonnes

Reduction in methane emissions intensity from the 2020 level **33** %

LNG Project in Multiple Locations Optimized BOG Processes to Reduce Greenhouse Gas Emissions

In response to the dual carbon emission control targets, Kunlun Energy actively undertakes process optimization and BOG modification and recovery across its LNG plants. 11 LNG plants in Taian, Guangan,Bazhou and other areas have achieved zero BOG emissions by re-liquefying surplus BOGs and transmitting them upstream.Meanwhile, the LNG plant in Bazhou, Hebei has expanded its gas transmission capacity and optimized process flows. During plant shutdowns, the BOG compressor activates to deliver BOG gas into the urban gas pipeline network, thereby improving energy utilization efficiency and reducing emissions. Additionally, at the LNG plant in Huanggang, Hubei, BOG recycling and refurbishments have been implemented. Statistics indicate an annual reduction of 1.6 million cubic metres of BOG combustion, equivalent to a reduction of 3,000 tonnes of CO_2 emissions.

Low-carbon Development and Energy Mix Restructuring

Based on its existing market and technological advantages, Kunlun Energy actively promotes the substitution with clean energy, accelerates the expansion of new energy businesses, and continuously explores comprehensive development models such as natural gas combined with wind, solar, and hydropower. These efforts aim to contribute to achieving the dual carbon goal and support the Company's green and low-carbon development.

Use clean energy and restructure the energy mix

- We will completely phase out coal-fired boilers, achieving 100% clean thermal energy by 2030, and step to increase the proportion of clean energy vehicles, with no vehicles running on fossil fuel added from 2025 and diesel-fueled vehicles completely phased out by 2030, aiming to fuel self-owned vehicles with clean energy.
- We actively explore the market for green electricity and green certificates, introduce affordable green electricity, and promote the integration of certificate verification and electricity use.
- We accelerate the substitution with green energy and promote energy conservation and carbon reduction. Utilizing resources such as rooftops and vacant land at terminal sites and offices, we promote clean energy substitution in LNG terminals, factories, and urban combustion sites to enhance the level of clean energy self-supply and reduce carbon emissions.

Deploy electricity generation modes from new energy and develop comprehensive energy sources

- We conduct in-depth studies and planning in gas, electricity, and new energy sectors. We optimize strategies for synergistic allocation of new energy, gas, electricity, and energy storage. The Company clarifies the typical modes and key development directions for the comprehensive energy business, accelerating transformation from a natural gas distributor to a comprehensive green energy provider.
- We accelerate the development of its new energy system by actively planning new energy layouts, leveraging resource advantages, and terminal networks. We deepen cooperation with power and grid enterprises to acquire new energy quotas and promote clean energy substitution and comprehensive energy projects.
- We actively expand cogeneration and distributed energy. Leveraging distributed multi-energy complementary projects, we plan for our development in new energy segments such as natural gas, distributed PV, wind power, hydrogen energy, and energy storage, while innovatively advancing its comprehensive energy business.

Low Carbon Action by Kunlun Energy

In 2023, procured green electricity

182,873,800 kWh

Renewable energy as a percentage of total power consumption

10.82 %

Obtained green electricity certificates

22

Kunlun Energy’s Hainan LNG Terminal Developed the Combined Cooling, Heating and Power Distributed Energy Project

Kunlun Energy's Hainan LNG Terminal has developed a 200kW natural gas distributed energy project. This project operates primarily in a mode of “heating (cooling) for electricity”, supplying electricity for air-conditioning and refrigeration within the terminal area and part of the low-voltage load. The project's fuel is derived from the BOG terminal. It employs a dual cooling source, adhering to the principle of generating power for self-consumption and maximizing the use of waste heat. During peak and off-peak periods of the power grid, the combined heat (cooling) unit is activated to generate power for self-consumption and cooling using waste heat. Any additional cooling required is provided by a supplementary lithium bromide refrigeration unit. During the valley period of the power grid, a magnetic levitation centrifugal chiller is used to provide cooling. The project won the first prize in the China Distributed Comprehensive Energy Project Excellence Award 2021, presented at the 17th China Distributed Energy International Forum, and can reduce carbon emissions by approximately 257 tons per year.

