

# 行动向未来 COP26特别版

金钥匙行动塑造中国企业低碳领导力报告

**ACTIONS FOR FUTURE**

REPORT ON SHAPING THE LOW-CARBON LEADERSHIP OF CHINESE  
ENTERPRISES BY GOLDENKEY SOLUTIONS



# CONTENTS

---

01

Part I:

Looking for the “Golden Key” to Crack the Climate Crisis

05

Part II:

Enterprises’ Contribution to Ten Major Peaking Carbon Dioxide Emissions Actions

24

Part III:

GoldenKey Campaign Empowers Business' Low-Carbon Actions

26

Part IV:

Shaping the Low-carbon Leadership of Chinese Enterprises

---

## Part I: Looking for the “Golden Key” to Crack the Climate Crisis



## I. Future-oriented thinking and action

Sustainable development is increasingly becoming an inevitable choice and common vision of all mankind. The 2030 Agenda for Sustainable Development adopted by the United Nations in 2015, provides a shared blueprint for economic prosperity, beautiful environment, and social inclusiveness through agreement on a set of 17 goals. It also lists actions that benefit people and the planet.

Based on “future-oriented thinking and action”, China Sustainability Tribune is committed to finding the theories and solutions that lead and support the future and gathering the momentum for sustainable development by working with domestic and foreign experts, scholars and pioneer organizations through the establishment of a “dual engine”: the Academic Committee composed of well-known scholars and the GoldenKey Expert Committee composed of senior corporate managers.



## II. Launch of GoldenKey - Sustainable Development Solutions Campaign

In June 2019, Chinese President Xi Jinping highlighted sustainable development as the “golden key” to solving global problems. In January 2020, the United Nations launched a Decade of Action to deliver the Sustainable Development Goals (SDGs) by 2030. Thus, in October 2020, China Sustainability Tribune officially launched the GoldenKey - Sustainable Development Solutions Campaign through a step-by-step process of “recommendation, presentation, roadshow, review”, aiming to find and set up models of China’s SDG solutions and share the success stories.



92 actions from 122 enterprises applied for 9 GoldenKey themes in the first “GoldenKey — Sustainable Development Solutions Campaign” in 2020. This year, the total number of actions and applicants saw a sharp rise. 170 actions from 151 enterprises applied for the 14 GoldenKey themes.

## III. GoldenKey·Low-Carbon Initiative

Focusing on the 17 goals of the 2030 Agenda for Sustainable Development, the GoldenKey Campaign focuses on six areas including green development, inclusion and equality, Tech4SDG, responsible finance, responsible governance, and business innovation, with priorities of low-carbon development and circular economy, biodiversity protection, low-carbon consumption and lifestyles and other sustainable development issues. Over the past two years, more than 100 actions have been involved, including central SOEs of different scales and industries, foreign-funded companies, and private companies. These actions cover the issues of energy transformation, low-carbon production and operation, technology empowerment, financial support, low-carbon consumption and lifestyles, etc. They are active responses to climate change and also contribute to China's goal of carbon neutrality.

## IV. China releases the *Action Plan For Carbon Dioxide Peaking Before 2030*



China successively issued a number of documents on goals of peaking carbon dioxide emissions and achieving carbon neutrality (goals of carbon peak and carbon neutrality) ahead of COP26, including the *Working Guidance For Carbon Dioxide Peaking And Carbon Neutrality In Full And Faithful Implementation Of The New Development Philosophy* (the Guidance) and the *Action Plan For Carbon Dioxide Peaking Before 2030* (the Plan). The former is the systematic planning and overall deployment on carbon peak and carbon neutrality, and it is the “1” in the “1+N” policy system; the latter focuses more on the carbon peak targets before 2030, with more detailed indicators and tasks and it is the policy documents headed by “N”.

The Plan proposes ten major peaking carbon dioxide emissions actions, which are 1) the action for green and low-carbon energy transition, 2) the action for energy saving, carbon emission mitigation and efficiency improvement, 3) the action for peaking carbon dioxide emissions in industry sector, 4) the action for peaking carbon dioxide emissions in urban-rural development area, 5) the action for promoting green and low-carbon transportation, 6) the action for promoting circular economy in carbon mitigation purpose, 7) the action for advancing green and low-carbon technology innovation, 8) the action for consolidating and enhancing carbon sink, 9) the action for green and low-carbon society, 10) the action for promoting all regions peaking carbon dioxide emissions hierarchically and orderly.

## V. Goal of the report

With the ten major peaking carbon dioxide emissions actions of the Plan as the framework, the report presents the GoldenKey low-carbon actions of Chinese companies, in an attempt to demonstrate the leading actions and new development opportunities of Chinese companies that contribute to the goals of carbon peak and carbon neutrality. These companies have advanced their own low-carbon transformation and improved their market competitiveness while contributing to the two goals.

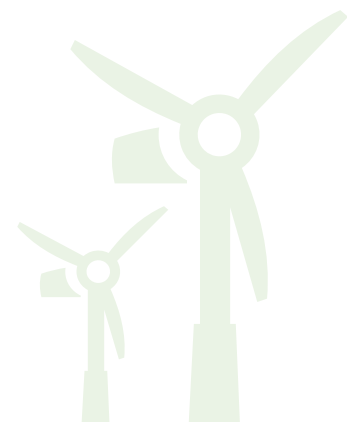
# Part II: Enterprises' Contribution to Ten Major Peaking Carbon Dioxide Emissions Actions



## 1. The action for green and low-carbon energy transition

Energy is an important material foundation for economic and social development, as well as the principal source of carbon emissions. We will maintain the commitment to cutting carbon emissions in a safe manner by vigorously promoting the substitution of renewable energy under the condition of ensured energy security, and accelerate the development of a clean, low-carbon, safe and efficient energy system.

