

ENN Natural Gas Co., Ltd. Biodiversity Conservation Report 2022





Catalogue

About this Report	2
Introduction	3
About ENN- NG and ENN Energy	4
Biodiversity Conservation Strategy	6
Biodiversity in Surrounding Areas	8
Conservation Initiatives in Business Scenarios	10
Biodiversity Conservation of Engineering Construction Business	12
Future of the Biodiversity Conservation Actions	27

About this Report

Content

This report covers ENN Natural Gas Co., Ltd. (hereinafter referred to as "ENN-NG") and its affiliates, including ENN Energy Holdings Limited (hereinafter referred to as "ENN Energy"). Part of the content involves ENN (Zhoushan) LNG Co., Ltd. (hereinafter referred to as "Zhoushan LNG Terminal"), which is currently managed by ENN-NG.

Terminology

ENN-NG or the Company — ENN Natural Gas Co., Ltd. (600803.SH).

ENN Energy — ENN Energy Holdings Limited (2688.HK), an affiliate of ENN-NG.

Zhoushan LNG Terminal — ENN (Zhoushan) LNG Co., Ltd.

Xinneng Mining — Xinneng Mining Industry Co., Ltd., an affiliate of ENN-NG.

ENN Liu'an — Liu'an Xinao Gas Co., Ltd., an affiliate of ENN Energy.

Quanzhou Gas — Quanzhou Gas Co., Ltd., an affiliate of ENN Energy.

Xindi Engineering — Xindi Energy Engineering Technology Co., Ltd., an affiliate of ENN-NG.

ENN Guangzhou Baiyun — Guangzhou Baiyun Xinao Gas Development Co., Ltd., an affiliate of ENN Energy.

ENN Chuzhou — Chuzhou Xinao Gas Co., Ltd., an affiliate of ENN Energy.

Xinneng Energy — Xinneng Energy Co., Ltd., an affiliate of ENN-NG.

ENN Yueyang — Yueyang Xinao Gas Co., Ltd., an affiliate of ENN Energy.

ENN Kaifeng — Kaifeng Xinao Gas Co., Ltd., an affiliate of ENN Energy.

Reference Standards

This report is prepared and reported with reference to Taskforce on Nature-Related Financial Disclosures (TNFD).

Languages

The *Biodiversity Conservation Report (2022)* is available in both Chinese and English (in case of discrepancies in the content, the Chinese version shall prevail).

Extended Reading

For more content and information related to ecological and environmental protection, please visit the website of ENN-NG at www.enn-ng.com and ENN Energy at www.ennenergy.com.

For information related to ecological and environmental protection, please refer to:

ENN Natural Gas Co., Ltd. Environmental, Social and Governance Report 2021, and *Decarbonisation Action 2030 - ENN-NG's Carbon Neutral Emission Roadmap* on the website of ENN-NG, www.enn-ng.com.

ENN Energy Holdings Limited Environmental, Social and Governance Report 2021, and *Decarbonisation Action 2030 - ENN Energy's Net-zero Roadmap* on the website of ENN Energy, www.ennenergy.com.

Introduction

In recent years, with the ravages of the COVID-19 epidemic, the disappearance of rare species, and the growing biodiversity crisis, people are reminded of and warned about the importance of maintaining a close relationship with the nature. The current crisis is also an opportunity to turn the tide. The United Nations has established the Convention on Biological Diversity and formulated the Sustainable Development Goals (SDG) related to biodiversity, encouraging governments and enterprises around the world and aligning with them to work concertedly for biodiversity conservation.

In China, biodiversity conservation has also attracted great attention from all walks of society. In October 2021, President Xi Jinping delivered a speech in the 15th session of the Conference of the Parties to the *Convention on Biological Diversity* (COP15), promising that China would vigorously develop the cause of biodiversity conservation, urging industries to strengthen biodiversity conservation from multiple aspects such as energy structure adjustment. The white paper *Biodiversity Conservation in China* released by the State Council also pointed out that China would continue to strengthen the biodiversity conservation as a national strategy and would improve the long-term conservation mechanisms led by the government and facilitated by enterprises with public participation.

ENN-NG is committed to its original aspiration of "creating a modern energy system, improving the quality of people's life", sticks to sustainable development routes including biodiversity conservation. It clarifies medium- and long-term decarbonisation action goals, and incorporates biodiversity conservation concepts and measures into its corporate strategy. In 2022, the Company refers to the guidelines of the Taskforce on Nature-Related Financial Disclosures (TNFD) and publishes its first *Biodiversity Conservation Report*, which focused on natural gas production, import, direct sales, and energy production (coal and methanol production) businesses, as well as natural gas distribution and integrated energy sales and services, disclosing the Company's practical work and value created in biodiversity conservation.



About ENN-NG and ENN Energy



As one of the largest private energy enterprises in China, ENN-NG operates 252 city-gas projects nationwide, with an annual LNG distribution capacity of over 10 billion m³. It hosts the first large private LNG terminal in China, Zhoushan LNG Terminal, and its business covers the whole scenario of the natural gas industry, including distribution, trading, storage and transportation, production, and engineering. Relying on the best practices of the industry, ENN-NG has built an intelligent operation platform for the natural gas industry, the Great Gas website, accelerating the integration of demand, resources, delivery, and reserve ecology of the natural gas industry, innovating and developing the digital intelligence services, striving to become an intelligent ecological operator in the natural gas industry, and facilitating the digital intelligence upgrade of the industry.

As an affiliate of ENN-NG, ENN Energy has been in the city pipeline gas business since 1992 and is one of the largest clean energy distributors in China. Its principal business is the investment, construction, operation, and management of pan-energy projects, gas pipeline infrastructure, and gas filling stations in China. It also sells and distributes a wide range of energy products, pipeline gas, and LNG and provides other low-carbon energy solutions. Based on the customers' demands, it focuses on the development of the whole value chain of energy, using clean energy technologies and digital intelligence management to transform towards low-carbon businesses while reducing carbon emissions for its customers and society. In this way, it contributes to China's achievement of the carbon peaking and carbon neutrality goals and creates a low-carbon future together. ENN Energy is currently a constituent of the Hang Seng Index, the Hang Seng China Enterprises Index, the Hang Seng Composite Large Cap Index, the Hang Seng ESG 50 Index, the Hang Seng Sustainable Enterprises Benchmark Index, and the MSCI China Large Cap Index.



Biodiversity Conservation Strategy



ENN-NG initiates biodiversity assessment and conservation in all scenarios of its business development and implements projects to protect the ecological environment and biodiversity around its operation sites. We encourage our member companies to promote, procure, and use sustainable natural resources that have a low impact on the ecological environment and are beneficial to biodiversity conservation to minimise the impact on the ecological environment around our operation sites. On this basis, we create a systematic green industry system through biodiversity restoration and sustainable use of natural resources so that our business development can coexist with the natural environment, and we can join our hands to write a new chapter of the clean and green energy development of ENN-NG.