Kunlun Energy's Henan Branch Explored New Energy Transformation with PV Power Generation

To accelerate the implementation of new energy projects, the Henan branch actively explores rooftop photovoltaic power generation in areas with sufficient sunshine. Following a scientific design, the Tanghe Primary Filling Station in Nanyang has utilized the roofs of its comprehensive office and auxiliary buildings to construct a photovoltaic power station. This station operates under a model of “primarily for self-use, surplus electricity connected to the grid”, meeting its power demands while selling surplus electricity online. The rooftop photovoltaic project at Tanghe Primary Filling Station has a total installed capacity of 70.4 kW. Once fully operational, it is expected to generate approximately 70,800 kWh annually, saving 17.7 tons of standard coal and reducing carbon dioxide emissions by 53.33 tons each year.

- As of 31 December 2023

Cumulative completion of new energy projects

25

Comprehensive energy projects

10

Cumulative completion of distributed photovoltaic projects

24

With a total installed capacity

3.1 MW

Cumulative power generation

976,000 kWh

Self-consumption

484,800 kWh

Innovation Contributes to Low-carbon Technology Reserves

Kunlun Energy is intensifying its digital transformation efforts, leveraging strategic and forward-looking technologies to enhance ESG performance and promote low-carbon green development. We utilize digital platforms to monitor carbon emissions and energy consumption, thereby improving management efficiency. Additionally, Kunlun Energy is actively exploring low-carbon development pathways and participating in carbon capture, utilization, and storage (CCUS), carbon sinks, and other zero-carbon and negative-carbon projects. The Company aims to develop a comprehensive energy business technology roadmap, operational model, and one-stop solution to create a green corporate brand.

Smart energy and carbon footprint management

- We develop energy consumption and carbon emission models, along with provincial efficiency measurement models, and establish basic data and greenhouse gas information platforms. This includes enhancing year-on-year and quarter-on-quarter analyses, as well as assessing the impact of control measures to ensure data consistency, authenticity, and completeness.
- We create digital models of oil and gas pipelines, field stations, and other facilities using digital twin technology. Intelligent management systems are employed to monitor and schedule equipment and energy consumption in real time, optimizing energy efficiency and reducing both energy consumption and carbon emissions.

Zero carbon and negative carbon project development

- We continuously track advancements in zero-carbon and carbon-negative technologies such as biogas, hydrogen energy, carbon capture utilization and sequestration, bioenergy with carbon capture and storage (BECCS), and direct air capture. We explore synergistic development paths for integrating gas business with carbon-negative technologies, promoting the natural gas industry’ s evolution towards greater environmental sustainability.

Kunlun Energy's Actions in Green Technology and Digital Technology Development

Kunlun Energy' s Hainan LNG Terminal Established an Energy and Carbon Management Platform

Hainan LNG Terminal emphasizes the integration of natural gas and new energy projects. It constructs zero-carbon stations, such as photovoltaic power generation, cooling energy utilization, and organic waste recycling, tailored to local conditions. Also, it established an energy and carbon management platform focused on the automated and standardized collection and management of energy consumption data with the core goals of energy conservation and carbon reduction. This platform targets three main areas: production systems, new energy, and carbon emissions, enabling a comprehensive closed-loop system of monitoring, alerting, statistics, analysis, optimization, and evaluation for integrated and refined energy management.

Kunlun Energy Launched Research on Hydrogen Doping Technology and Demonstration Application in Gas Pipeline Networks

Kunlun Energy is addressing the challenges of unclear adaptability of hydrogen doping in terminal facilities and the lack of relevant standards and specifications. Through theoretical research, platform testing, and pilot demonstrations, the Company has developed standards and promoted their application. Research has been conducted on the performance of hydrogen doping in gas stoves, water heaters, and boilers, as well as the impact of hydrogen-doped gas leakage. Additionally, an economic evaluation model for hydrogen doping in urban fuel pipeline networks has been constructed. Field surveys have been performed to identify test platforms and engineering demonstration sites based on land use, governmental opinions, hydrogen sources, economic benefits, and types of downstream users. Moving forward, Kunlun Energy plans to gradually promote a 10% hydrogen doping ratio at the city level, facilitating the transition from natural gas to the combination of natural gas and hydrogen.

