

KEPCO group declares 2050 Carbon Neutrality Vision 'Zero for Green'

November 2021

- Korea Electric Power Corporation (KEPCO) and its six generation subsidiaries* declared a vision for carbon neutrality by 2050 'Zero for Green' at the opening ceremony of Bitgaram international exposition of electric power technologies held on November 10th.

* Korea Hydro & Nuclear Power Co. (KHNP), Korea South-East Power Co. (KOSEP), Korea Midland Power Co. (KOMIPO), Korea Western Power Co. (KOWEPO), Korea Southern Power Co. (KOSPO), and Korea East-West Power Co. (EWP)

- The declaration showed KEPCO group's strong commitment to fulfill their responsibility for carbon neutrality and turn it into a new opportunity.
- KEPCO group also announced its technology development strategies and key projects to implement the strategies. In addition, KEPCO group companies entered into a business agreement to strengthen solidarity and cooperation.

[Vision for Carbon Neutrality]

- Energy sector plays an integral part in realizing carbon neutrality, as it emits nearly 37% of the greenhouse gases in the nation and is required to support other sectors' carbon neutrality by electrifying energy use, as well as expanding renewable energy.

In this light, KEPCO group companies defined their own role to take the lead in achieving carbon neutrality across the value chain of electric power industry, from improving energy efficiency, contributing to expanding renewable and hydrogen energy, serving

as the backbone of carbon neutrality by optimizing grid construction and operation, leading key carbon neutral technologies based on solidarity and cooperation, and to establishing a sustainable foothold for carbon neutrality.

- 'Zero for Green', KEPCO group's vision for carbon neutrality, represents 'Zero Emission', 'Reliable Energy' and 'On Time'. 'Zero Emission' is to reach net-zero carbon emission from power generation by transitioning into carbon-free generation sources including renewable and hydrogen energy. 'Reliable Energy' is to supply stable power by implementing preemptive maintenance and optimizing operation of power grid while supporting efficient electrification. 'On Time' is to timely secure core technologies for carbon neutrality by expanding investment on R&D.

[Technology Development Strategies]

- KEPCO group companies announced technology development strategies for carbon neutrality along with its focus on following areas that would enable KEPCO group improve efficiency of R&D.
- Enhancing energy efficiency
 - a. Power supply : Adoption of high voltage direct current and super-conductivity technologies, and distributed energy system
 - b. Power demand : Provision of customized energy management system solutions to consumers, and enhancement of efficiency in buildings and local communities
- Expanding renewable energy
 - a. Off-shore wind power : Enlargement of wind turbines to increase generation, and cost reduction of construction and operation
 - b. Production/storage/usage of green hydrogen : Utilization of surplus renewable energy

○ Converting fuels

- a. Hydrogen/ammonia generation : Development of turbine co-firing hydrogen with LNG or ammonia with coal, and performance evaluation and control of combustion
- b. Carbon capture/utilization/storage : Commercialization of technology in 500MW for coal and 150MW for LNG, and MW-class CO₂ recycling

○ Establishing intelligent power grid

- a. Increased capacity for renewable energy : Preemptive investment in power grid, and projection of output of renewable energy
- b. Large-sized ESS : Development of high-efficiency (80% or higher) and long-lived (30 years or longer) ESS
- c. Digital transformation : Advanced management of distribution grid system

[Project Allocation among KEPCO Group Companies]

- KEPCO group companies will minimize costs and risks while maximizing the competence and resources owned by the companies in the course of technology development.
- Each company will demonstrate and commercialize small-scaled technologies, the benefit of which to be shared among the whole KEPCO group.

	Key projects of KEPCO group companies
KEPCO	Stabilization of power grids against variable renewable energy
KHNP	Development of floating photovoltaic power complex
KOSEP	Development & commercialization of carbon capture and utilization technology
KOMIPO	Establishment of hydrogen value chain including blue-hydrogen production plants
KOWEPO	Demonstration of co-firing hydrogen with LNG at LNG-combined power plants
KOSPO	Conversion of coal-fired power plants into eco-friendly energy complex
EWP	Demonstration of carbon capture technology at LNG-combined power plants

- KEPCO group companies will work together on projects with large budget and lengthy development period to disperse risks and increase cost efficiency.
 - development of large-scale off-shore wind farm with a capacity of 1.5GW in Shinan, 1.2GW in Buan-Gochang, and 0.2GW in Ulsan
 - joint development of hydrogen and ammonia generation technology and establishment of intelligent digital power plants

[Business Agreement for Carbon Neutrality]

- KEPCO group companies also signed a business agreement to cooperate in technology and new business development and job creation. The agreement is expected to help KEPCO group companies to harden unity and expediting technology development and business promotion in the pathway to carbon neutrality.