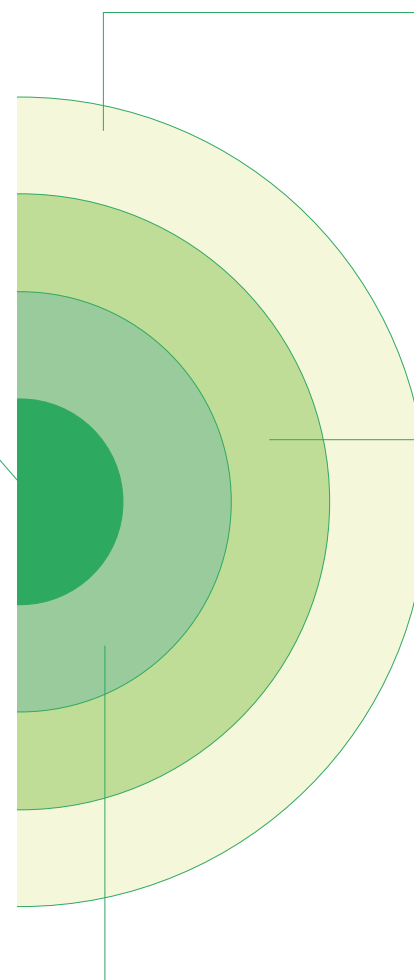


Our Policies



Metrics and targets

"NO-net Loss (NNL)" * of biodiversity is an important task in the daily operation of ENN-NG and is also an important indicator that we use to assess the biodiversity conservation results. We regularly collect the achievements of our member companies, such as how many environmental assessments they have conducted and what ecological conservation initiatives they have taken. Each year we will evaluate, manage, and disclose key biodiversity management indicators including the frequency and area of ecological restoration, soil restoration, and river treatment, as well as the frequency of wildlife protection, and the number of animals protected. By bringing "Net Positive Impact (NPI)"** to the environment, we further solidify our long-term mission of biodiversity conservation initiatives and practices.



Governance

The Company has released its *Biodiversity Conservation Policy*. It reviews and discloses its performance on biodiversity conservation annually, which is considered a key part of its ESG management. We govern our biodiversity conservation from three aspects, that is, sustainable management of natural resources and raw material use, restoration of disturbed land and habitats, and respect for indigenous peoples and reduction of impacts on communities. The conservation policy incorporates resource use and waste management in all scenarios of the business, ecological conservation initiatives by suppliers, site selection and subsequent ecological restoration of projects, as well as communication with local indigenous people.

Strategy

Based on the environmental impact caused by the production and operation process of ENN-NG and the business development needs to implement biodiversity management strategies, we should: first of all, strengthen environmental management in the design and procurement, construction, and operation stages to reduce the degree of ecological impact through resource consumption management, pollutant management, soil and water conservation, ecological restoration, and other dimensions; secondly, organise and encourage member companies to participate in ecological conservation actions and actively cooperate with ecological conservation and governance projects in national areas to bring positive benefits to the ecology; thirdly, explore and develop the application of renewable energy, continuously increase the proportion of renewable energy in the energy consumption structure, and assist our customers and the society in biodiversity conservation while reducing our ecological impact.

Risk management

We strictly require our member companies to implement environmental impact assessment and biodiversity due diligence following the requirements of national policies to fully identify potential biodiversity risks in each project. On this basis, we request them to formulate and implement corresponding comprehensive management programs to fully identify and properly manage ecological risks. At the same time, we hire a third-party professional institution every year to analyze potential ecological risks and impacts based on our corporate business and formulate risk analysis sheets.

*No-net Loss (NNL): after being compensated by various measures, the structure and functionality of the ecosystem should be the same as before the project construction, without any loss to the local ecological value.

**Net Positive Impact (NPI): the impacts of human activities on local species and the ecological environment are offset through project restoration and other actions, where the impact of the action taken offsets or outweighs that of the project on biodiversity.

Biodiversity in Surrounding Areas



With our operations spreading throughout China, ENN-NG is inextricably bonded to the diverse ecosystems in China. The *2020 Report on the State of the Ecology and Environment in China* shows that China has a variety of terrestrial ecosystems including forests, bamboo forests, brushwood, meadows, grasslands, wetlands, coasts, islands, lakes, etc., and is home to abundant species. Its forest coverage rate and comprehensive vegetation coverage of grassland are 23.04% and 56.1%, respectively. The regions where ENN NG's main operations are located, such as Hebei, Henan, Zhejiang, Shandong, Guangdong, Jiangsu, Fujian, and Inner Mongolia, all have different kinds of ecosystems and biological resources. For effective biodiversity conservation, we have conducted in-depth studies and surveys on the ecosystems and biodiversity status in our main operation sites, so that we can tailor our biodiversity conservation initiatives "to local conditions".

Hebei

City-gas Integrated energy

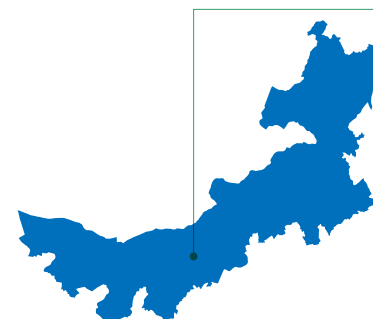
Hebei Province, subjected to a temperate - warm temperate climate, has many types of terrain, such as plateaus, mountains, and plains. Crisscrossed by rivers and with a long coastline, the province has many types of ecosystems such as forests, grasslands, and brushwood. Fuping County of Baoding City and Chongli District of Zhangjiakou City are listed as national ecological civilization construction areas, and Hebei has other key areas such as the "two districts" (Bashang Plateau District and Binhai District) and "two mountains" (Taihang Mountains, Yanshan Mountains, and Hengshui Lake).



Inner Mongolia

Coal business City-gas Integrated energy

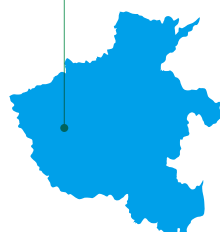
Inner Mongolia has the largest natural forest area in China, mainly including zonal ecosystems such as forest, brushwood, grassland, and desert, and azonal ecosystems such as wetland and sand, among which grassland is the most dominant type of natural ecosystem. Darhan Muminggan United Banner and Hinggan League are national ecological civilization construction areas, and Inner Mongolia is also home to five biodiversity conservation priority areas, including Hulunbuir and Xilin Gol Prairie.



Henan

City-gas Integrated energy

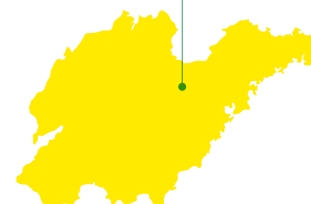
Located in the northern subtropical and warm temperate climate zone, Henan Province has obvious transitional characteristics of the climate. It is rich in plants and animals as well as wetland resources, with more than 300 natural protected areas and nearly 200 species of protected wild animals at all levels. It is also an important water conservation area, soil and water conservation area, and flood regulation area in central China. Luoning County of Luoyang City and Yongcheng City of Shangqiu City are listed as national ecological civilization construction areas.



Shandong

City-gas Integrated energy

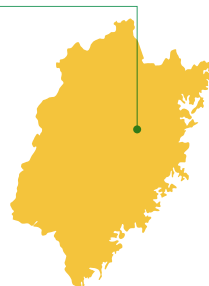
Shandong Province is located in the lower reaches of the Yellow River, and on the verge of the Bohai Sea and the Yellow Sea. It has terrestrial ecosystems such as forests, brushwood, meadows, and wetlands, as well as marine ecosystems such as coastal zones and islands within its jurisdiction. The West Coast New Area of Qingdao and Jiaozhou City are listed as national ecological civilization construction areas, and Shandong Province also has biodiversity conservation priority areas such as Liugongdao Island and its surrounding waters and the Yellow River Delta.



