



# China Enterprises' Low-carbon Transition: Green Electricity Consumption Practices

China is in the process of transitioning from a dual control system of energy intensity and energy consumption to a dual control system of carbon intensity and carbon emissions. Energy consumption is the primary source of carbon emissions for enterprises, and increasing the consumption of green electricity is a crucial measure for achieving their low-carbon development.

In China, enterprises can participate in green electricity trading, purchase green electricity certificates, or build their own renewable energy projects to consume green electricity.

Green electricity trading, similar to Power Purchase Agreements (PPAs) in other countries, enables end users to contract directly with renewable energy generators under mid- to long-term power agreements. China's green electricity trading pilot began on September 7,

2021, and a total of around 87.8 billion kilowatt-hours have been successfully transacted through October 2023, which is equivalent to the annual electricity consumption of approximately 35 million Chinese households.

Green Electricity Certificates (GECs) are electronic vouchers issued to power generators in China, with each GEC representing the production of 1000 kilowatt-hours of green electricity and similar to the International Renewable Energy Certificates (I-RECs) in Europe. China's GECs have been available for voluntary purchase through the Green Certificate Subscription Platform since 2017. As of July 2023, approximately 46.2 million GECs have been traded nationwide, representing a consumption of 46.2 billion kilowatt-hours of green electricity, sufficient to power the annual electricity needs of 18 million households in China.

## Examples of Green Electricity Consumption Practices

China implemented various practices such as leveraging multinational enterprises to drive supply chain companies, consuming green electricity through industrial parks, and encouraging energy-intensive enterprises to promote

low-carbon products. These practices have accelerated the learning process of enterprises and increasingly prompted businesses to undertake green electricity consumption initiatives.

### I. MULTINATIONAL COMPANIES

#### ◎ Supply Chain Carbon Reduction Goal-setting

A car manufacturing company announced that the lifecycle carbon emissions of its vehicles will be reduced by 40% or more by 2030. To achieve this goal, the company has signed cooperation agreements with its suppliers stipulating that green electricity be used during the production of their vehicles.

#### ◎ Supplier Capacity Building

An electronic device company is providing free learning resources and live-streamed training to its suppliers through its Clean Energy Project, including sharing information on green electricity resources and policies specific to the suppliers' region.

## Supplier Management System

A computer brand has asked its major suppliers to publicly report their total carbon emissions starting in 2023 and pass the Science Based Target Initiative (SBTi) certification assessment by the end of 2024.

## Cooperation Projects

An electronic device manufacturer initiated a China Clean Energy Fund project in 2018 and issued green bonds that supported the development and construction of over one gigawatt of renewable energy for its own company and its suppliers.

## 2. EXPORT-ORIENTED INDUSTRIAL PARK

### Renewable Energy Project Construction

An industrial park in the city of Hangzhou installed 544 kilowatts of rooftop solar power on over 8,000 square meters of underutilized space, which enabled the industrial park to achieve energy self-sufficiency through solar PV and battery storage.

### Participation in Green Electricity Trading

The operator of an industrial park in Hangzhou City signed a long-term power purchase agreement with the State Grid Hangzhou City Power Supply Company. Under this agreement, this park has procured 600,000 kilowatt-hours of green electricity during the fourth quarter of 2022.

### Cross-department Collaboration

The power company in the city of Ningbo established an energy coordination center for the industrial community. The energy coordination center serves as a hub that connects research institutions, green industry suppliers, financial organizations, and other business entities, and effectively organizes group purchases for small and medium-sized enterprises, thus enabling them to benefit from favorable electricity rates through group purchasing.

## 3. ENERGY-INTENSIVE COMPANIES

### Low-Carbon Product Initiative

An aluminum manufacturing company sourced approximately 89% of the electricity used in its production processes from renewable energy through green electricity trading. The company has also pioneered the development and construction of a product life cycle assessment system within China's domestic aluminum industry. According to the company, the carbon emissions of its green electricity-powered aluminum is only 20% of the carbon emissions from coal-powered aluminum. The company is also collaborating with international automakers to promote the application of low-carbon aluminum materials in car production.



The rooftop solar and wind power in a Jiaxing industry park



The Green Electricity Certificates



The solar fence and energy storage batteries in Hangzhou, China.