



**Transportation and Mobility Energy Demand Trends and Sustainability:**

**Energy China's Practices on  
Transportation and Energy Integration Project**

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# Briefing on Energy China

# 1. Energy China Introduction

Founded on 29 September 2011, China Energy Engineering Group Co., Ltd. (Energy China ) is directed by the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), with a registered capital of RMB 26 billion. Energy China Group is a large leading and internationally advanced energy engineering conglomerate with a well-known brand in the power industry in China and globally.

Energy China is one of the largest comprehensive solutions providers for the power industry in China and globally. The comprehensive solutions include one-stop integrated solutions and full life-cycle project management services.

Our business segments consist of survey, design and consultancy, construction and contracting, equipment manufacturing, environment protection & water affairs, roads and bridge, real estate, civil explosives and cement production, and investment and other businesses.

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**265**

Overseas Branches

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**147**

Countries and Regions

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**No. 239**

in the 2024 Fortune Global 500

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**No. 2**

in the ENR 2024  
Top 150 Global Design Firms

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**No. 11**

in the ENR 2024  
Top 250 Global Contractors

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# 1. Energy China Introduction

## 12 Major Businesses

**Traditional Energy**



**Ecological and Environmental Protection**



**Housing Construction**



**Civil explosion**



**Renewable Energy and Comprehensive Smart Energy**



**Integrated Transportation**



**Building Materials**



**Equipment Manufacturing**



**Water Conservancy**



**Municipalities**



**Real estate**

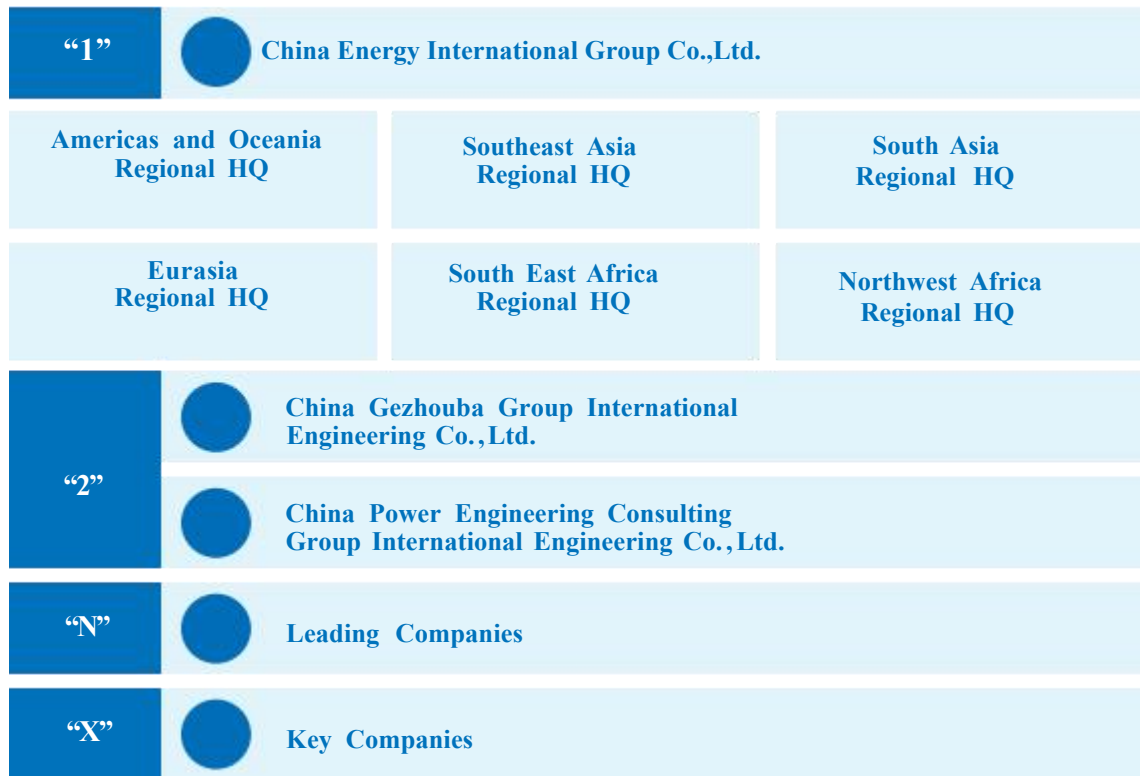


**Capital and Finance**



# 1. Energy China Introduction

## International business system: 1+2+N+X

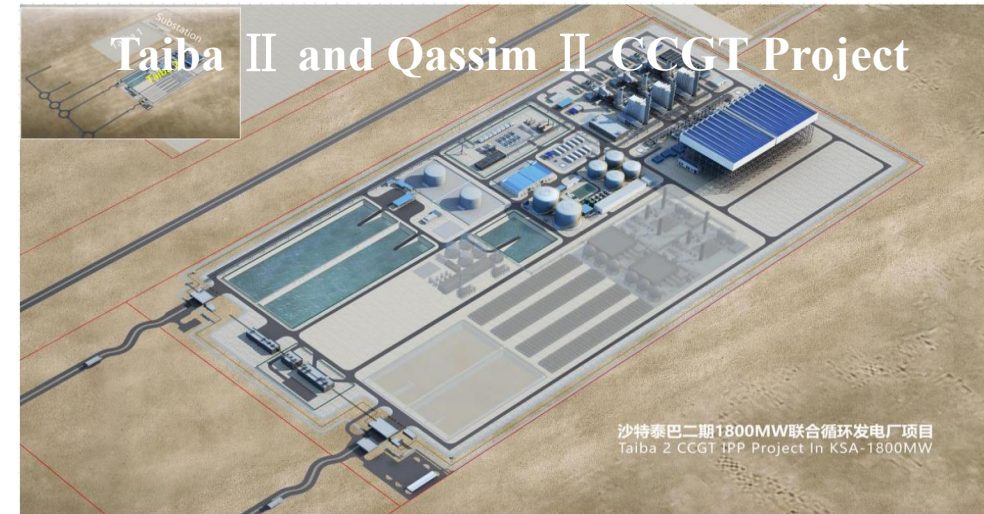


By systematically laying out the global market and leveraging its six regional HQs, Energy China shoulders its mission as an integrated platform to lead and coordinate its affiliated companies to develop international business, building a new system for survey, planning, engineering, projects development, equipment manufacturing, operation and management, project investment, etc., and provide high-quality services for global customers.

# 1. Energy China Introduction

## Key References in KSA

### Al Shuaibah 2.6GW Solar PV Project



### Rabigh 300MW Solar PV Project



### KEC Aliya Housing Project



# 1. Energy China Introduction

## Footprint in KSA



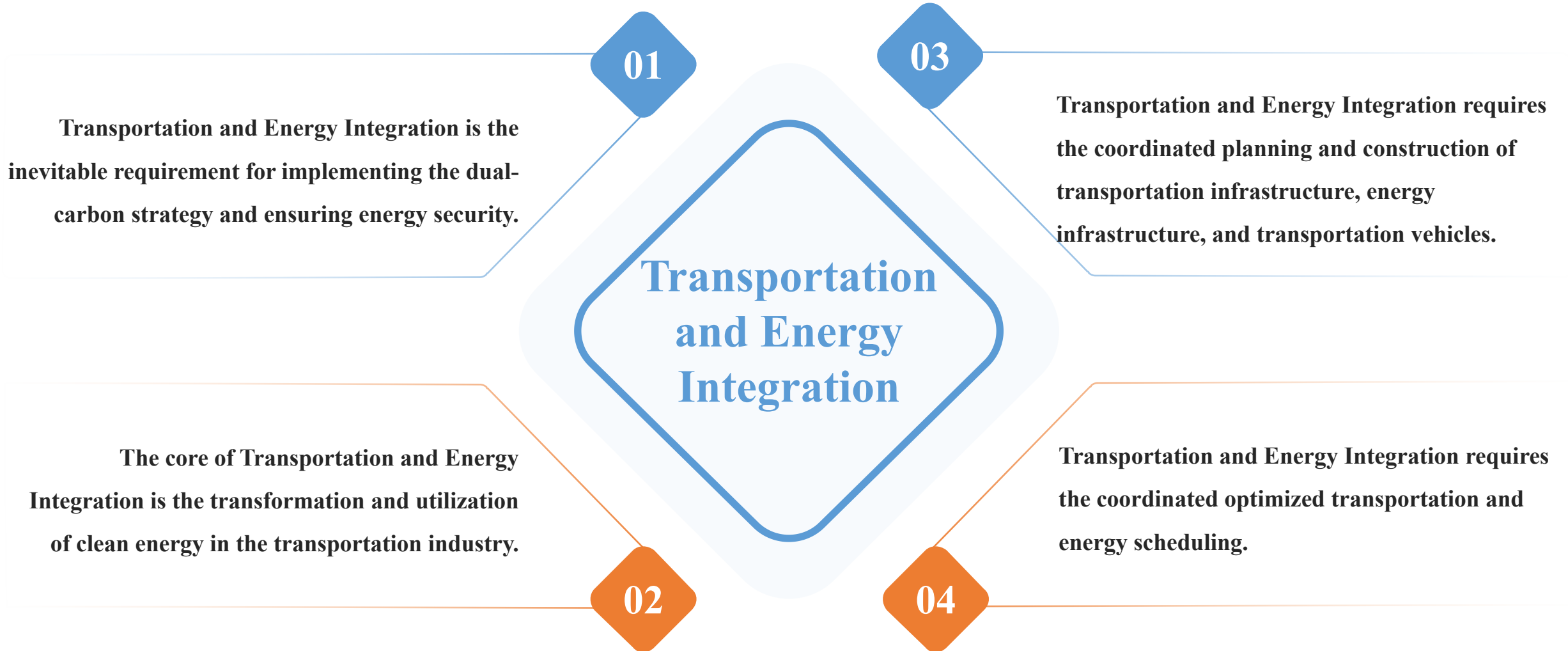
On April 23rd, The Second Session of The Second International Investment Alliance for Renewable Energy International Finance and Frontier Technology Forum and Alliance Conference was held in Riyadh, Saudi Arabia, with the theme of "Dual Carbon Empowerment, Zero Carbon Future". The event was hosted by Energy China. The conference gathered many guests from Chinese and Saudi government departments, industry associations, leading enterprises and financial institutions to jointly discuss the development trends and future prospects of the new energy industry, explore development of China's new energy industry chain going overseas and high-quality "going out" cooperation, injecting new impetus to promote the global energy transformation.