1. Promoting coal substitution as well as transformation and upgrading
2. Vigorously developing new energy resources
3. Developing hydro power according to local conditions
4. Actively developing nuclear power through a safe and orderly approach
5. Rationally regulating oil and gas consumption
6. Speeding up the development of the new electric power system



### GoldenKey Solutions

#### The comprehensive new energy demonstration project breaking through the bottleneck of large-scale new energy grid connection

State Grid Jibei Zhangjiakou Wind and Photovoltaic Power Storage and Transmission New Energy Co., Ltd. has independently designed and built a comprehensive new energy demonstration project integrating "wind power generation, photovoltaic power generation, energy storage system and intelligent power transmission". It adopted the first power generation technology combining both wind and photovoltaic power storage and transmission, which broke through the bottleneck of large-scale new energy grid connection, and greatly improved the capacity of new energy power generation as well as the ability to actively support the power grid.

### GoldenKey Solutions

#### Developing smart energy and the new electric power system

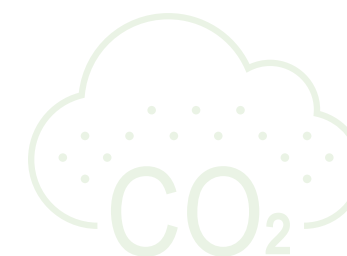
In order to promote the green and low-carbon development of Meizhou Island, Putian Power Supply Company of State Grid Fujian Electric Power Co., Ltd. has put into use the digital energy platform on energy consumption, developed and applied energy consumption analysis modules such as smart grid, green travel, wonderful life and fresh tourism, aiming to create a panoramic low-carbon energy decision-making system, the data of which is able to support the decision-making of sustainable consumption and production mode. At the same time, the energy consumption of ecological reserves and sewage treatment are connected to the digital energy platform for real-time monitoring, so as to provide data to support the decision-making of the local government.

Lianyungang Power Supply Branch of State Grid Jiangsu Electric Power Co., Ltd. has spent five years in building the independent smart microgrid covering all islands by making use of the abundant wind, light and other natural resources on the islands. It generates more than 400,000 kwh of electricity every year, reducing carbon emissions by over 300 tons. Thus it ensures the full coverage of high-quality power consumption of all islands, and also explores greater value for the business operation mode of smart microgrid in the ecological area on islands.

## 2. The action for energy saving, carbon emission mitigation and efficiency improvement

We implement the policy of conservation first, and improve systems for keeping energy consumption under control in terms of both volume and intensity, with strict controls on intensity and reasonable controls on volume. We advance revolutionary changes in energy consumption, to build an energy conserving society.

1. Raising capacity for managing energy conservation across the board
2. Implementing key energy conservation and carbon reduction projects
3. Advancing better energy saving performance and higher efficiency of major energy consuming equipment
4. Strengthening energy conservation and carbon reduction in new types of infrastructure



### GoldenKey Solutions

#### Building a green, smart and minimalist network to facilitate energy conservation and carbon reduction

In order to comprehensively, systematically and deeply promote energy conservation and carbon reduction, Shandong Mobile has made every effort to build a green, smart and minimalist network from the three dimensions of base station, machine room and data center, with network simplification and optimization, clean energy application, as well as smart energy management, which has improved energy efficiency and contributed to social energy conservation and environmental protection.

### GoldenKey Solutions

#### Building zero-carbon data infrastructure

In the face of the growing demand for computing and the high load of traditional data centers, Chindata Group launched Taohuayuan Project, a zero-carbon digital infrastructure, in Datong, Shanxi Province to build a super energy complex with multiple scenarios of enabling smart cities with the new generation of super large-scale zero-carbon digital infrastructure as the core. While promoting the green development of digital economy, Chindata Group is also committed to improving green power's contribution to per unit of GDP and exploring a new zero-carbon business form of "industry + service" so as to support urban public services.



**GoldenKey Solutions**
**Energy efficiency services help enterprises save energy and reduce carbon emissions**

State Grid Customer Service Center created the first ever energy efficiency bill, a digital service product for energy and carbon efficiency, after utilizing digital resources to integrate 243 items of hundreds of millions of marketing and collection system data, and build 32 intelligent algorithm models. With concise and distinctive energy efficiency evaluation scores, multi-dimensional energy efficiency analysis and accurate energy efficiency improvement suggestions as its core functions, it has provided professional, convenient, concise and inclusive energy efficiency services for 3.9 million enterprises to save energy and reduce carbon emissions.



Cooperated with several parties, Huzhou Power Supply Company of State Grid Zhejiang Electric Power Co., Ltd. carried out the energy and carbon efficiency evaluation system based on multi-party integrated data resource, and built multi-party collaborative data ecology and industrial ecology. By measures such as the collaborative construction of "carbon incentive", cooperative R&D of "carbon model", resource sharing of "carbon data", scenario development of "carbon account", and the building of "carbon platform", the Company promotes the transformation of high-quality industrial development in Huzhou as well as the implementation of SGCC's action plan to peak carbon dioxide emissions and achieve carbon neutrality.