Bio-liquefied Gas Cooperation Between Kunlun Energy and Tianzhou Biomass Energy Technology Co., Ltd

In June 2023, the Southwest Branch of Kunlun Energy entered into a strategic cooperation agreement with Sichuan Tianzhou Biomass Energy Technology Co. Ltd. As the only high-tech enterprise in China with independent intellectual property rights in sustainable aviation biofuels, Sichuan Tianzhou Biomass Energy Technology Co. Ltd. specializes in producing bio-jet fuel, bio-diesel, and bio-liquefied gas. Notably, their bio-liquefied gas has a propane content exceeding 87.5%. In the future, both parties will focus on deepening their cooperation in the field of bio-liquefied gas, further developing a comprehensive green and low-carbon industry chain.

Solidify Management Foundation and Build a Green Brand

Kunlun Energy prioritizes its role as an industry benchmark. The Company actively promotes the construction of zero-carbon stations and fully incorporates green and low-carbon concepts throughout the entire value chain, including design selection, raw material procurement, transportation, storage, usage, and disposal. Kunlun Energy aims to drive both the industry chains and supply chains towards lower carbon emissions, thus contributing to the industry's high-quality development. Furthermore, the Company actively engages in industry seminars and standardization activities. Additionally, the Company contributes to public welfare initiatives for ecological civilization construction. This involvement helps industry partners to gain a deeper understanding of sustainability trends and establish a green image.

Create a zero carbon prototype

- We endeavor to develop carbon-neutral prototypes in emerging cities, new parks, and new buildings. We accelerate business development and facilitate the transformation towards being a comprehensive green energy supplier. We strive to become a pioneer and an industry leader to achieve dual carbon goal in the urban fuel sector.

Collaborate with value chain partners to reduce carbon emissions

- We prepare the *Green Procurement Management Measures* to encourage the incorporation of green and low-carbon concepts in the procurement process for materials needed in production operations, engineering projects, and business management. These measures will prioritize environmental protection, resource conservation, safety and health, as well as promoting recycling and low-carbon practices.
- We encourage suppliers to disclose their carbon emissions data and actively conduct environmental audits on them. We integrate green procurement requirements, such as environmental indicators and low-carbon performance, into the supplier assessment and management system. We give preferences to suppliers who meet green and low-carbon criteria.
- We enhance communication with stakeholders and organize industry seminars on carbon reduction and environmental protection, and other related activities. We aim to establish a green image through tangible actions and actively build a sustainable corporate brand.

Kunlun Energy Started the Construction of First Modern Zero-Carbon Energy Port

Construction of the Fujian Zero Carbon Energy Port, Kunlun Energy' s first modern zero-carbon energy port, commenced in November 2023. Drawing on the experience of the Jiangsu and Jingtang projects, this undertaking highlights the four core design concepts of green zero-carbon, intrinsic safety, technological innovation, and equipment localization. As a significant initiative to propel China's energy production and consumption revolution, it seeks to establish a clean, low-carbon, safe, and efficient energy system. In the future, the Fujian Zero Carbon Energy Port will actively explore and implement a carbon-free sales approach and business model for low-carbon energy. The port will also engage in the provision of energy products, domestic energy supplies, international energy services, LNG shipping operations, cooling energy utilization, new energy ventures, and carbon-neutral services.

Kunlun Energy's Tianjin Branch Constructed Near-Zero Carbon Station

The Tianjin branch of Kunlun Energy firmly executes the requirement that each station should enhance its understanding of the photovoltaic business, learn from mature experiences to eliminate the practice of self-consumption of gas and electricity, and consistently raise the management standards of the stations. Consequently, the branch is undertaking the renovation of Cangzhou-Bohai Station and Nangang Offtake Station into near-zero-carbon sites. This transformation will be achieved by implementing the distributed PV & green electricity mode to ensure high-quality management of the stations.

Kunlun Energy Launched the "Planting Trees for Carbon Neutrality" Activity

Kunlun Energy actively takes part in environmental protection efforts and conducts regular public welfare activities, including initiatives like Planting Trees for Carbon Neutrality, to enhance employee awareness of environmental preservation. Moreover, the Company strives to inspire broader societal participation in green initiatives and foster the widespread adoption of low-carbon practices. By doing so, Kunlun Energy aims to play a leading role in combatting climate change and achieving carbon peaking and carbon neutrality goals.

Our Future Vision

As one of the largest domestic natural gas retailers in China, Kunlun Energy recognises the importance and urgency of green transformation in response to the global climate change crisis. The Company adheres to the corporate vision of "contribute to the building of Beautiful China and improve people' s well-being." Actively embracing the wave of low-carbon energy innovation, Kunlun Energy undertakes the task of the national energy revolution. Anchored in the long-term objectives of "peaking carbon emissions by 2030 and achieving net-zero emissions by 2050", the Company leverages its internal and external resources to promote the development of new quality productive forces. Collaborating with value chain partners, Kunlun Energy is committed to advancing sustainable development.