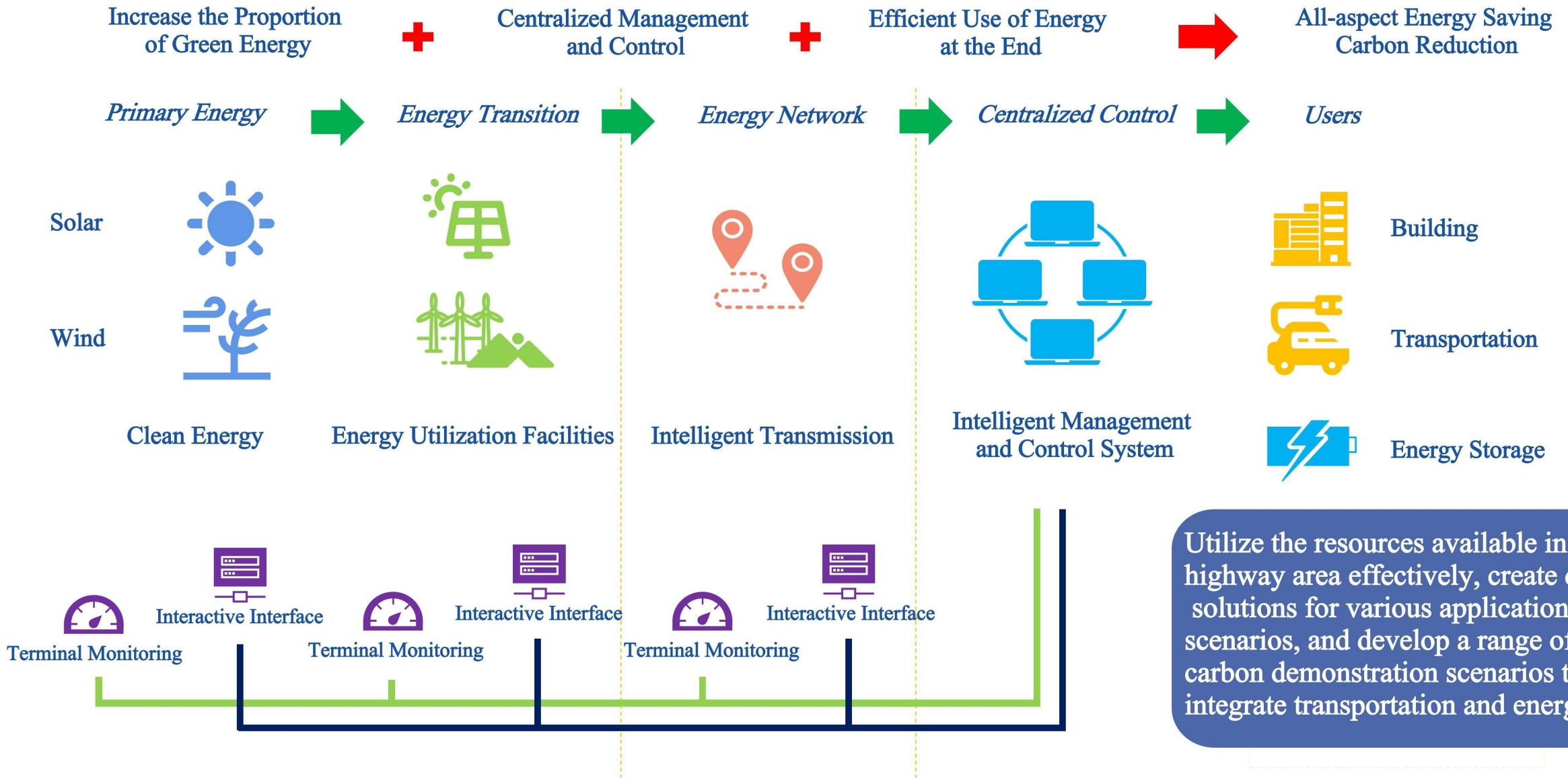
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# **Briefing on Transportation and Energy Integration**