## 3. The action for peaking carbon dioxide emissions in industry sector

The industrial domain is one of the primary sources of carbon dioxide emissions, and therefore exerts an important impact on China's efforts to peak overall carbon dioxide emissions. Industry must accelerate high-quality development and the green and low-carbon transition, and strive to take the lead in peaking carbon dioxide emissions.

1. Promoting green and low-carbon development in the industrial domain
2. Pushing the steel industry to peak carbon dioxide emissions
3. Pushing the non-ferrous metals industry to peak carbon dioxide emissions
4. Pushing the building materials industry to peak carbon dioxide emissions
5. Pushing the petrochemical industry to peak carbon dioxide emissions
6. Firmly curbing the irrational expansion of energy-intensive and high-emission projects


**GoldenKey Solutions**
**Low-carbon production and commercial restructuring conducted to improve market competitiveness**

POSCO continues to lead the iron and steel industry to achieve green and low-carbon development. On the one hand, POSCO actively develops a new generation of breakthrough technology for low-carbon iron and steel production (HyREX) and environmentally friendly high-end steel products. On the other hand, with the idea of resource utilization, POSCO uses iron and steel by-products to create a virtuous cycle. For example, more than 8,000 artificial fish reefs are developed and put into use with the slag generated in the process of steel production as raw materials, so as to promote the repair of marine ecosystem, enhance the carbon dioxide absorption and storage capacity of the ocean, and realize the recycling and reuse of 2 million tons of ferronickel slag every year. POSCO also provides environmentally friendly cement with low price for the construction industry as a way to contribute to the solving of the global climate crisis.



**GoldenKey Solutions**
**Building green, low (zero) - carbon factories**

Schneider Electric has launched the zero-carbon factory plan, and formulated the internal certification system to carry out audit and evaluation of "zero-carbon factory" regularly. It plans the zero-carbon technology route based on electrification, automation and digitization while making extensive use of the technology of industrial internet to promote net zero emissions. By 2020, the energy efficiency of Schneider Electric increased by 12.4% compared with that of 2017, saving 8,719 MWh of power and reducing carbon emissions by 5,726 tons. On the basis of promoting the net zero emission of its own operation, Schneider Electric also launched the "Zero-carbon Plan" for its suppliers, enabling them in multiple dimensions through technology sharing, consulting services and other means to help global suppliers reduce carbon emissions by more than 100,000 tons.


**GoldenKey Solutions**
**Green management of the whole industry chain**

Nissan's enterprises in China incorporate green supply chain construction into the sustainable development planning, take "responsible procurement" as the core link of green supply chain construction and value creation, establish and improve responsible procurement standards, enhance suppliers' awareness of green development and promote the improvement of suppliers' green ability. Through evaluation and audit, they support the construction of green supply chain with systematic management and profession. By 2020, a total of 332 suppliers, or 94% of all suppliers, have signed the *Renault-Nissan Supplier CSR Commitment*.



## 4. The action for peaking carbon dioxide emissions in urban-rural development area

We speed up green and low-carbon development in urban and rural areas, ensuring that urban renewal and rural revitalization both meet green and low-carbon requirements.

1. Promoting green and low-carbon transformation in urban and rural development
2. Accelerating building energy efficiency improvement
3. Accelerating the optimization of building energy consumption structure
4. Promoting a low-carbon transition in rural development and energy consumption

**GoldenKey Solutions**
**Near zero energy consumption rural residential transformation for carbon neutrality**

In terms of the weak awareness of environmental protection and high energy consumption in rural housing construction, Tenio has designed and built Tenio· nZEB, the first near zero energy consumption building (nZEB) in China that meets national standards and passed the evaluation. Located in Daxing, Beijing with an area of 400 square meters, the project is designed according to the features of rural residential buildings. By means of performance-based design, the use of renewable energy and regional materials, the building achieves a comprehensive energy saving rate of 74.5%, compared with the energy consumption of the benchmark building, and the carbon emission is expected to be reduced by 7.6 tons per year. It is an outstanding case of building a green and smart village.



**GoldenKey Solutions**
**Green and low carbon makes office "freer"**

Officezip, a free office brand of COLI, started with a low-carbon strategy, and then innovated the green operation system, implemented the "Green Pioneer Tenant Introduction Plan", and explored low-carbon office laboratory and zero-carbon conference certification. It integrated low carbon, health and intelligence to create a new office ecosystem and realized both green, low-carbon goals and business upgrading. Its flagship project is the world's first platinum WELL certified non-traditional office project with 100% energy-saving lamps, water economizers and exhaust recycling, and has achieved a year-on-year decrease of 16% in carbon emissions in 2020 compared with that in 2019, which provides a reference for the practice of integrating green and low carbon into urban space construction and management.


**GoldenKey Solutions**
**"Ecology + electricity" enables green urban development**

In terms of the imbalance and insufficiency of green energy utilization in various industries, Huzhou Power Supply Company of State Grid Zhejiang Electric Power Co., Ltd. cooperated with the government, financial institutions, power equipment manufacturing industry, transportation industry, individual businesses and other parties to build an "ecological + power" platform covering the whole society. It aims to build demonstration projects such as green shore power, all-electric logistics, pure electric bus and all-electric scenic spots, and build China's first demonstration city of "ecology + electricity", so as to promote the green transformation of energy consumption in the whole society and ensure that electric energy accounts for more than 38% of the terminal energy consumption in Huzhou, and clean energy accounts for 44% of the total installed power generation capacity in the city. From 2017 to 2020, the coal consumption has been reduced by over 3 million tons and the carbon dioxide emissions by 8 million tons, which greatly improved the ecological indicators of Huzhou.