	Key Actions in 2023	Expected Action in 2024	Vision for Action
Governance	• We formed a dual carbon working leadership group led by board members to enhance the top-level design of climate governance. This group strengthened the Board' s responsibility for coordinating and supervising climate-related issues, thereby raising top-down awareness of climate risks. • We incorporated ESG indicators, such as energy saving, emission reduction, and climate change, into the performance appraisal standards for executive directors and management. This approach improved the governance of climate issues and incentivised the enhancement of climate-related performance indicators.	• The Sustainability Committee under the Board will strengthen the supervision of climate-related issues, and provide guidance and oversight to the dual carbon working leadership group. This includes progressive enhancements to the organisational system, working mechanisms, and supporting systems for achieving carbon peak and carbon neutrality to efficiently synergise energy conservation and emission reduction initiatives.	• We will further link the remuneration of key employees with their carbon indicator performance, enhancing the commitment to energy-saving and emission reduction at the governance, management, and execution levels. We will continue to stimulate the Company' s low-carbon development vitality and reinforce the implementation of the carbon peak and carbon neutrality targets.
Strategy	• We established a solid foundation for "green and low-carbon" strategy. Leveraging existing market resources and technological advantages, we actively launched various low-carbon development initiatives, including but not limited to energy efficiency technology improvements, expansion of new energy business, and optimisation of energy structure. Furthermore, we took emission reduction measures such as low-carbon buildings, low-carbon offices, and low-carbon procurement. The concept of "green development and low-carbon future" was deeply embedded in the corporate culture and company decision-making. • Staff members were invited to participate in industry alliance meetings focused on methane emission control, etc. which promoted their awareness of emission reduction and professional skills. This collective effort honed the capability for low-carbon development in the urban gas business, LNG business, and other segments.	• We will continuously encourage our branches and subsidiaries to comprehensively conduct clean production, methane emission control, new energy deployment, the use of digital intelligence technology, etc. This is aimed at creating zero-carbon demonstration projects that contribute to the Company' s achievement of net-zero goals. • We will cultivate, introduce, and retain professionals specialised in dual carbon. We will boost the influence of our green corporate culture through providing professional dual carbon training and exploring the incentives, such as internal carbon inclusion, to bolster the Company' s low-carbon development	• Externally, we will increase our communication with financial institutions and collaborate on green finance innovation initiatives such as green credit, green bonds (including carbon neutral bonds), green funds, and carbon finance. Internally, we will set up a dual carbon specialised fund to increase the investment in green and low-carbon initiatives and efficiently leverage those funds to support the advancement of green and low carbon measures.

	Key Actions in 2023	Expected Action in 2024	Vision for Action
Risk Management	• We incorporated the climate change risk management framework and risk response mechanism into the existing corporate risk management process to achieve a closed-loop management of "risk identification, risk analysis, risk assessment, risk prevention, and monitoring and review." • We identified potential climate risks across the entire value chain, thoroughly examined their likelihood of occurrence and impacts based on the corporate risk assessment criteria, and identified significant climate risks. We also quantitatively assessed the impacts of these risks on finance, strategy, and value chain. • We developed climate risk response measures to effectively control and manage the impacts of risk events, ensuring the implementation quality of risk prevention strategies through ongoing monitoring and regular reviews.	• We will gradually standardise the climate risk management process and policy documents, clarify the duties of departments for identifying, assessing, and managing climate risks, and enhance the normalised control of climate risk events. • We will bolster cooperation with stakeholders for climate transition, greatly empower the value chain to promote systematic climate risk management, mitigate the impacts of climate risks, and share new opportunities with value chain in renewable energy, low-carbon technology R&D, etc. resulting from green development.	• We will continuously monitor the development trend of climate risks, promptly update the risk assessment criteria and analysis results, and properly adjust the risk response strategies to ensure corporate business flexibility and climate strategy resilience.
Metrics and Targets	• Kunlun Energy has formulated and released the *Action Plan Towards Carbon Peaking and Carbon Neutrality (2024 Edition)*, committing to peaking carbon emissions by 2030 and achieving net zero emissions by 2050. The plan includes phased emission reduction targets and pathways to practically perform the low-carbon action plan.	• We will clarify the duties of departments, integrate resources to foster a synergy of low-carbon technology innovation, execute energy-saving and emission reduction measures, monitor climate-related indicator performance according to the action plan, ensuring the smooth and orderly advancement of emission reduction target achievement.	• We will track the greenhouse gas emissions, installation of green electricity and construction of low-carbon and zero-carbon stations on a long-term basis. We will compare the progress annually made towards achieving the targets and make properly adjustments to specific measures to promote the steady achievement of the overall goal of peaking carbon emissions by 2030 and achieving net-zero emissions by 2050 and demonstrate our determination to attain "net-zero" emissions.