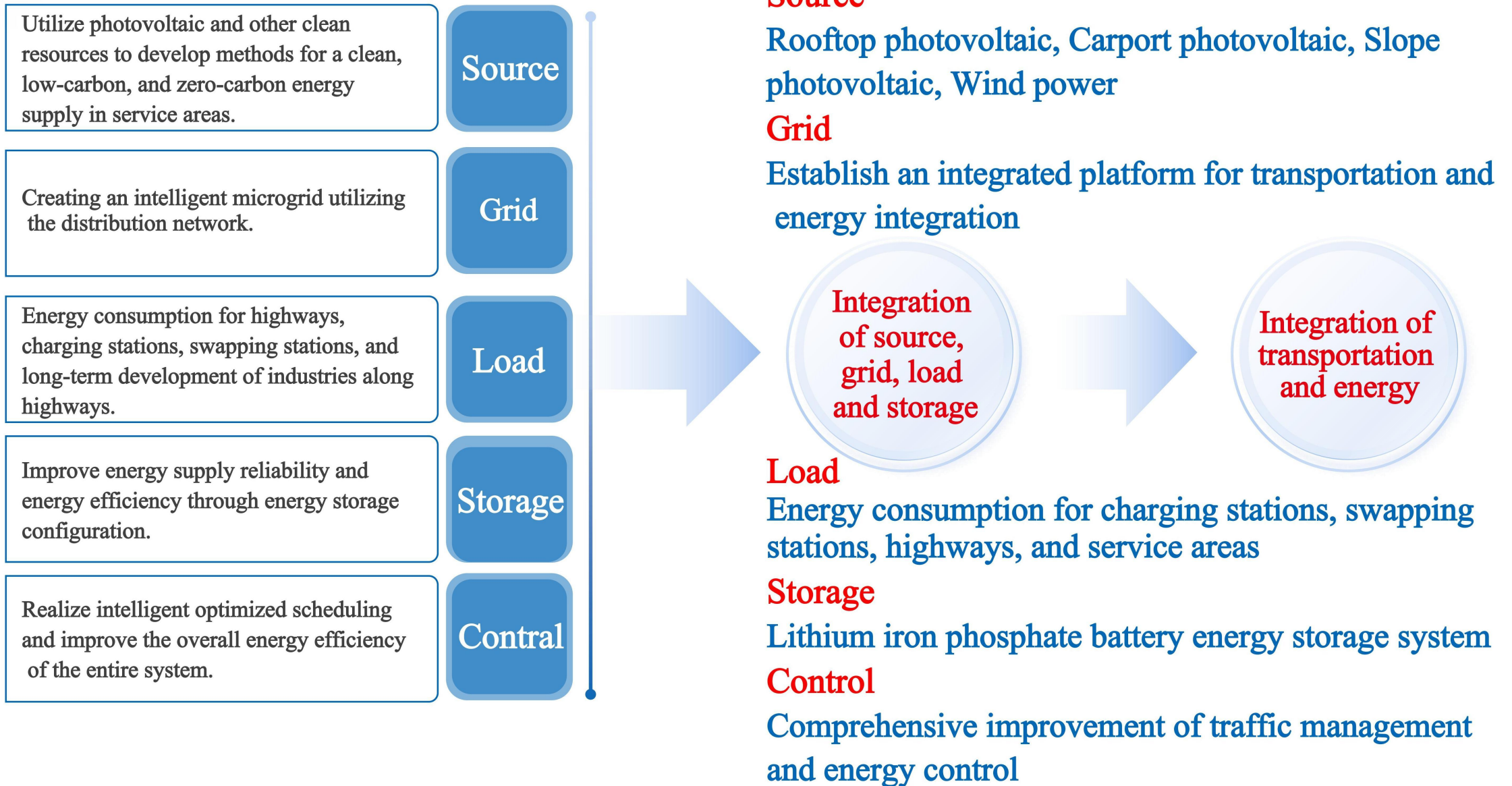
## 2.1 Basic Concepts of Transportation and Energy Integration