## 5. The action for promoting green and low-carbon transportation

We will move faster to develop green and low-carbon modes of transportation to keep the growth of carbon emissions in the transportation domain within an appropriate range.

**1. Promoting low-carbon transformation of transportation vehicles and equipment**
**2. Developing green, high efficiency transportation systems**
**3. Accelerating construction of green transport infrastructure**
**GoldenKey Solutions**
**LNG dual-fuel VLCC unveils a new era of green drive**

The high emission risk brought by using fuel oil as the main power source for ships has always been the focus of environmental management in the shipping industry. COSCO SHIPPING Energy Transportation Co., Ltd. and Dalian Shipbuilding Industry Co., Ltd. launched the world's first LNG dual-fuel VLCC cooperation project. The vessel was built in line with EEDI PHASE III standards. Compared with conventional fuel tankers, the vessel is expected to reduce sulfur emissions by over 95 percent and carbon emissions by a large proportion, with oxynitride emissions meeting Tier III emission standards of International Maritime Organization (IMO). It helps provide a demonstration project for VLCC's energy conservation and emission reduction, contributing to the energy structure transformation of the shipping industry.

**GoldenKey Solutions**
**Advocating "green flights" to combat climate change**

China Southern Airlines has thoroughly implemented the green development philosophy and adopted a mix of measures to deal with climate change from the perspectives of technology, management, market, and passengers, etc. In terms of technological revolution, China Southern Airlines has taken a series of measures, including the introduction of new aircraft engines, elimination of old aircraft, engine upgrade and transformation, the use of air bridge equipment, and the replacement of fossil fuel vehicles with new energy vehicles, etc. In terms of management improvement, China Southern Airlines leverages QAR big data and Jet Fuel E Cloud big data to reach the goal of saving fuel. In terms of bio-jet fuel, China Southern Airlines promotes the R&D and commercialization of bio-jet fuel. In terms of market mechanism, China Southern Airlines enters the carbon deal market of Guangdong Province and proactively improves its carbon emission efficiency. In terms of passenger engagement, China Southern Airlines promotes green flights on which passengers voluntarily waive meals and adopt paperless check-in.



**GoldenKey Solutions**
**Visualized pollution and carbon emission reduction of shared rides creates a new fashion of urban life**

In 2021, Meituan Bike launched a shared ride campaign to help reduce pollution and carbon emissions, which for the first time realizes the quantification and visualization of shared rides' carbon emission reduction. The campaign contributes to the rise of the public's green transportation rate. It is reported that since its operation, Meituan bicycle and motorcycle users have reduced their carbon dioxide emissions by 1,187,000 tons, which is equivalent to reducing the carbon dioxide emissions of 270,000 private cars for one year. The quantified, visualized data attract and encourage the public to lead a low-carbon life and enhance the public's pride in riding.



## 6. The action for promoting circular economy in carbon mitigation purpose

Focusing on resource utilization as a key factor, we will push ahead with the development of the circular economy, and work toward an all-around improvement in the efficiency of resource utilization. In the process, we will fully leverage synergistic effects between efforts to reduce resource consumption and cut carbon emissions.

**1. Pushing industrial parks to develop in a circular manner**
**2. Strengthening the comprehensive use of bulk solid waste**
**3. Refining systems for resource recycling**
**4. Vigorously promoting efforts to reduce and recycle household waste**
**GoldenKey Solutions**
**"Turning waste into treasure" supports circular economy: closed-loop recycling promotes sustainable development**

Dell Technologies is the industry's first to build a closed-loop of the recyclable plastic supply chain. Considering the full life cycle of the product, Dell Technologies rationally selects materials, recovers plastics from discarded products, and applies them to new computer products. Through cooperation with Lonely Whale Foundation, Dell manages to make recovered ocean plastic waste into laptop packaging trays, increasing the application percentage from 25 percent to 50 percent.

**GoldenKey Solutions**
**Decommissioned batteries are put into service again, turning high environmental risk waste into a new type of resource**

State Grid Danyang Power Supply Co., Ltd. cooperates with local township governments and business associations, together with investment institutions, general contracting companies and other stakeholders, to jointly promote the echelon utilization of decommissioned batteries and build micro energy storage stations for small and micro enterprises with large power consumption differences during peak and valley periods. It has not only built a new model of win-win cooperation, but promoted the reuse of decommissioned batteries and contributed to more robust development of local small and micro enterprises and local economy and society.

State Grid Zaozhuang Power Supply Co., Ltd. has deepened the industry-research institute-university cooperation, refined the recycling, dismantling, research and reuse processes of decommissioned batteries, and overcome key technical problems in the construction of decommissioned battery energy storage systems for electric vehicles, providing strong support for distributed energy reception of the distribution network. At the same time, the company has explored the reuse of decommissioned batteries in PV poverty alleviation villages and applied the results of the project in a few poverty alleviation villages, further improving the income of local villagers.



**GoldenKey Solutions**
**“Awakening sleeping resources”: recycling creates great value**

Suzhou Yiyitong E-commerce Co.,Ltd. has built a trading platform for recycling sluggish materials in the electronics manufacturing industry, and made environmental protection contribution value through quality control and innovation, helping upstream suppliers to improve the management of sluggish materials and providing low-cost, reliable materials for downstream small and medium-sized enterprises to conduct innovation activities. From 2019 to 2021, the company has promoted the supplier sales of over 570 million sluggish electronic materials, contributing to the sustainable development of the industry.