Fujian

City-gas Integrated energy

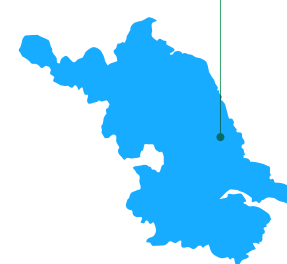
Located on the southeast coast of mainland China, Fujian Province has complex topography, diverse types of landforms, large offshore and coastal intertidal zones, long coastlines, and high species richness. Its Sanming City, Longyan City, and other cities are national ecological civilization construction areas, with another dozen of priority areas of land and marine biodiversity conservation, such as Wuyishan District, Minjiang River Basin, and Coral Distribution Area.



Jiangsu

City-gas Integrated energy

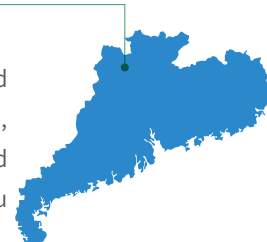
Straddling the warm temperate zone, northern subtropics, and central subtropics, Jiangsu Province has a forest ecosystem that is transitional and has both northern and southern characteristics. The province is dominated by secondary forests and artificial forests, with fewer natural forests. Its wetland resources are one of the richest in China, among which the offshore and coastal wetlands are important channels for migrating birds. Wujiang District of Suzhou City and Yancheng City are ranked as national ecological civilization construction areas.



Guangdong

City-gas Integrated energy

Located in the tropics and subtropics, Guangdong Province has rich forest and grassland terrestrial ecosystems, as well as a large area of marine ecosystems. The cities of Dongguan, Foshan, and Shanwei are listed as national ecological civilization construction pilot areas, and the province also has biodiversity conservation priority areas such as Nanling Mountain, Luofu Mountain, and Lianhua Mountain.



Zhejiang

LNG terminals City-gas Integrated energy

Zhejiang Province has excellent natural conditions of light, heat, and water. It mainly includes terrestrial ecosystems such as forests, wetlands, and grasslands, as well as marine ecosystems such as coastlines and islands. Zhoushan and Ningbo are listed as national ecological civilization construction areas, and the province also has biodiversity conservation priority areas such as Qiandao Lake watershed and Zhoushan fishing grounds.



Conservation Initiatives in Business Scenarios

Energy production business

Coal business

Land-use change and overdevelopment

- Formulate a standardised planning and design program for pilot areas of ecological restoration. It also developed an execution plan which includes concepts of architectural design, ecological restoration technology application, water system planning, and intelligent park planning;
 - Combine industrial and mining production with ecological restoration, greening the potential industrial rustbelts through ecological restoration projects;
 - Technologies such as reverse osmosis membrane filtration system and scientific purification of mine drainage are introduced for efficient use of water resources, ecological management and restoration of rivers;
 - Build management systems of intelligent wetland monitoring, forestry and grass management and protection, and farmland management to maximise the effectiveness of local ecological restoration.
- #### Pollution
- Waste and domestic sewage are treated and recycled rather than discharged, while the remaining mine drainage should be discharged into the ecological reservoir for storage. In addition, the project should not have any sewage draining outlet;
 - Use a "infiltration, drainage, and storage" system for rainwater on operation sites to improve the quality of mine water and reduce concentration of nitrate and chlorine;
 - Offer supporting reservoirs to the project for ecological regulation, lay irrigation pipelines to make transportation and irrigation more convenient for agriculture and animal husbandry ecology, and promote the economical and intensive use of water resources.

Methanol business

Climate change

- Established a food-grade liquid carbon dioxide production plant to recycle the carbon dioxide emitted from the methanol plant, which can recycle 150,000 tons of carbon dioxide per year;
- Developed a green methanol process, explore the construction of a green methanol production plant that uses carbon dioxide as raw material, and use the carbon dioxide emitted from existing coal-to-methanol plants as raw material. It is expected the project can reduce 52,700 tons of carbon dioxide emissions per year.

Natural gas production, import and direct sales

Land-use change

- Manage environmental issues with advanced processes, equipment, and materials, as well as construction methods and measures;
- Ensure all discharged pollutants are treated to meet the national discharge standards before being discharged, so as to protect the atmosphere, water bodies, soil, vegetation, etc. in the area through which the pipeline passes;
- Designate environmental protection personnel to manage environmental issues such as impacts on atmosphere and soil in case of an accident, according to the nature of the accident and the scope of impact;
- Build up communication with local meteorological and maritime authorities and local communities and fishermen, and engaging them in the construction and operation phases. Therefore, ensuring the compliance of projects and safeguarding interests of local communities.

Engineering construction

Land-use change

- Complete environmental evaluation analysis in strict accordance with regulations during the construction preparation stage, and set up evaluation criteria for ecological areas such as local water sources and wildlife habitats. Meanwhile, the target and scope of the cleanup and excavation should be clarified, and no vegetation around the construction area should be vandalised for the convenience of construction;
- Regularly monitor the impact caused to land and soil during the construction stage and initiate restoration plans to balance the ecological damage if the surrounding land has been impacted;
- Conduct supplier assessment and encourage them to appropriately maintain the integrity and stability of the ecosystem. Suppliers are also required to fulfill their ecological conservation obligations, and comply with the requirements of the ecological conservation red line, environmental quality bottom line, resource utilization upper limit, and negative environmental access list.

Climate change

- Carry out on-site surveys before the project starts to investigate vegetation types, canopy density, grassland coverage, vegetation coverage, and soil and water erosion types in the project area and formulate subsequent vegetation restoration plans based on the survey results, reducing greenhouse gas emissions by carbon sequestration to achieve "net-zero emissions";
- Actively organise and participate in local tree planting activities to increase the number of trees planted and their coverage.

Pollution

- Noise reduction management: use sound absorption and sound insulation methods, select low-noise equipment, or equip construction machinery with sound-proofing and noise-reducing devices, and carry out construction in an enclosed area to control the noise propagation, lowering the noise volume to meet the requirements of national standards;
- Avoid work at night: the construction unit need to declare to the local environmental protection authorities 15 days in advance if work at night is necessary, and at the same time, noise control measures must be strictly taken;
- Wastewater management: swage treatment facilities should be set up at the construction site while sewage discharge should be entrusted to a qualified unit for wastewater quality testing and sewage testing reports;
- Construction management: use fences for semi-enclosed isolation, and use dust screens, dust felts, etc., to prevent dust from spreading, as well as sprinklers, fog guns, dust machines, and other equipment;
- Residential impact management: when the construction is not signed or the construction is carried out in places close to nearby residential areas, fine mesh screens should be set to block the light from reaching residents;
- Waste management: improve the management system of hazardous waste, management account and emergency plan, and invite professional suppliers to collect and treat the wastes.

Natural gas distribution

Land-use change

- Actively promote trenchless methods for pipeline construction to minimise the impact of pipeline construction operations on land;
- Engage professional landscaping units for support after the natural gas pipelines are laid, replant plants and restore soils on the completed pipeline sections, and restore the vegetation and geomorphology of the pipeline laying sections;
- If a natural gas pipeline is laid close to a river, the Company will also organise special river restoration projects to mitigate the impact on water body.

Climate change

- Join the Methane Guiding Principles, an international authority on methane emission control, and become a founding member of the China Oil and Gas Methane Alliance to unite the industry to improve methane management;
- Facilitate the application of the Pan-Tilt-Zoom methane monitoring system to monitor citygate stations 24/7, accurately identify natural gas leak risks, and timely alarm to address leaks;
- Deploy a full range of methane emission management measures, including the use of BOG devices and other devices to recover leaked methane gas, renovate and repair pipelines with potential leakage, monitor methane leaks using technical equipment such as IoT and simulation technology and laser inspection vehicles, and promote pipeline network visualization systems and the closed-loop management of operational processes.