## 2.2 Implementation Path of Transportation and Energy Integration

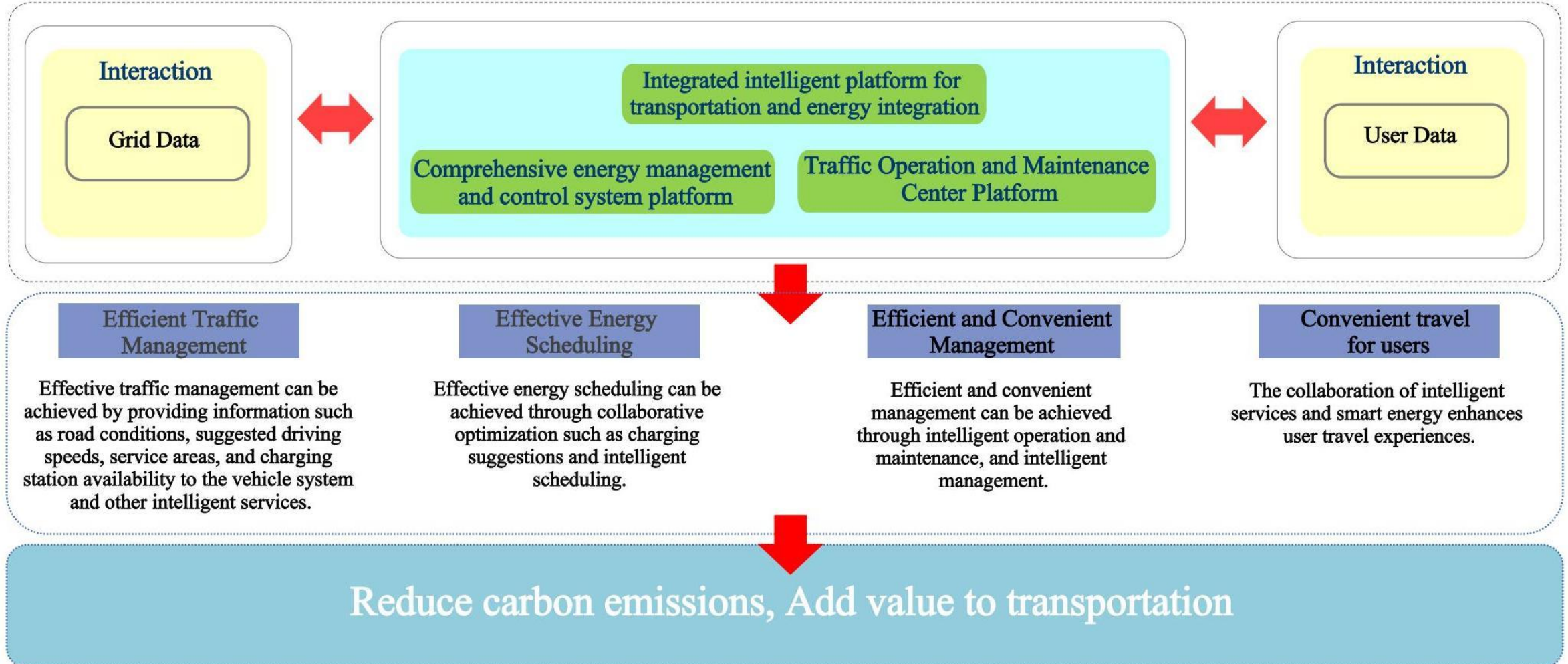


## 2.3 General Technical Solution for Transportation and Energy Integration



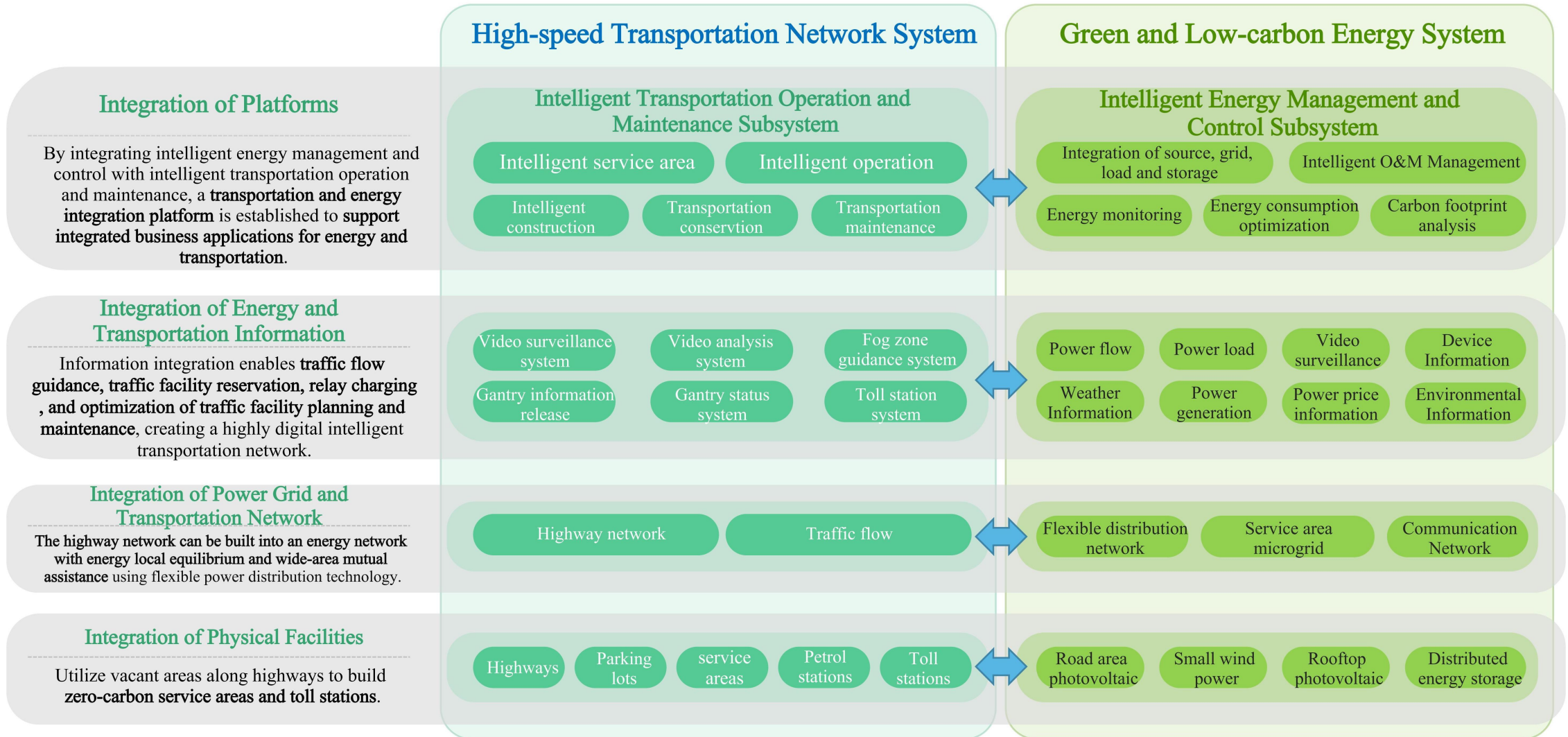
## 2.3 General Technical Solution for Transportation and Energy Integration

Utilizing an **integrated intelligent platform for transportation and energy integration** allows for the effective integration of traffic data, energy data, power grid information, and user data, promotes **carbon emission reduction across all transportation activities** and offers value-added services for the transportation and energy integration.