In response to the low recycling rate of nearly 10,000 base waste electric poles each year, State Grid Taixing Power Supply Co., Ltd. has treated or disposed of waste electric poles in classification, recovered them for road paving, or transferred them to weak current line departments or village groups for reuse. Besides, waste electric poles can be used in billboard erection, flood prevention slopes, and other sites. These solutions have not only solved the problems of random stacking of waste electric poles, hidden safety hazards, and inconvenient handling, but has tapped into the residual value of scrap materials.

Increasing attention has been paid to the recycling disposal of scrap materials. State Grid Xinjiang Electric Power Co., Ltd. has created a path to recycle and reuse decommissioned helmets. In the “market” composed of power companies, flower plantations, agricultural cooperatives, residential communities, and other stakeholders, decommissioned helmets are used for flower pots, feed pots for the poverty alleviation purpose, campus publicity and education on electricity use safety, creative modeling materials, etc. to fully tap into the comprehensive value of safety helmets and promote the intensive use of resources.

**GoldenKey Solutions**
**Base station sharing accelerates 5G construction**

In response to the lack of 5G base stations, State Grid Nanjing Power Supply Co., Ltd. has deployed electric poles in base stations and made breakthrough in 5G base station construction. On the other hand, leveraging social resources, the company has successfully built the world's first 1.8GHz wireless private network, boosting urban development through smart interconnection. The project has substantially lowered the cost of 5G base station construction, reduced the land occupation of public utility equipment, and fostered a resource sharing model between the power industry and the telecommunications industry.


**GoldenKey Solutions**
**Promoting garbage classification**

Through theoretical innovation and path reconstruction, the E20 environmental platform has leveraged theories and tools to establish a set of “all-domain” garbage classification solutions for Taiyuan City, achieving practical effects featuring “affordable financial resources, affordable prices to the public, and replicable models. This intelligent management and control system is of great help in improving the comprehensive governance of streets and residential communities.

## 7. The action for advancing green and low-carbon technology innovation

We will give full play to the supporting and guiding role of scientific and technological innovation and improve the relevant mechanisms and systems, so as to enhance our innovation capability and accelerate the revolution in green and low-carbon science and technology.

**1. Improving innovation mechanisms and systems**
**2. Enhancing innovation capability and personnel training**
**3. Boosting application-oriented basic research**
**4. Accelerating the R&D and wider application of advanced practical technologies**
**GoldenKey Solutions**
**Disruptive innovation in carbon capture facilitates China to reach its goal of carbon peaking and carbon neutrality**

CHEERS is Total Energies' global benchmarking carbon neutral innovation project. It aims to develop the world's largest chemical chain combustion system to capture high-concentration carbon dioxide from industrial flue gas at low cost without compromising energy efficiency. Recycling the captured carbon dioxide as high-quality raw materials brings about 15 percent carbon emission reduction for refining, thermal power, and chemical industries. This disruptive solution is a key technology for low-cost artificial carbon sinks in the future, which will strongly support the realization of carbon neutrality goal of China and the world.

**GoldenKey Solutions**
**Exploring low-carbon development of coal-based energy to help achieve carbon neutrality**

Exploring the large-scale reduction of carbon dioxide in the process of coal-fired power generation is a key link in achieving carbon neutrality. Through the 150,000-ton coal-fired power plant post-combustion carbon dioxide capture-storage/utilization full-process demonstration project undertaken by Jinjie Power Plant, China Energy Investment Corporation (China Energy) is committed to mitigating the high cost in carbon capture process. Based on the R&D of carbon dioxide capture key technologies for new composite amine absorbents, along with phase change absorbents, ionic liquids, and other absorbents, the company has invented a new-generation technological process of “interstage cooling + split desorption + mechanical vapor recompression (MVR) evaporation”, which realizes the high-efficiency, low-energy capture of coal-fired flue gas. In addition, the company has furthered the comprehensive analysis based on carbon dioxide capture and utilization of the entire industrial chain, and built integrated solutions for carbon emission reduction of large-sized thermal power plants, in order to effectively handle the transformative impact of carbon emission reduction, providing a model for carbon emission reduction of large-sized thermal power plants. These efforts help the country realize low-carbon, intensive use of fossil energy, optimize the energy structure, and promote the low-carbon emission transformation and upgrade in the power industry, generating social benefits by playing a demonstrative and leading role in contributing to peaking carbon dioxide emissions by 2030 and achieving carbon neutrality by 2060.



## 8. The action for consolidating and enhancing carbon sink

We will apply systems thinking, and adopt a holistic approach to the conservation of mountain, river, forest, farmland, lake, grassland, and desert ecosystems. Efforts will be made to improve the quality and stability and the carbon sink capacity of our ecosystems.

