

Tackling Water Scarcity and Global Expansion... Full-Scale Push for Seawater Desalination Begins

- Ministry of Climate, Energy and Environment launches the “Seawater Desalination Development Consultative Body” and holds its first meeting on March 12

The Ministry of Climate, Energy and Environment (MCEE, Minister Kim Sungwhan) announced that, in order to strengthen the competitiveness of the seawater desalination industry, it will launch the Seawater Desalination Development Consultative Body (Consultative Body) and hold its first meeting on March 12 at Seoul Square (located in Jung-gu, Seoul).

The domestic seawater desalination industry currently faces structural limitations, such as high production costs and a limited domestic market, making it necessary to revitalize the overall industrial ecosystem. This Consultative Body aims to once again bring together the capabilities of Korea’s desalination industry, which once led the global market, and to explore solutions to water scarcity in the era of the climate crisis.

Centered on the MCEE, the Consultative Body brings together public institutions such as the Korea Water Resources Corporation (K-water) and the Korea Water Partnership (KWP), along with leading domestic companies in the seawater desalination sector, including Hyundai Engineering & Construction, Doosan Enerbility, GS E&C, Synopex, and Hyosung Goodsprings. In addition, around

30 members, including experts from academia and research institutions, have been appointed as committee members.

Over the past two decades, the global seawater desalination market has shifted from evaporation-based methods to reverse osmosis, which uses less energy*, resulting in a reorganization of the main technologies in use**. In addition, the environment for overseas expansion has changed rapidly, with an increasing number of contract structures going beyond simple construction to include direct financing as well as facility operation and management, making it necessary to develop appropriate responses.

* Energy consumption for water production: 7–25 kWh/m³ (evaporation method), 3–4 kWh/m³ (reverse osmosis)

** Share of reverse osmosis among seawater desalination facilities: (2006) 58.6% → (2024) 87.3%, Global Water Intelligence (GWI) Desal Data, a specialized global water market research institution

Domestic conditions have also reached a turning point for a leap forward. Starting this year, the “Daesan Coastal Seawater Desalination Facility,” the largest of its kind in Korea, will begin full-scale operation.

Securing the capability to operate a facility with a daily freshwater production capacity of 100,000 tons, and accumulating performance records accordingly, is expected to become a key foundation for Korean companies to enter the global seawater desalination market.

At the first meeting, the MCEE will share the “seawater desalination vision,” and the K-water will explain the “objectives and operational plan of the Consultative Body.” This will be followed by a presentation from the KWP on “measures to advance the water industry through expanded application of desalination technologies.” Finally, a session will be held for the participating members to exchange views.

The Consultative Body will carry out its activities through three subcommittees: technology development, overseas expansion, and legal and institutional improvement.

The technology development subcommittee will plan strategic R&D and pilot projects aimed at lowering seawater desalination production costs and strengthening climate crisis response capabilities, including linking with renewable energy, optimizing processes based on artificial intelligence, and rapidly deploying and relocating facilities to respond to drought.

The overseas expansion subcommittee will develop strategies for the joint overseas expansion of companies to expand exports of domestically produced materials, parts, and equipment and to secure overseas project contracts.

In particular, new approaches to overseas expansion, such as the desalination–power plant linkage model proposed at the “Water–Energy Convergence Forum” on February 25, will also be actively reviewed.

The legal and institutional improvement subcommittee will identify policy measures needed to revitalize the industry, including management measures required when introducing new business models such as rapid relocation and installation, as well as measures to promote the localization of key materials, parts, and equipment.

The Consultative Body plans to conduct intensive discussions by subcommittee through the end of this year and establish and announce an “implementation roadmap for fostering the seawater desalination industry.”

Kim Ji-young, Director General for Water Use Policy Bureau at the MCEE, stated, “Seawater desalination is a means of strengthening water security in the era of the climate crisis and a future growth industry that is rapidly expanding worldwide.” She added, “The government will serve as a strong partner and work together to ensure that Korean companies can lead the desalination industry.”