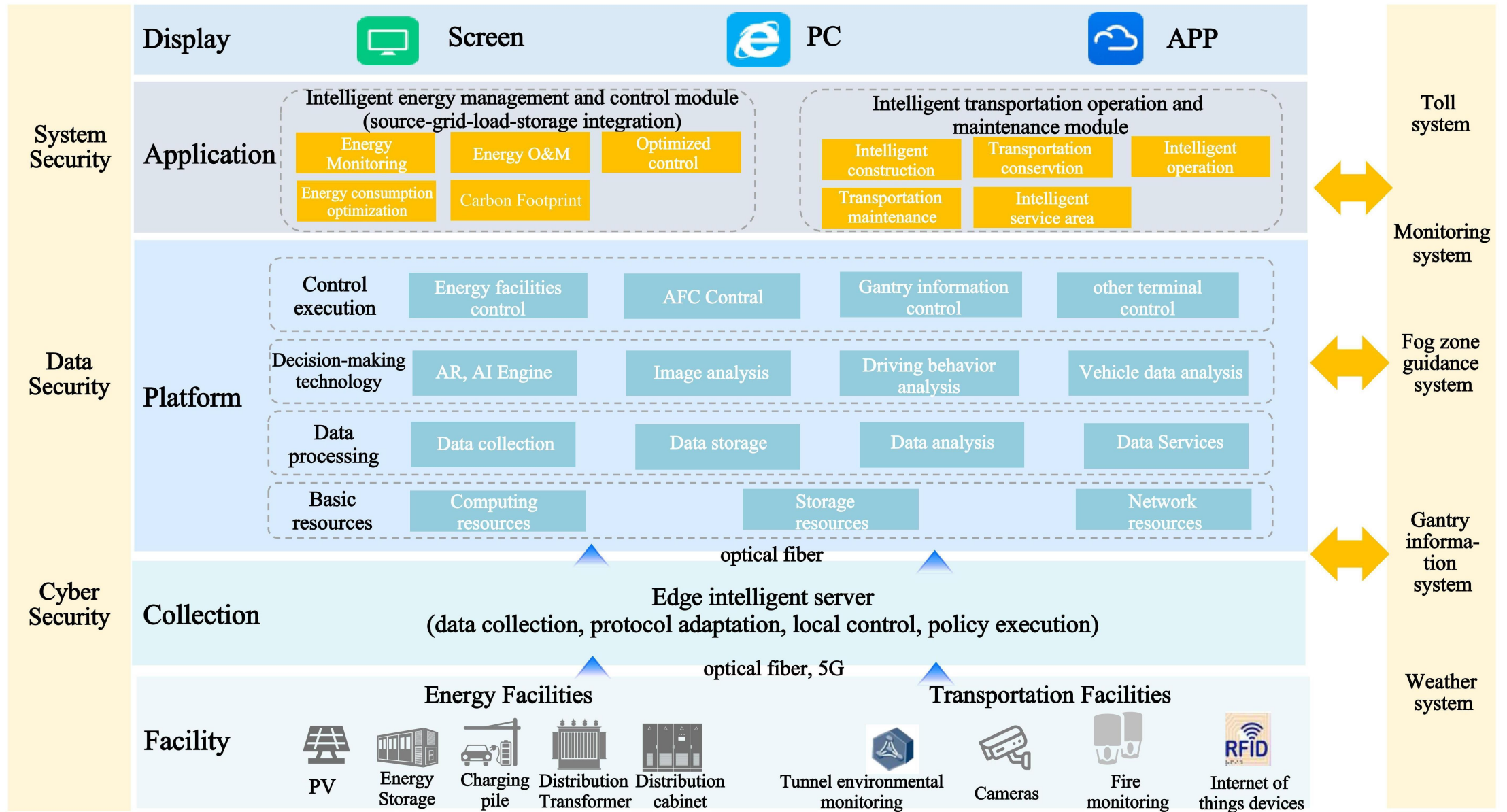


## 2.4 Transportation and Energy Integration Platform

The integrated innovation of energy and transportation systems can be achieved through the close coordination of physical facilities, energy flow, information flow, and application platforms.



# 2.4 Transportation and Energy Integration Platform



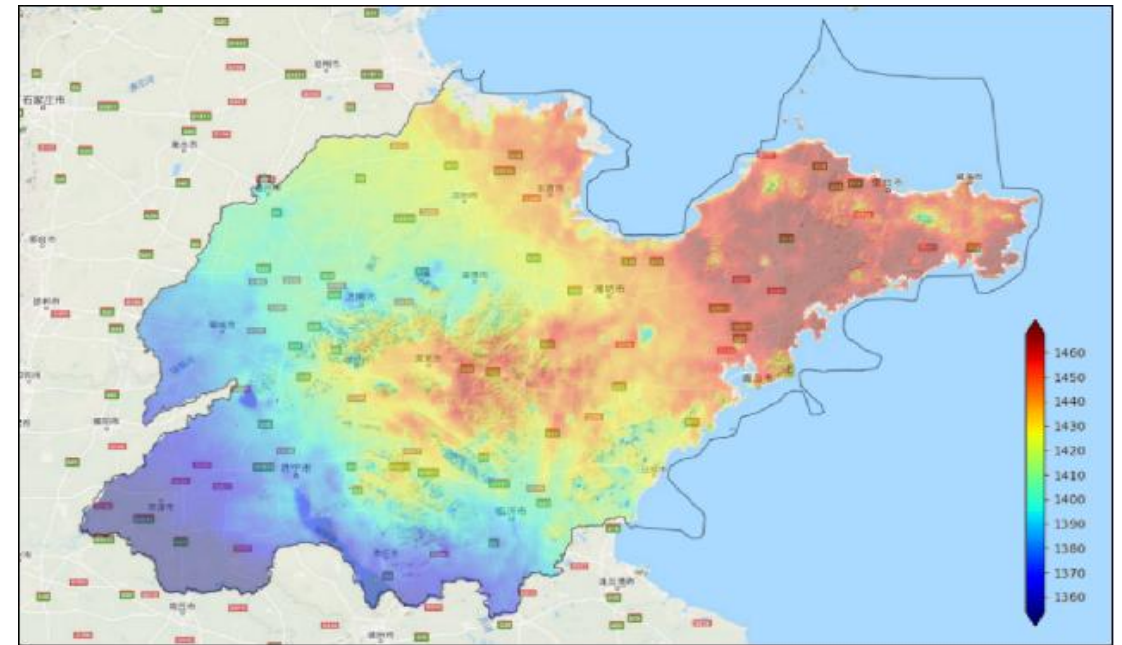
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# Practices on Transportation and Energy Integration