1. Consolidating the carbon sequestration capacity of ecosystems
2. Enhancing the carbon sink capacity of ecosystems
3. Strengthening the foundation for ecological system carbon sinks
4. Promoting carbon emissions reduction and carbon sequestration in agriculture and rural areas

### GoldenKey Solutions

#### Integrating natural capital into management to explore a path for harmonious coexistence between businesses and nature

The “solution for harmonious coexistence between clean energy development and nature” developed by China General Nuclear Power Corporation (CGN) has been piloted at Daya Bay Nuclear Power Plant and Modou Mountain Wind Farm. The solution applies the natural capital concept and assessment methods to clean energy development of CGN to effectively manage the company's impacts and dependencies on natural capital, reduce the disturbance of living things by production and operation, and enhance local communities' resistance to natural disasters. The results of natural capital accounting show that the production and operation of Daya Bay Nuclear Power Base has brought a net benefit of RMB 462.7 billion to society, and Modou Mountain wind farm has created a total benefit of RMB 774 million for all biological and non-biological resources in the natural environment, far exceeding the net production and operation costs.



### GoldenKey Solutions

#### Integrating natural capital accounting into whole-lifecycle eco-friendly power transmission and transformation projects

The construction of the Yili-Kuqa 750 kV transmission and transformation project involved multiple key ecological protection areas. At that time, State Grid Xinjiang Electric Power Co., Ltd. identified the natural capital contact points in each stage of the project, based on which the company put forward higher requirements for biodiversity conservation along the project route from perspectives of design, construction, and operation. Through scientific planning, the company avoided negative impacts on the local ecology, protected the ecology through green construction, restored vegetation, and realized harmonious coexistence between the project and nature, creating a whole-lifecycle eco-friendly power transmission and transformation project.

### GoldenKey Solutions

#### Organic milk from the desert: Turning the golden desert into an oasis

ShengMu High-tech plants sand control plants while breeding pasture-raised cows in the desert. It uses cow manure as fertilizer, so that as the dairy herd expands, their manure can provide enough fertilizer for the growth of more pasture plants. The company has created a whole-process organic industry chain and a complete organic ecological sand control industry system, which contribute to the production of organic milk and turn the desert into a “green garden”. ShengMu High-tech provides a new desert control model for the world, and sets an excellent example of combining desert control with the development of a circular economy.

### GoldenKey Solutions

#### Novartis' carbon-sink forestry project in southwest Sichuan realizing three targets at one go

In Liangshan Yi Autonomous Prefecture, Sichuan Province, a deeply impoverished area, the Novartis' carbon-sink forestry project, based on the difficulties faced by local development, formed a model that emphasized coordination among the government, businesses, and professional environmental protection organizations, as well as cooperation in diversified aspects, and put forward innovative management methods. From 2011 to 2020, the project overcame all the difficulties due to high altitudes, harsh natural conditions, and conflicts between forestry and animal husbandry, and made achievements in three aspects, namely promoting carbon absorption, enhancing biodiversity protection, and helping rural communities develop.

### GoldenKey Solutions

#### Good harvests with low carbon emissions guaranteed by digital agriculture

Agriculture contributes one-third of the world's greenhouse gas emissions, while the lack of green and low-carbon agricultural production techniques and intelligent equipment has been a major obstacle for China to realize low-carbon agriculture. XAG Co., Ltd. (XAG), by applying robotics, unmanned driving, and other advanced technologies to agricultural production and supporting farmers in field management with artificial intelligence, has set up digital agricultural infrastructure, developed precision agricultural equipment, and built a smart agricultural ecosystem. By integrating its six key product lines, XAG helps improve the efficiency of agricultural production while reducing related carbon footprints.



## 9. The action for green and low-carbon society

We will raise public awareness of the need to conserve resources, protect the environment, and maintain the ecosystems, and encourage simple, moderate, green, low-carbon and healthy ways of life, so that the people become more active in pursuing green development.

### 1. Strengthening publicity and education for ecological civilization

### 2. Advocating green and low-carbon living patterns

### 3. Encouraging enterprises to fulfill their social responsibilities

### 4. Increasing training for cadres

#### GoldenKey Solutions

##### Low-carbon Accommodation programme: Supporting green hotels with smart power

In response to hotels' insufficient capabilities in energy consumption monitoring and lack of comprehensive energy management methods, State Grid Hangzhou Power Supply Company launched the country's first "tourism + electricity" big data service project -- the Low-carbon Accommodation programme. The programme advocates for low-carbon practices of hotels and consumers, and encourages them to save energy reduce emissions. Hangzhou Cloud Lodge has taken the lead in upgrading 115 smart meters as required by the Low-carbon Accommodation programme. More than 3,000 guests have experienced the new meters by scanning their QR codes, accounting for 60% of the total. These new meters help save 7.3% of electricity consumption per month and a maximum of 1300 kWh of electricity per month, thereby reducing carbon emissions by 1.3 tons.



#### GoldenKey Solutions

##### Launching innovative eco-friendly products and calling on hundreds of millions of consumers to participate in green actions

In order to cope with the increasingly severe climate change challenges, Anta Sports became the first company in the textile industry to cooperate with the World Wide Fund for Nature (WWF) in taking the following actions: cooperating with industry peers to promote the green transformation of the supply chain; using environmentally friendly textile fabrics and reducing packaging plastics; launching a variety of campaigns to call on hundreds of millions of consumers to participate in green actions; jointly launching innovative eco-friendly products in cooperation with partners; assisting related organizations in restoring forest land, and establishing partnerships with them to jointly achieve sustainable development.



#### GoldenKey Solutions

##### Clear Plate evokes public enthusiasm for charity

Clear Plate is a mobile application dedicated to reducing food waste. With the app, users can take pictures of their empty dinner plates and then get points after AI recognition. They can exchange their points for goods, or donate them to charity projects. For every 500 points donated by the user, the cooperative organization will donate 1 RMB to charity projects. As of November 2020, the app had more than 4 million users who had carried out Clear Plate action 36 million times in total (equivalent to reducing food waste by 1,400 tons and carbon emissions by 5,000 tons).