Integrated energy sales and services

Land-use change

- New projects are required to conduct due diligence for assessments related to biodiversity, through which more than 90% of new projects should apply;
- Try to select areas without rare plants and animals as the site for the construction of relevant facilities, so as to mitigate the potential impact on the surrounding ecological environment;
- Organise and encourage member companies to participate in local projects including river regulation, soil restoration, greening renovation of wasteland and construction sites, and other projects to minimise the impact on the surrounding environment due to land-use changes caused by the construction of pan-energy production facilities.

Climate change

- Promote the application of clean energy and continuously increase the proportion of renewable energies such as solar energy, industry residual heat, and biomass in the energy structure;
- Improve the energy efficiency of energy production facilities through continuous technological improvements, optimization of operational strategies, and core technologies of intelligent energy management platforms;
- Select operation areas to establish pilot projects, form a demonstration application of carbon capture and sequestration projects in 2025, and then gradually deploy carbon capture and sequestration technology in the pan-energy business.

ENN-NG attaches great importance to the environmental impact on the surrounding ecosystems in daily operations and is committed to continuously improving its biodiversity conservation policies. It adheres to the goal of improving environmental management and ecological environmental protection, and strives to build a modernised world in which people and nature live in harmony. We are deeply aware of the necessity and importance of biodiversity, and therefore, according to the classification of biodiversity influential factors in *Nature's Assets - Why Biodiversity is Good for Business*, we sort out the ecological impacts caused by our business operations from five dimensions, that is, land-use change, climate change, pollution, overdevelopment, and species invasion, and put together biodiversity conservation measures taken to alleviate these impacts.

****The main business of ENN-NG does not involve matters related to species invasions, and it neither introduces alien species within its operation sites nor spread species to other areas through product sales.***

Green office

Climate change

- Continuously increase the proportion of renewable energy used in daily operations by using building photovoltaics, heat pump technology application, renewable energy vehicles, etc.;
- Improve energy efficiency through digital intelligence and comprehensively reduce the intensity of fossil energy use in daily operation.



Pollutant

- Recycle and handle office waste appropriately, and contact municipalities and suppliers with professional qualifications to dispose the waste in accordance with national regulations.



Ecological Co-existence Cases



Biodiversity Conservation of Coal Business

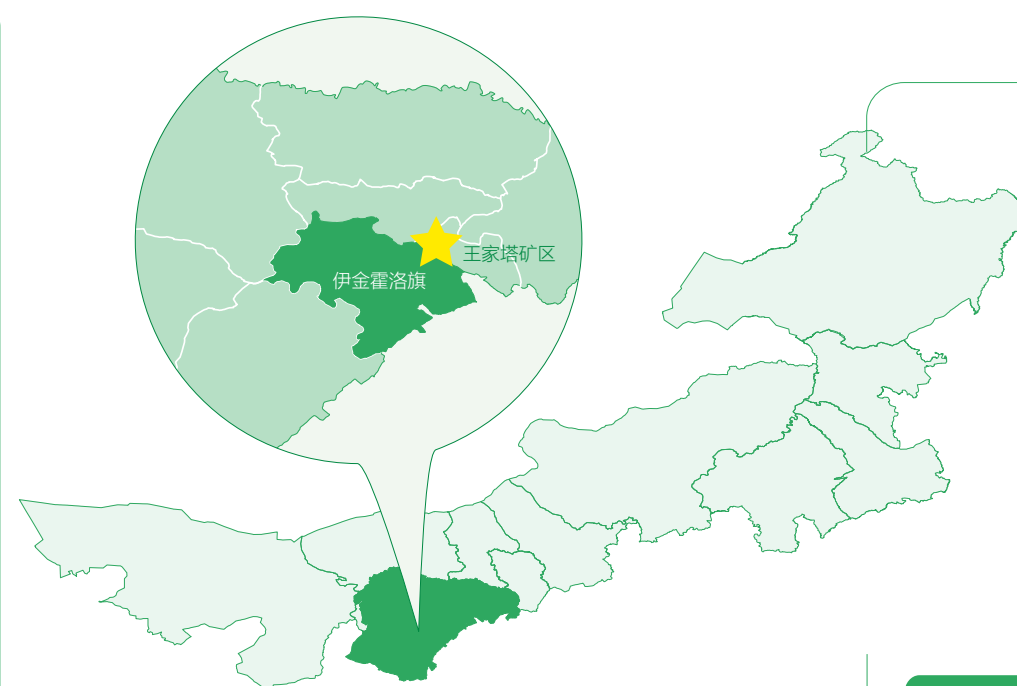
Case 1



Biodiversity Conservation in Wangjiata Coal Mine Subsidence Area

With an emphasis on biodiversity conservation, Xinneng Mining has been actively promoting the ecological restoration of Wangjiata Coal Mine. It has carried out comprehensive biodiversity conservation in the subsidence area to build a green and circular development economy, fully relying on policies such as *Inner Mongolia Autonomous Region Mining Geological Environment Governance and Restoration Fund Management Measures (for Trial Implementation)*, *Ejin Horo Banner Mining Area Overall Study and Formulation Planning Program*, and *Ejin Horo Banner Mountain, Water, Forest, Field, Lake and Grass Comprehensive Management and Green Development Implementation Plan (2019-2035)*.

Wangjata Coal Mine of Xinneng Mining is located in Ejin Horo Banner Forest, Ordos City, Inner Mongolia, in the south of Dongsheng Coalfield of the autonomous region, which is a highly productive and efficient modern mine in Ordos. The wellfield area occupies most of the second wellfield and all of the third wellfield in Huyaketu exploration area. The wellfield takes the shape of an irregular polygon, stretching 14.40 km from south to north, and 6.77 km from east to west. It takes an area of 56.67 km², and the standard mining depth is +1,219 m to +920 m. The mine started construction in 2009, and was put into use in 2011, with a designed annual production capacity of 8 million tons.



Design annual production capacity of mine

8 million tons

Ecological challenges

I

Land-use

- Ground subsidence, ground cracks and landslides in mine goaves.
- Serious soil erosion in gullies.
- Entrenchment in ditch bottoms and broken grounds.

II

Wetland degradation

- Degradation of the water conservation function.
- Wetlands are shrinking and rivers are drying up.
- Serious decline in groundwater level.

III

Water resources

- No surface water.
- The poor-quality groundwater is buried deep underground and is difficult to extract.
- Mine drainage is generated during the mine production.

IV

Forest land resources

- Serious lack of forest trees.
- Low soil productivity on forest land.
- Forest trees lack diversity, and the ecology is unstable.

V

Agriculture resources

- Severe soil degradation on agricultural land.
- Extensive irrigation methods.

Ecological governance

Land-use

- Use the filling method to treat the ground cracks caused by mining in mine areas;
- Prevent water and soil erosion by vegetation restoration and slope greening;
- Set up low elevation greenbelt to purify and dredge rainwater, so as to prevent water and soil erosion and abate gully erosion.