Index of Indicators

(i) IFRS S2 Recommended Disclosure Guide

	Recommended Disclosure	Pages
Governance	Disclose information about the governance body(s) (which may include the board of directors, committees or equivalent bodies responsible for governance) or individual(s) responsible for overseeing climate-related risks and opportunities.	6, 11-12
	Management' s role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities.	6, 11-12
Strategy	The climate-related risks and opportunities that could reasonably be expected to affect the entity' s prospects.	17-21, 32-36, 40-41
	The current and anticipated effects of those climate-related risks and opportunities on the entity' s business model and value chain.	19-21, 32-36, 40-41
	The effects of those climate-related risks and opportunities on the entity' s strategy and decision-making, including information about its climate-related transition plan.	63-65
	The effects of those climate-related risks and opportunities on the entity' s financial position, financial performance and cash flows for the reporting period, and their anticipated effects on the entity' s financial position, financial performance and cash flows over the short, medium and long term taking into consideration how those climate-related risks and opportunities have been factored into the entity' s financial planning.	21-27, 36-41
	The climate resilience of the entity' s strategy and its business model to climate-related changes, developments and uncertainties - taking into consideration the entity' s identified climate-related risks and opportunities.	27-31, 41-43
Risk Management	The processes and related policies the entity uses to identify, assess, prioritise and monitor climate-related risks.	15-18
	The processes the entity uses to identify, assess, prioritise and monitor climate-related opportunities, including information about whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related opportunities.	15-18, 21-22, 37-38
	The extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the entity' s overall risk management process.	16
Metrics and Targets	Information relevant to the cross-industry metric categories.	7
	Industry-based metrics that are associated with particular business models, activities or other common features that characterise participation in an industry.	3-4, 7
	Targets set by the entity, and any targets it is required to meet by law or regulation, to mitigate or adapt to climate-related risks or take advantage of climate-related opportunities, including metrics used by the governance body or management to measure progress towards these targets.	7, 48-51

(ii) Implementation Guidance for Climate Disclosures under HKEX ESG reporting framework

	Recommended Disclosure	Pages
Governance	**Skills and competencies** How the body(s)/individual(s) determines whether appropriate skills and competencies are available or will be developed to oversee strategies designed to respond to climate-related risks and opportunities.	13-14
	Processes and frequency How and how often the body(s) or individual(s) is informed about climate-related risks and opportunities.	11-12
	Roles and responsibilities of the board How the body(s) or individual(s) takes into account climate-related risks and opportunities when overseeing the issuer' s strategy, its decisions on major transactions, and its risk management processes and related policies, including whether the body(s) or individual(s) has considered trade-offs associated with those risks and opportunities.	6, 11-12
	Progress monitoring How the body(s) or individual(s) oversees the setting of, and monitors progress towards, targets related to climate-related risks and opportunities, including whether and how related performance metrics are included in remuneration policies.	13
	Roles and responsibilities of management Management' s role in the governance processes, controls and procedures used to monitor, manage and oversee climate related risks and opportunities, including information about: i. whether the role is delegated to a specific management-level position or management-level committee and how oversight is exercised over that position or committee; and ii. whether management uses controls and procedures to support the oversight of climate-related risks and opportunities and, if so, how these controls and procedures are integrated with other internal functions.	6, 11-12
Strategy	**Climate-related risks and opportunities** (a)describe climate-related risks and opportunities that could reasonably be expected to affect the issuer' s cash flows, its access to finance or cost of capital over the short, medium or long term; (b) explain, for each climate-related risk the issuer has identified, whether the issuer considers the risk to be a climate-related physical risk or climate-related transition risk; (c) specify, for each climate-related risk and opportunity the issuer has identified, over which time horizons – short, medium or long term – the effects of each climate related risk and opportunity could reasonably be expected to occur; (d) explain how the issuer defines 'short term' , 'medium term' and 'long term' and how these definitions are linked to the planning horizons used by the issuer for strategic decision-making.	17-21, 32-36, 40-41
	Business model and value chain (a) a description of the current and anticipated effects of climate-related risks and opportunities on the issuer' s business model and value chain; and (b) a description of where in the issuer' s business model and value chain climate related risks and opportunities are concentrated (for example, geographical areas, facilities and types of assets).	17-21, 32-36, 40-41

