



RENEWABLE ENERGY BUSINESS





Renewable Energy Business

Business Development

The national “30-60” dual carbon goals have set the direction for the development of the country’s energy systems. A number of key guiding documents have been formulated, covering national strategic planning, policy and regulatory systems, as well as community co-building initiatives. The country has also set out coordinated policies in five key areas, namely the industry, energy, transportation, construction and land use sectors, in an effort to realise the national dual carbon goals. According to the report of the International Energy Agency, the installed capacity of global renewable energy increased by 510 million KW in 2023. China accounted for more than 50% of this figure, making it the fastest-growing country in the world of renewable energy. As such, the Group faces significant development opportunities in this sector.

During the year, seizing market opportunities and adhering to the core strategic directions of integrated energy solutions, decarbonisation and digitalisation, we continued to invest in renewable energy projects, with a focus on zero-carbon smart industrial parks. We provide diverse services to a wide range of industrial and commercial customers including photovoltaics, energy storage, battery charging and swapping, carbon trading, green power trading, engineering and operational maintenance, energy saving and digitalisation.

Business Highlights

As at the end of 2023, the Group had developed 124 zero-carbon smart industrial parks, and laid out more than 1,000 renewable energy projects in 23 provinces, autonomous regions and municipalities. Moreover, we also signed contracts in an aggregate photovoltaic capacity of 2.96GW and connected 1.8GW to the grid.

We provide integrated energy services leading to the development of several national-level demonstration projects, such as zero-carbon smart industrial parks, low-carbon factories, virtual power plants and microgrids that include photovoltaics, energy storage, charging and flexible management systems. These solutions were well received not only by the government, but also by the industry and our more general customers.

During the year, we collaborated with various central and state-owned energy enterprises, jointly developing and investing in photovoltaic assets with high returns. We also strengthened our cooperation with photovoltaic owners, photovoltaic operation and maintenance enterprises, as well as power operation and maintenance companies, to further expand the scale of our asset management facilities.

The Group’s Towngas Energy Academy was officially inaugurated in the Shenzhen-Hong Kong Innovation and Technology Cooperation Zone at the Loop in Futian district, Shenzhen. Established by the Group and our parent company, HKCG, the Academy has actively engaged in the research and development of cutting-edge clean energy technologies, together with industrial investment and incubation. Leveraging our smart energy projects on the Chinese mainland as a research platform, the Academy will focus on five major fields – hydrogen energy, energy storage, energy digital intelligence, renewable energy as well as low-carbon energy saving, in a bid to enhance Shenzhen’s and Hong Kong’s technological innovation capabilities and to explore new opportunities for economic growth. During the year, the Academy established the Joint Innovation Centre of High-efficient Energy Storage in partnership with the Shenzhen Institutes of Advanced Technology of the Chinese Academy of Sciences.



Shenzhen's First Public Institution Virtual Power Plant



In July 2023, the first virtual power plant for a public institution in Shenzhen was officially commissioned at Futian District Party Committee Compound. The project was jointly developed by Towngas Energy Investment Limited (Towngas Energy), a subsidiary of Towngas Smart Energy, and Shenzhen Fuxin Dual Carbon Industry Operation Management Company Limited. The project integrates technologies such as photovoltaics, energy

storage, charging piles, Vehicle-to-Grid (V2G), central air-conditioning systems and other distributed power supplies, with a load capacity of 3.6 MW and a real-time adjustability of 300 kW. During peak electricity consumption periods, the virtual plant can output excess electricity to the grid in order to ensure stable operations.

Looking ahead, the virtual power plant is set to integrate more energy resources among public institutions in Futian district and will play a significant role in balancing the supply and demand of the power grid in Shenzhen.

Launch of Upgraded "Tera Planet 2.0"

A highlight of the year was the launching of our upgraded Towngas Smart Energy Ecological Platform, Tera Planet 2.0, which was jointly developed by Towngas Energy and Tencent Cloud. Capitalising on nearly a hundred zero-carbon smart industrial parks as scenarios, coupled with Tencent Cloud's exceptional connection and data analysis capability, the Tera Planet 2.0 platform has been able to break the "data islands" in industrial parks. It not only enhances data management in smart energy consumption, application integration and replication, but also creates greater value for zero-carbon smart industrial parks, commercial and industrial customers, as well as low-carbon factory projects.



TERA TOUR – Shenzhen

Towngas Smart Energy also organised the TERA TOUR – Shenzhen event with about 500 participants attending, including local government officials, representatives from the industrial and commercial sectors, investors and our business partners, to share future strategic plans in the zero-carbon field.