Wetland degradation

- Carry out side ditch restoration and conserve wetland water and soil through different engineering means such as ecological strips and post-planting;
- Restore wetlands in river valleys, use land consolidation to increase the water conservation and storage capacity of river valleys, form shallow beaches, puddle water, rivers, mudflats, and other forms, plant aquatic plants and fruit plants, and increase the area of wetlands. Form a wetland landscape with abundant water and grass where fluttering birds like to visit;
- River ecological governance and restoration, using infiltration, stagnation, storage, purification, use, drainage, and other means to form a natural wetland ecological circulatory system;
- Use the intelligent wetland monitoring system to intelligently detect the environment, water quality and animal activities, and identify potential risks, so as to build an intelligent wetland monitoring platform that integrates the "space, sky, and ground".

Water resources

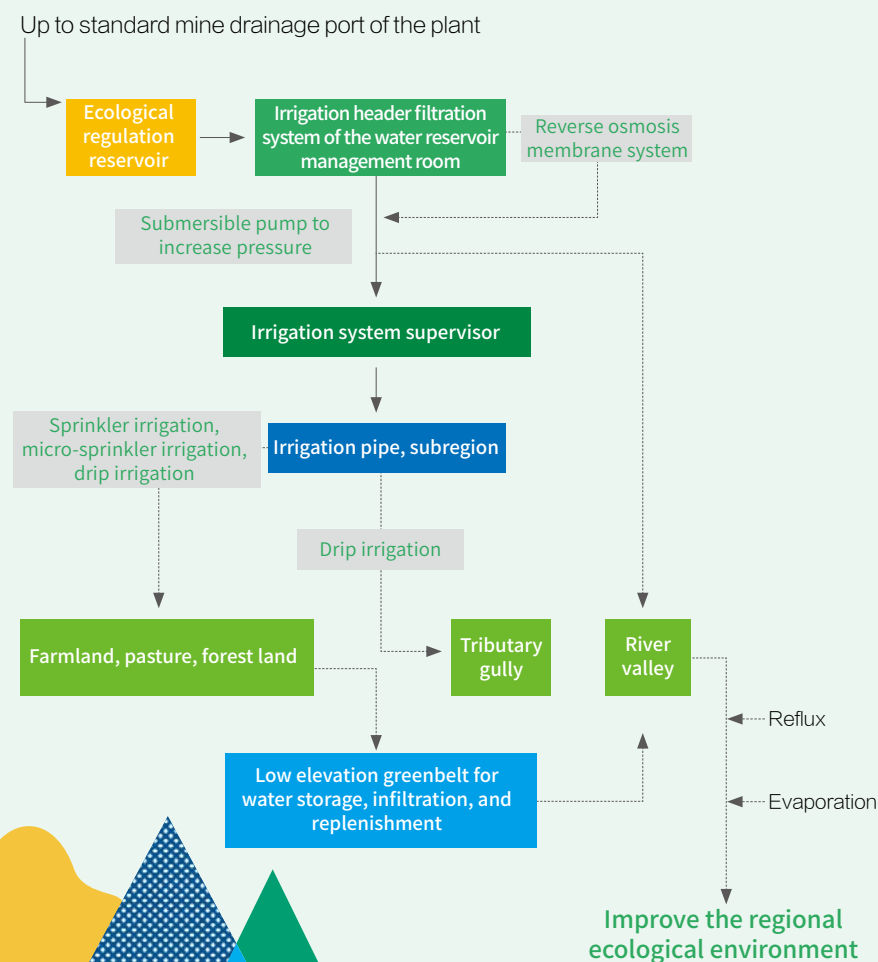
- Increase the use of "infiltration, drainage and storage" of rainwater;
- Introduce technologies such as reverse osmosis membrane filtration system and scientific purification of mine drainage, and discharge the remaining mine drainage into the ecological reservoir for storage, regulation, and reserve. Meanwhile, the project should not have any sewage draining exit;
- Build an intelligent sprinkler and drip irrigation system in the park for efficient use of water resources;
- All production wastewater and domestic sewage generated should be treated and recycled rather than discharged.

Forest land resources

- Use sludge composting and other means for land reclamation;
- Use the intelligent forestry and grass management system for forest resources monitoring, forest fire warning, forest and grass habitat inspection, and pest and disease monitoring. Use the digital intelligence capacity of ENN-NG to build an intelligent forestry and grass management network;
- Add an intelligent watering system, including a water-saving micro-spray drip irrigation system, to realise automatic irrigation.

Agriculture resources

- Carry out land consolidation, and improve soil through green manure;
- Improve the degree of mechanised farming operations;
- Use the intelligent farmland management system for soil condition detection and meteorological prediction, real-time monitoring, remote control, intelligent irrigation, four conditions (soil, plants, plant diseases and insect pests, and disasters) monitoring, data analysis, and agricultural products traceability, to create an agricultural IoT system.



Intelligent forestry and grass management system

- Forest resource monitoring
- Forest fire warning
- Forest and grass habitat monitoring
- Pest and disease monitoring

Intelligent park navigation system

- Pedestrian and vehicle traffic monitoring point
- Intelligent display board
- VR navigation
- Hygienic monitoring

Intelligent wetland monitoring system

- Environment monitoring point
- Water quality monitoring point
- Animal activity monitoring point

Intelligent farmland management system

- Soil monitoring
- Intelligent irrigation system
- Meteorological monitoring

Through the ecological restoration project, Xinneng Mining Wangjiata Coal Mine has transformed the industrial rustbelt into a green one through ecological means. It has created an ecological tourism demonstration area by shaping a high standard farmland planting demonstration area and establishing high-quality pastureland and a standard farm of Hu lambs. Industrial and mining production goes hand in hand with biodiversity restoration to improve the local industrial structure and increase the income of local farmers and herdsmen. Through biodiversity conservation work, the Company raises awareness of the value of biodiversity among its employees, partners, and stakeholders such as the people in local communities and realises sustainable positive circulatory development of the enterprise and local communities.