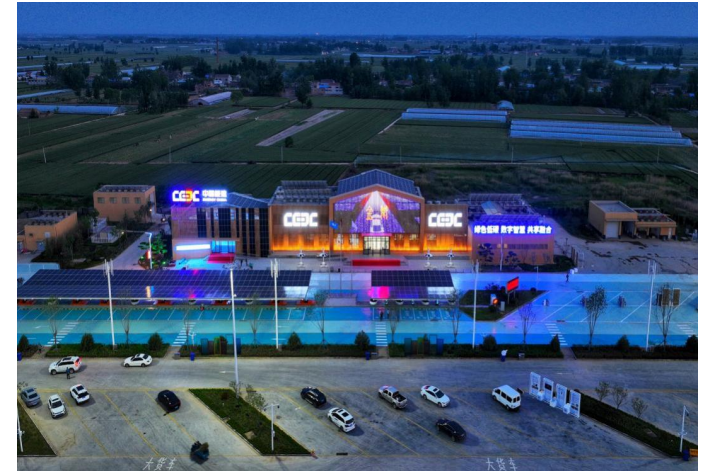
## 3.1 Project Introduction

The Zaohe Transportation and Energy Integration Project is **the first full-highway transportation and energy integration project in China**. It is **177.78 kilometers long** and runs east-west. The sunshine hours along the entire highway are between 2100h and 2500h, and it is in the "Resource-rich Area" of total solar radiation, which is suitable for developing and constructing PV stations.



## 3.1 Project Introduction

PV panels and wind turbines are deployed in slope protection, service areas, and toll stations along the highway that meet the construction conditions, with the total installed capacity of **124 MW**. The highway is also equipped with charging and swapping facilities, smart street lights, energy storage systems, smart energy systems, and so on.



The cumulative **clean electricity** produced during the project operation period will be about **2.9 billion kWh**, with an average annual power generation of **140 million kWh**, which can **save about 40 thousand tons of standard coal** and **reduce carbon dioxide emissions by about 110 thousand tons** each year.

## 3.2 Project Highlights

The spatial distribution of highway energy demand is uneven. In scenarios with high energy demand, such as service areas and tunnels, clean energy developed solely by relying on their own limited site resources cannot meet their energy demand, and **full highway area development** is required.

**large-scale slope PV**  
**(130 KM)**



**Zero-carbon smart service area**  
**(full-area delivery)**



**PV, energy storage, direct current and flexibility integrated building**  
**(low carbon throughout the life cycle)**



**Fully tap the value of highway assets and realize clean energy development across the full highway area**

## 3.2 Project Highlights

On the basis of the traditional "grid-load" transportation power supply system, clean energy and microgrid technology are integrated to build a multi-level **transportation and energy integration system** of "**Source-Grid-Load-Storage**" to continuously provide green and clean energy for infrastructure, transportation vehicles and derivative industries.



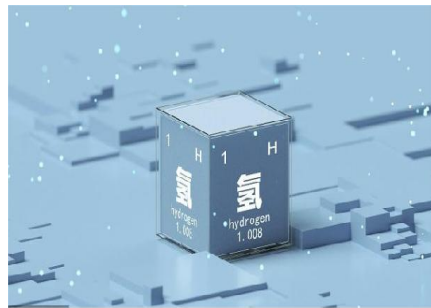
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## **Future Development Directions**

## 4. Development direction

### Zaohe Transportation and Energy Integration Project

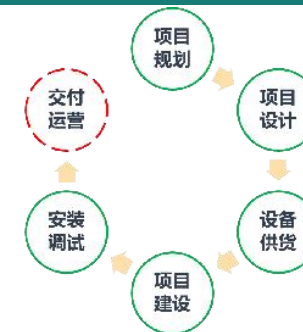
- Establish high-energy-consuming industrial facilities such as cold chain warehousing and logistics and hydrogen energy, realize industrial extension by expanding highway energy consumption scenarios, and continuously improve the self-consistency rate of energy consumption in transportation and energy integration.
- Further optimize the energy flexible dispatching level of microgrids and management and control platforms, and realize the intelligent configuration of green electricity.



### highway Transportation and Energy Integration

Promote the integrated planning, design, and construction of transportation and energy infrastructure.

- **Highway planning stage:** scientifically predict the energy supply and consumption of highways and integrate the planning of transportation and energy infrastructure;
- **Project construction stage:** organically combine the design and implementation of new energy facilities and transportation facilities;
- **Project operation stage:** promote the deep integration of intelligent highways and energy management.



## 4. Development direction

### Comprehensive transportation and energy integration

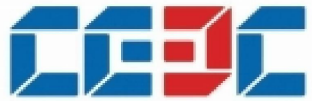
Gradually expand the integration of transportation and energy in highway scenario to comprehensive transportation scenarios such as **airports, rail transit, railways, and water transportation** to achieve the extensive integration of comprehensive transportation and energy.



Through operations in the **green financial market** and **carbon emissions trading market**, deeply explore the value of energy and transportation integration projects in the capital market and enhance capital liquidity and reinvestment capabilities.

Green Financing

Carbon Market



中国能建  
ENERGY CHINA



**Thanks for  
listening!**