#### GoldenKey Solutions

##### Launching the "Treasure Action" to promote a zero-waste lifestyle

To support the garbage classification campaign in Chinese cities, BOTTLOOP has launched a cool-looking drawstring bag using plastics recycled from 6 beverage bottles, and incorporated the icons of the four types of garbage into the design. The company launched the "Treasure Action" among urban young people, calling on them to collect waste when doing outdoor activities. The company's effort to promote the concept of zero waste and transform traditional environmental education into a fashion has attracted the attention of the government and mainstream media. BOTTLOOP has also co-branded with a number of well-known brands to jointly promote sustainable lifestyles.

#### GoldenKey Solutions

##### Integrating sustainability into work and life with the GOAL system

In order to integrate sustainability into work and life, and respond to the *Outline for the 14th Five-Year Plan for Economic and Social Development and Long-Range Objectives through the Year 2035*, Mengniu Dairy added an environmental sustainability segment under the name of Green Operation and Life (GOAL) in 2019. Through earnest changes made by stakeholders at all levels, as well as the best practices such as the resource and environmental impact maps and volunteer services, Mengniu is leading corporate citizens to jointly achieve sustainable development.

#### GoldenKey Solutions

##### Igniting passion with the Xiamen Airlines SDGs Actors City Crossing Competition

To encourage more people to support the SDGs, Xiamen Airlines has launched the SDGs Actors City Crossing Competition, which is currently the only sports event in China under the theme of the United Nations Sustainable Development Goals. Through the ingeniously designed SDGs Actors City Crossing Competition, Xiamen Airlines allows participants to enjoy running and beautiful cityscapes, and bring more companies, organizations and individuals together to support the SDGs and create a better world.



## 10. The action for promoting all regions peaking carbon dioxide emissions hierarchically and orderly

All regions should clarify their development priorities by taking into account their economic and social development status, resource, and environmental endowments, and proceed toward peaking carbon dioxide emissions with a categorized, region-specific, orderly approach in phases through coordination between different levels of government.

**1. Setting sound, systematic targets**

**2. Promoting green and low-carbon development according to local conditions**

**3. Formulating local peaking carbon dioxide emissions plans through coordination between central and local authorities**

**4. Carrying out pilot projects**

### GoldenKey Solutions

#### Action for protecting the ecological environment of the Yangtze River basin

Through a series of efforts, including the determination of the responsibilities of each department, the identification of stakeholders and their expectations, the identification and evaluation of the Yangtze River environmental conservation action, the compliance evaluation of laws and regulations and other requirements, risk management and control, opportunity and success judgment, performance indicators and measures, personnel management and training, etc., State Grid Wuxi Power Supply Company managed issues related to the protection of the ecological environment of the Yangtze River basin to minimize the impact of power grid planning and construction on the environment along the Yangtze River. In 2020, the total amount of electric power generated from non-fossil energy in Wuxi reached about 10.5 TWh, which is equivalent to reducing coal consumption by about 5.873 million tons in Jiangsu Province and a reduction of about 10.4615 million tons of carbon dioxide emissions. In addition, the construction of the shore power system for ships in the Taihu Lake Basin is about to complete. According to preliminary calculations, when all the ships in the Taihu Lake Basin are electrified, they can reduce CO<sub>2</sub> emissions by 75,000 tons per year, which is equivalent to offsetting CO<sub>2</sub> emissions from 27,563 private cars. Using the electric power big data, Wuxi Power Supply Company not only supports the prevention and control of cyanobacteria in Taihu Lake by offering early warnings on cyanobacteria blooms, but also promotes the low-carbon transformation of equipment to contribute to the goals of achieving peak carbon emissions and carbon neutrality.



### GoldenKey Solutions

#### Building a new energy governance system to facilitate development and carbon reduction

Focusing on the urgent need of the Management Committee of Lin-gang Special Area to “control energy consumption and carbon emissions while stabilizing economic development”, Pudong Power Supply Company of State Grid Shanghai Municipal Electric Power Company has made innovations on the energy supply and consumption sides with new energy sources, new technologies and new models as the mainstay. Through approaches such as the digital twins, “power dispatching for achieving the goals of carbon peak and carbon neutrality, and the replacement with electric energy, the company has developed intelligent solutions based on the new power supply system in Lin-gang Special Area, and pointed out the direction for the special area in working towards the goals of carbon peak and carbon neutrality and creating a model of green development while pursuing rapid development.

### GoldenKey Solutions

#### Stimulating new drivers of the green economy and revitalizing the old industrial base

In response to the environmental problems and challenges of industrial transformation faced by Xuzhou, an old industrial and coal-mining city, Beijing Shengshi Hongming Investment Fund Management Co., Ltd., which is responsible for running the Xuzhou Old Industrial Base Fund, focuses on the development of the six major strategic emerging industries in the “6+6” modern industrial system, including new energy, new materials, equipment and intelligent manufacturing, integrated circuits and ICT, as well as biomedicine and health in compliance with the principle of “government guidance and market-oriented operation”, aiming to stimulate new vitality of Xuzhou’s green economy.