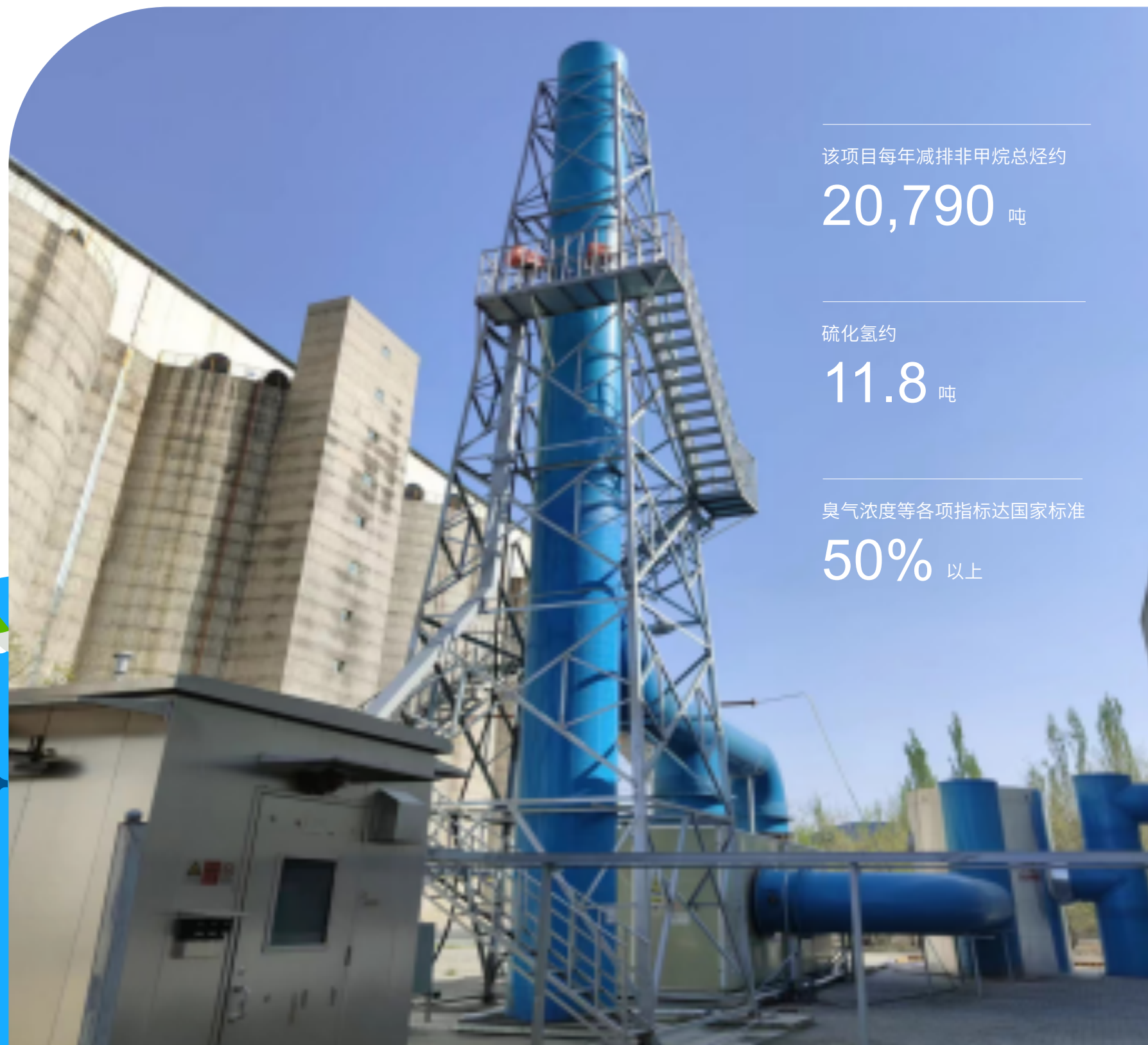


Biodiversity Conservation of Methanol Business

Wastewater Treatment VOCs Treatment Project



To reduce ozone and PM2.5 intermediate emissions, Xinneng Energy has investigated and researched the wastewater treatment of VOCs (volatile organic compounds) on open liquid surfaces and set up a project according to the requirements of GB37822-2019 and GB31571-2015. The project uses alkali wash + biological integration + adsorption process treatment mode. The third-party test found that the project would reduce about 20,790 tons of total non-methane hydrocarbons and about 11.8 tons of hydrogen sulfide every year; the odor concentration and other indicators are 50% better than the national standard.



该项目每年减排非甲烷总烃约

20,790 吨

硫化氢约

11.8 吨

臭气浓度等各项指标达国家标准

50% 以上

Biodiversity Conservation of Natural Gas Production, Import and Direct Sales

Case 2

○ ○ ○

Biodiversity Restoration Project of Zhoushan LNG Terminal

Zhoushan LNG Terminal situates at the west side of Zhoushan Fishing Ground, which is the largest fishing ground in China and one of the four largest fishing grounds in the world. It is located at the mouth of Yangtze River, Qiantang River, and Yong River, where the coastal current, Taiwan warm current, and Yellow Sea cold water mass meet. Meanwhile, the Japanese cold current and the western Pacific warm current also converge here, stirring up the seawater and bringing nutrients to the surface, providing a rich natural food source for fish. The superior geographical, hydrological, and biological conditions make the waters of the Zhoushan Fishing Ground a suitable habitat for many kinds of fish to breed, grow, forage, and live through the winter. Its reef island area is an important spawning ground, foraging ground, and breeding base for large yellow croakers, *Sepiella maindroni de Rochebrune*, and finless porpoise. As a superior place for marine biodiversity conservation and marine fishery development, the area is of significant value for ecological protection, scientific research, and comprehensive development. Zhoushan LNG Terminal actively implements the spirit of the State Council on strengthening biodiversity conservation and the *Zhejiang Province Biodiversity Conservation Strategy and Action Plan (2011-2030)* issued by the Department of Ecology and Environment of Zhejiang Province, paying great attention to biodiversity conservation and sustainable use of biological resources in the sea area near Zhoushan LNG Terminal and restoring the ecological environment of sea-related projects.

Initiatives actively implemented by Zhoushan LNG Terminal

Program design

The implementation program was designed through mutual discussion with fishery administrative departments of Zhejiang Province and Zhoushan City, and experts in fishery resources and environment.

Implementation of ecological conservation program

The project leadership team, supervision team and technical guidance team were established and the division of tasks was clarified. RMB 4.4730 million were invested in the ecological protection work program.

Evaluation after program implementation

Social surveys such as biological surveys, diving surveys and regular collection of catch, sea fishing surveys, and statistics on fishermen's increasing income were conducted to comprehensively evaluate the social and economic effects of the enhancement and release. According to the survey results, the number released in the project exceeded the required number and the mortality rate of the releases was low. The project selected reasonable release sites, so the released species all grew well after the release, and the amount of released biological resources increased significantly.

Fertilised eggs of *Sepiella maindroni de Rochebrune*

9.2351 million

Stripped beakfish fries

524,925

Marked stripped beakfish

31,798

Hong Kong grouper

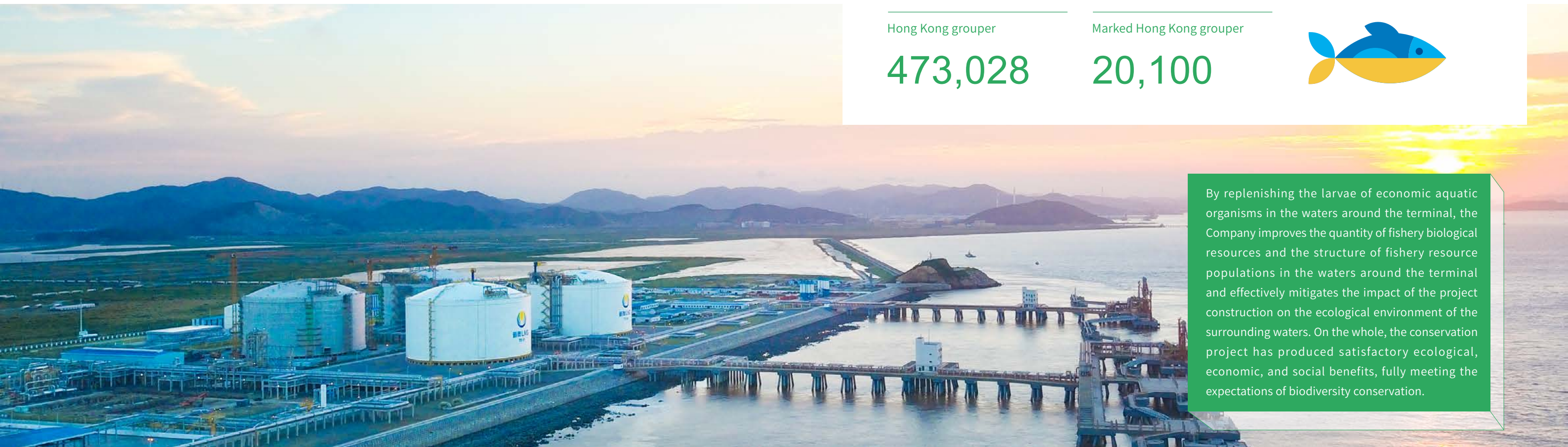
473,028

Marked Hong Kong grouper

20,100



By replenishing the larvae of economic aquatic organisms in the waters around the terminal, the Company improves the quantity of fishery biological resources and the structure of fishery resource populations in the waters around the terminal and effectively mitigates the impact of the project construction on the ecological environment of the surrounding waters. On the whole, the conservation project has produced satisfactory ecological, economic, and social benefits, fully meeting the expectations of biodiversity conservation.

