



Gumi 500 MW LNG Combined-Cycle Power Plant

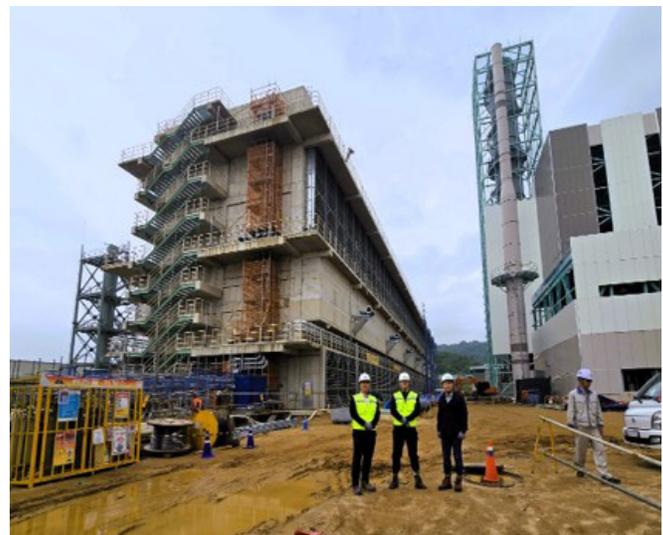


ABOUT THIS PROJECT:		
Market Segment: Power and Utilities	Owner: Korea Western Power Co., Ltd.	Products Used: Xypex Concentrate Xypex Patch'n Plug
Location: Gumi, South Korea		

The Gumi 500 MW LNG Combined-Cycle Power Plant (CCPP), owned by Korea Western Power Co., Ltd., was developed as a high-efficiency power generation facility intended to operate reliably under demanding environmental and operational conditions. The project included extensive reinforced concrete structures such as cooling tower basins, pump stations, water storage tanks, sewage facilities, and the main control building basement.

These structures were exposed to long-term risks including water ingress, chloride exposure, high humidity, and repeated wet and dry cycling. As a result, the owner required a permanent waterproofing solution that would support high availability and reduce lifecycle maintenance demands.

To address these requirements, a Xypex Crystalline Technology system was selected to provide integral waterproofing within the concrete matrix. Potential application risks such as surface laitance, overly smooth or dry substrates, joint leakage, premature hydrostatic pressure, and rapid surface drying were identified early and managed through a structured Xypex Application Risk Matrix. This approach defined specific mitigation measures for surface preparation, substrate saturation, curing practices, and application sequencing.



During execution, Xypex Patch'n Plug, a fast-setting hydraulic cement, was used to stop active water ingress at construction joints, pipe penetrations, and localized defects. Xypex Concentrate was then applied as a slurry coating to both horizontal and vertical surfaces, where its crystalline technology reacts with moisture to form insoluble crystals that block capillaries and micro-cracks within the concrete. Additional detailing using Xypex Dry-Pac and Xypex Concentrate was carried out at critical interfaces to ensure system continuity.

The project team was tasked with delivering a waterproofing system capable of providing long-term performance without relying on surface-applied membranes that can degrade or require ongoing repair. The solution also needed to integrate smoothly with EPC construction activities while maintaining consistent quality across large surface areas and complex detailing conditions.

In total, approximately **25,500 m²** of concrete surfaces were treated across key plant structures. The completed application has demonstrated strong early-stage performance and is expected to significantly extend the service life of critical assets. By protecting concrete from within, the system improves resistance to chloride-rich environments, high humidity, and wet and dry cycling, while reducing leakage risk near sensitive mechanical and electrical systems. This approach supports long-term durability, lower corrosion-related operation and maintenance costs, and improved reliability of balance-of-plant assets throughout the facility's lifecycle.