## Part III:

# GoldenKey Campaign Empowers Business' Low-Carbon Actions

### 1. Expand influence and tell the SDG stories in China

- Select, edit and publish the *Unlocked and Solved-GoldenKey Sustainable Development Solutions Collection*;
- In 2020, 6 GoldenKey solutions were selected among the second UN SDG Good Practices;
- The first "GoldenKey — Sustainable Development Solutions Campaign" was selected among the second UN SDG Good Practices, recognized by the United Nations in June 2021.



### 2. Strengthen communication, raise awareness and enlighten actions

- Organize forums and seminars on carbon neutrality etc. to help enterprises systematically understand the challenges and opportunities brought about by carbon neutrality, improve new understanding, inspire new thinking, and discover new opportunities.



### 3. Explore theories and discover the approach to change management

- Work with partners to hold the Seminar on Challenges of GoldenKey Innovation Solutions to Corporate

Management and Practice to discover the management logic, success factors and practical experience behind the outstanding SDG actions of companies, and to propose countermeasures;

- The Excellent GoldenKey Solutions will be shared among the students of Tsinghua University, Peking University, Shandong University of Finance and Economics, Xi'an Jiaotong-Liverpool University as teaching cases.

### 4. Collaborate resources, share and build a goldenkey platform

- Establish a GoldenKey Workshop with the International Business School of Xi'an Jiaotong-Liverpool University;
- Cooperate with China International Low Carbon College of Shandong University of Finance and Economics to establish the GoldenKey Low-Carbon Action Center.

### 5. Promote cooperation to bring together powerful forces for low-carbon transformation

- Initiate the GoldenKey Enterprise Alliance for Low-carbon Action to provide a platform for communication and cooperation among enterprises, academic institutions, media and other social organizations;
- Release the first phase of the Carbon Zero Space Initiative to work with space designers, builders, operators, users, and space function providers to help create a low-carbon space.





# Part IV:

## Shaping the Low-carbon Leadership of Chinese Enterprises

GoldenKey Solutions are not only an important representative of Chinese companies' contributions to the UN Sustainable Development Goals, but also an example of actions that contribute to the goals of carbon peak and carbon neutrality. Looking at the basic characteristics of GoldenKey low-carbon actions, we believe that Chinese companies need to start from the following aspects in shaping their leadership in low-carbon actions:

### 1. Seeking the commanding height of low-carbon development from a long-term perspective.

The realization of the goals of carbon peak and carbon neutrality is a long-term strategic process and a profound systemic change that cannot happen overnight. It requires businesses to seek the commanding height of the two goals from a long-term perspective.

Companies should grasp the content of the “1+N” model for the realization of the two goals, and integrate their low-carbon actions into national strategies according to the national top-level design as well as the trends of industry transformation and technological development. They should also incorporate low-carbon development into their mid- and long-term strategies, and make greater efforts in creating new business and industry models based on their respective strengths in competing with others for realizing the goals of carbon peak and carbon neutrality.

### 2. Pursuing low-carbon development based on characteristics of businesses

Low-carbon practices under good leadership focus on the company's own businesses, with special attention paid to the closest links between the company's businesses and low-carbon development. Such practices not only promote low-carbon development of businesses, but also allow the company to re-examine and adjust its businesses with the perspective of low-carbon development.

For example, energy companies need to predict the future of energy development while continuously optimizing the existing energy structure; manufacturing companies need to promote low-carbon production while evaluating new products and services from the perspective of green development; digital companies shall support green development in other sectors through intelligent approaches based on the characteristics of their own businesses while pursuing low-carbon development.

### 3. Finding the root causes of problems

Accuracy, Match, Innovation, Value, and Evaluation are the five factors of GoldenKey Solutions. The Accuracy means to pinpoint the causes to better hunt possible solutions. Innovation and Value are the cores of GoldenKey Solutions and aims to encourage companies to apply innovation to relieve key barriers.

This approach is also applicable when companies strive to realize excellent low-carbon actions. In the process of achieving the goals of carbon peak and carbon neutrality, companies face many obstacles, difficulties and pain points, such as those related to energy transformation and technical problems. All these require companies to define problems accurately and tackle difficulties with innovation, so as to realize low-carbon development.

| GoldenKey AMIVE criteria (Five factors of GoldenKey Solutions) |                                                                  |
|----------------------------------------------------------------|------------------------------------------------------------------|
| Accuracy                                                       | Pinpoint the causes to better hunt possible solutions            |
| Match                                                          | Find the “highly-matched” solutions                              |
| Innovation                                                     | Apply innovation to relieve key barriers                         |
| Value                                                          | Create comprehensive and multiple values through problem-solving |
| Evaluation                                                     | Resonate with stakeholders for positive evaluations              |

### 4. Valuing exchanges, cooperation and benefit sharing

The goals of carbon peak and carbon neutrality are not simply an environmental issue, but require companies to include environmental, economic, and social factors, and integrate various resources. Under this circumstance, exchanges and cooperation become quite important. On the one hand, the model and results of low-carbon actions need to be widely recognized before they are promoted more extensively and their value released more thoroughly. On the other hand, only low-carbon actions based on cooperation can create a development mechanism for the industry chain to share related results.



可持续发展 经济  
CHINA SUSTAINABILITY TRIBUNE 导刊

---

Produced by ChinaSustainabilityTribune

For more information about the Report and GoldenKey Campaign,

or any suggestions, please contact us

[huwenjuan@sdg-china.net](mailto:huwenjuan@sdg-china.net)