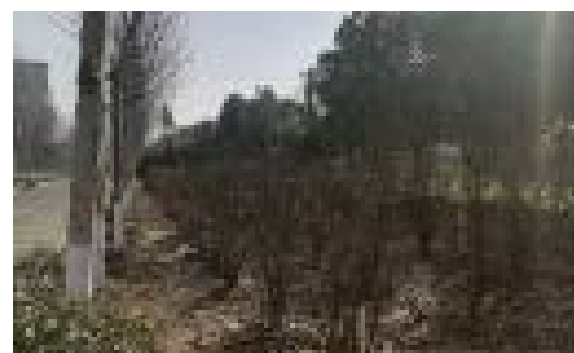
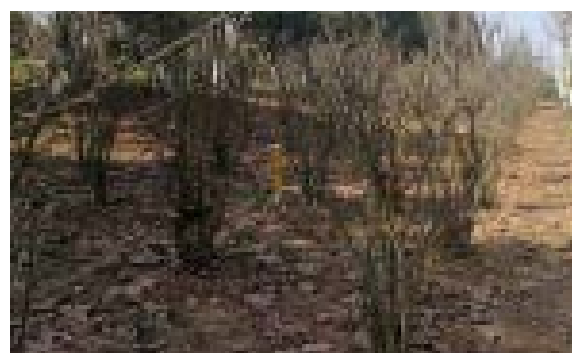


Biodiversity Conservation of Engineering Construction Business

Maintenance of Green Plants in the Construction of Natural Gas Pipelines in Liu'an



As part of the gas construction project in Sungang Township of Liu'an City, the S366 medium pressure natural gas pipeline project of ENN Liu'an had to cross the provincial highway and about 900 square meters of vegetation at the provincial highway ramp needed to be destroyed during the construction. In order to reduce the impact of the gas pipeline laying project on the local ecology, ENN Liu'an reached a cooperation agreement with a local green conservation unit to plant trees, and restore and maintain the construction area according to the landscaping and planting standards after the construction was finished.



Ecological Restoration of Gas Pressure Regulating Station and High-Pressure Pipeline Construction Section in Quanzhou



The high-pressure natural gas pipeline project from Xiameimen Station in Nan'an City to Taishang Gas Pressure Regulating Station, which was the responsibility of Quanzhou Gas, ran through complex environments such as ecological woodlands, railroads, forest parks, and mining areas. Therefore, as the 3-kilometer-long pipeline was laid, some of the local vegetation would be damaged. During the construction process, Quanzhou Gas restored and replanted the vegetation alongside the pipeline by advancing in sections.



Eco-friendly Engineering Design



Xindi Engineering has undertaken the design, equipment/materials supply and technical services for the first phase of PT. KAYAN LNG NASANTARA LNG plant in Indonesia. During the design process, it took into account the local natural conditions, such as its tropical rainforest climate and rich wildlife, especially the abundant birds and rains, and had designed two rainwater collection tanks to reduce the amount of water taken from adjacent rivers, as well as establish a ground flare system to keep the flame burning inside the barrel to reduce light pollution.



Biodiversity Conservation of Natural Gas Distribution Business

Non-excavation Process to Minimise the Impact on Land



When ENN Guangzhou Baiyun was laying the medium pressure natural gas pipeline in Xiongfeng Village, Guangzhou, it figured out that the pipeline had to cross tributaries of rivers, woodlands, bird habitats, and other areas with well-protected ecological environments. After certain research and demonstration, ENN Guangzhou Baiyun adopted a non-excavation pipeline construction process and completed the projects of this pipeline section within 5 days, which not only shortened the construction period but also minimised the impact on the surrounding ecology, environment, and organisms.



Qingliu River Treatment and Construction Protection



ENN Chuzhou actively fulfilled its responsibility to protect the local water and soil when carrying out the landscape treatment of Qingliu River and the pipeline crossing project in Suchu Industrial Park. In an attempt to minimise the negative ecological impact caused by the construction, it undertook multiple protection methods such as setting up construction fences and dust screens, setting up solid waste centralised management stations, preventing noise pollution and selecting noise reduction equipment, managing exhaust gas emission equipment as well as cleaning roads and managing dust pollution.

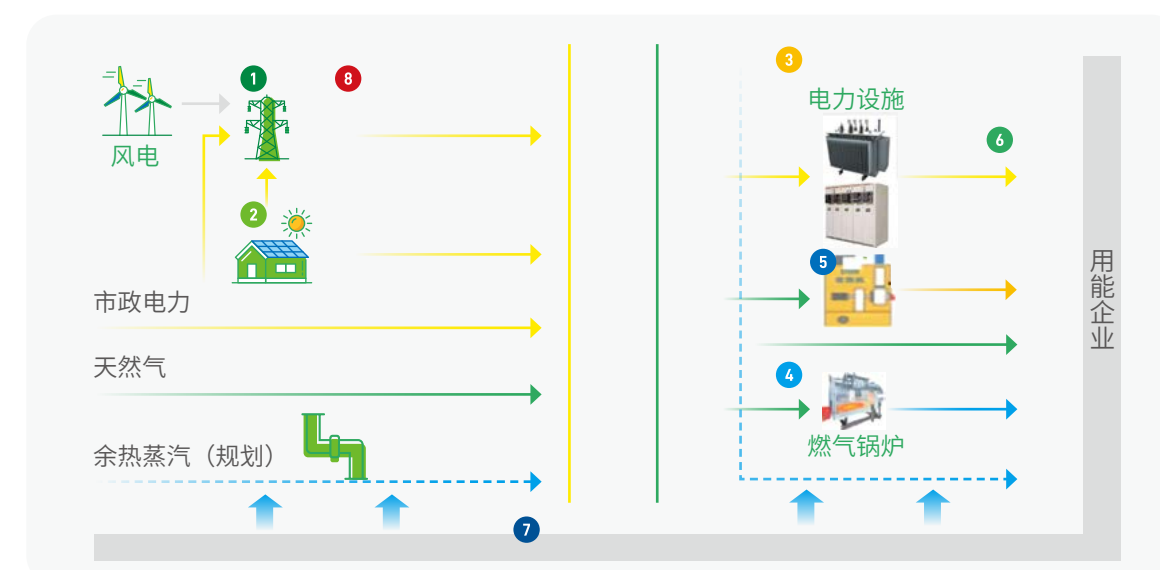


Biodiversity Conservation of Integrated Energy Sales and Services

"Four-Network Integration" to Innovate Renewable Energy Supply



ENN Energy operates a "Four-Network Integration" project in the National Economic and Technical Development Zone in Xuancheng, Anhui Province, which is an industry-leading project that integrates renewable energy into its integrated energy sales and service project. With the incremental distribution network as an entry point, the project integrates renewable energy such as photovoltaics, wind power, waste heat from power plants, and biomass, and incorporates a multi-energy net formed by energy storage technologies, which enables them to provide customers with a safe and stable energy supply while minimising greenhouse gas emissions and the impact on the ecology. After the project reaches its designed capacity, it can reduce greenhouse gas emissions by about 300,000 tons per year.