	Recommended Disclosure	Pages
Strategy	**Climate resilience** (a) the issuer' s assessment of its climate resilience as at the reporting date; (b) how and when the climate-related scenario analysis was carried out.	17-18, 22, 37-38
	Financial position, financial performance and cash flows Climate-related risks and opportunities can affect several aspects of an issuer' s financial situation. Examples include: • Changes in financial position and impacts on cash flows; • Changes in financial performance and impacts on cash flows.	21-27, 36-41
	Strategy and decision-making (a) information about how the issuer has responded to, and plans to respond to, material climate-related risks and opportunities in its strategy and decision-making, including how the issuer plans to achieve any climate-related targets it has set and any targets it is required to meet by law or regulation. (b) information about how the issuer is resourcing, and plans to resource, the activities disclosed in accordance with paragraph 22(a).	27-31, 41-43
Risk Management	**Risk identification** An issuer should first identify climate-related risks relevant to its business.	15-21, 32-36
	Risk assessment To facilitate an efficient use of resources to manage its most material risks, an issuer should set criteria to assess climate-related risks, such as the likelihood of occurrence, expected impact on the issuer, its adaptability to such risks and the resources and time required to recover from such risks.	15-21
	Risk prioritisation After determining the risk assessment criteria, an issuer can conduct qualitative evaluation or quantitative scoring to prioritise the most relevant and material risks before deciding how to monitor and manage such risks.	16, 19, 32
	Risk management After assessing and prioritising climate-related risks, issuers should consider how to monitor and manage such risks. Depending on its risk appetite and ESG management approach, issuers' responses to the same climate-related risk may differ.	16, 27-31, 41-43
	Risk integration Information disclosure about risk integration should summarise the issuer' s process of assessing, managing and prioritising risks in a coordinated and holistic manner. The goal of integrating climate-related risk management into an issuer' s existing overall risk management process is to ensure that the issuer is able to assess and prioritise climate-related risks in a timely manner in order to monitor and manage them. • Climate governance • Risk inventories alignment • Risk appetite • Tools and reporting	15-16

	Recommended Disclosure	Pages
Metrics and Targets	**Greenhouse gas emissions** An issuer shall disclose its absolute gross greenhouse gas emissions generated during the reporting period, expressed as metric tonnes of CO_2 equivalent, classified as: (a) Scope 1 greenhouse gas emissions; (b) Scope 2 greenhouse gas emissions; and (c) Scope 3 greenhouse gas emissions.	7, 50-51
	Cross-industry metrics • Climate-related transition risks • Climate-related physical risks • Climate-related opportunities • Capital deployment	48-49
	Internal carbon price An issuer shall disclose: (a) an explanation of whether and how the issuer is applying a carbon price in decision-making (for example, investment decisions, transfer pricing, and scenario analysis); and (b) the price of each metric tonne of greenhouse gas emissions the issuer uses to assess the costs of its greenhouse gas emissions; or an appropriate negative statement that the issuer does not apply a carbon price in decision-making.	N/A[1]
	Remuneration An issuer shall disclose whether and how climate-related considerations are factored into remuneration policy, or an appropriate negative statement.	6, 13
	Industry-based metrics An issuer is encouraged to disclose industry-based metrics that are associated with one or more particular business models, activities or other common features that character-ise participation in an industry.	3-4, 7
	Climate-related targets An issuer shall disclose (a) the qualitative and quantitative climate-related targets the issuer has set to monitor progress towards achieving its strategic goals; and (b) any targets the issuer is required to meet by law or regulation, including any greenhouse gas emissions targets.	7, 48-49

1. Kunlun Energy has included internal carbon pricing in the company's research scope and will continue to explore the construction of an internal carbon pricing mechanism in the future.

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