Promote the Development of Distributed Photovoltaics



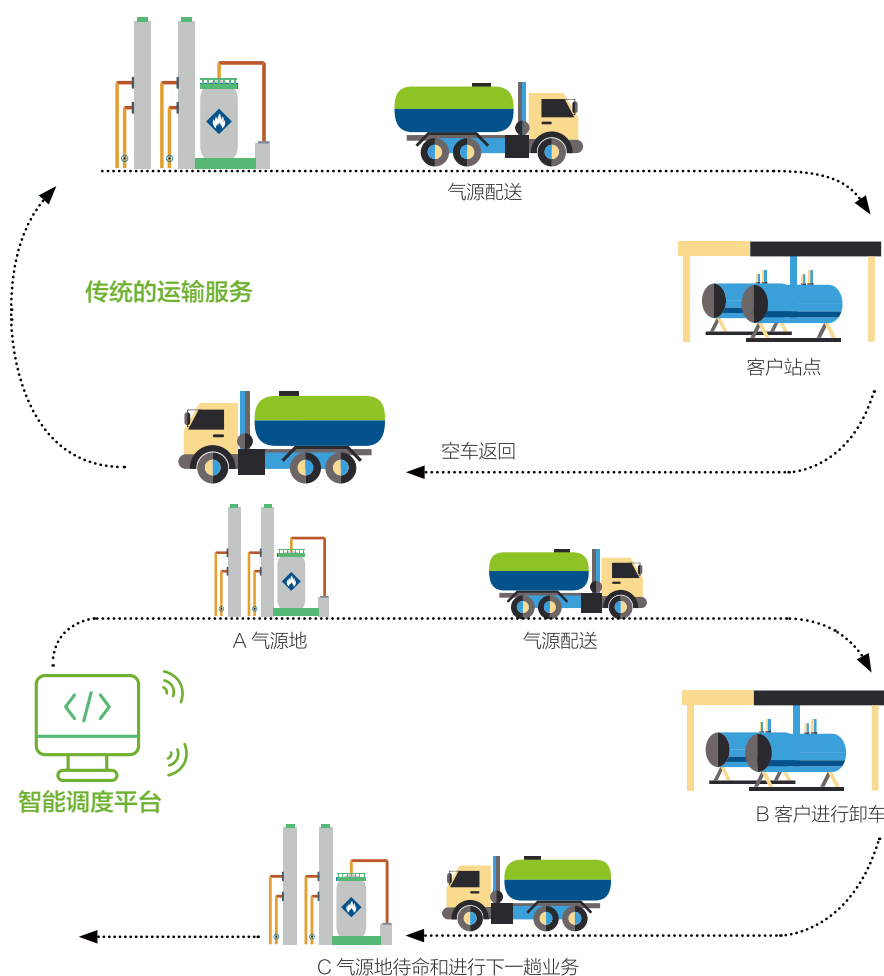
When providing energy services to a customer in Yangkou, Shouguang, ENN Energy made full use of the roof area of 11 factories in the local park and established 2 sub-distributed photovoltaic power plants. With an integrated automation monitoring system capable of remote metering, remote signaling, remote control, remote regulation, remote execution of scheduling, accident and fault alarm, as well as the "regular inspection + intelligent energy platform monitoring" by operation and maintenance personnel, the project's power generation efficiency is optimised to match the customer's needs, while reducing greenhouse gas emissions by about 14,000 tons per year.



Biodiversity Conservation of Low carbon trade transportation Business

Intelligent Scheduling Platform to Optimise low-carbon Trade Capacity

ENN Energy has integrated multiple systems such as the Great Gas Website, Yuntu Cloud, and Customer Big Data System to create an intelligent scheduling platform tailored for the energy trading business. As the Company continues to dig deep into and innovate the Internet and IoT technologies, the intelligent scheduling platform can accurately perform functions such as demand forecasting, price estimation, and capacity planning, reducing the main source of greenhouse gas emissions caused by empty vehicles in energy trade transportation, thus improving the utilization rate of transport capacity resources and reducing the unit energy consumption of transport vehicles.



Biodiversity Conservation of Green Offices

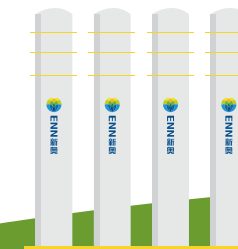
Artificial Lake Construction Project

In 2018, Xinning Energy started to build an artificial lake in front of the office building to enrich the biodiversity in local ecological environment. With the dedicated management and conservation by Xinning Energy, the lake is now home to Japanese koi, golden carp, wild crucian carp, and stone moroko, as well as birds such as buffleheads.



Office Building Incorporating Renewable Energy Applications

In 2021, ENN Energy completed a green renovation project for its headquarters building. By installing distributed photovoltaic power plants on the roof, upgrading and maintaining related components of the ground source heat pumps, optimising the energy efficiency of the water heater and lighting system, and installing electrical automation and intelligent energy systems, ENN Energy successfully transformed its headquarters building into a low carbon building, reducing electricity consumption by 36%, and saving up to 283 MWh of electricity every year.



Biodiversity Conservation for Public Interests

East Dongting Lake Wetland Conservation Activities

Case

As the East Dongting Lake Nature Reserve becomes popular, the environmental changes in the reserve caused by the gathering of people have brought pressure on the local migratory birds. In particular, many bird enthusiasts approached birds closely for better observation, which affected the habitat of the birds. In this situation, ENN Yueyang actively responded to the call of the local Bureau of Natural Resources and organised its staff to participate in the swan guarding action, patrolling the scenic area to stop tourists from harassing the swans, promoting the knowledge and laws of migratory bird protection, and guiding people to participate in migratory bird and wetland protection.



Kaifeng Urban Greening and Arbor Day Activities

Case

ENN Kaifeng has been a pioneer in ecological conservation among ENN Energy member companies and has been involved in local tree planting activities for years. On the 44th National Arbor Day in 2022, ENN Kaifeng organised a number of corporate volunteers to participate in tree planting projects in several road sections of Kaifeng City, dressing the originally brown land in green under the spring sun.



Future of the Biodiversity Conservation Actions

2022 is an important year for the development of biodiversity conservation. At the call of the United Nations, more and more countries, enterprises, and individuals participate in biodiversity conservation. Biodiversity conservation is the foundation for all nature-based solutions to address climate change, public health, food and water security, as well as sustainable living. In the meantime, this is also our original aspiration to propel the development of biodiversity conservation in the energy sector.

ENN-NG and ENN Energy released their Decarbonisation Action Plan 2030 in 2022 and 2021, respectively, where they integrated sustainability into their corporate strategies and made a commitment to achieve net-zero emission by 2050. Now we have decided to go a step further by focusing not only on making continuous efforts to deal with climate changes but also on ecological and biodiversity conservation in general. The Company makes further response to the call of the country and society to give full play to its clean energy properties to protect diverse ecologies and create a long-lasting business.

Looking ahead, we will use the publication of this Biodiversity Conservation Report as a vital point to avoid, reduce, restore, and offset the negative impacts on biodiversity caused by the Company's operations and achieve a "Net Positive Impact (NPI)" on biodiversity and ecosystems. In addition, the Company will continue to work with the government, industry associations, suppliers, and customers to influence the social and public awareness of biodiversity conservation and encourage them to take action, thereby building a vibrant community of life on Earth.





ENN 新奥

用我所能 善待明天