

Inauguration of 28.9 MWe Binary Geothermal Plant in the Philippines

A geothermal power plant for EDC with ORC Turboden technology has been started up to revitalize an existing flash geothermal plant in Palayan

Brescia, Italy 16 July 2024 — Turboden S.p.A., a Mitsubishi Heavy Industries (MHI) Group Company and a worldwide leader in Organic Rankine Cycle (ORC) technology, proudly announces the successful operational launch of the 28.9 MWe geothermal power plant at the Energy Development Corporation's (EDC) Palayan Bayan expansion project. This plant, situated at the Bacon-Manito geothermal facility on Luzon Island, marks a significant milestone in sustainable energy production.

The binary power plant expands on the existing 140-MW Bacon-Manito (BacMan) facility. The ORC plant was successfully synchronized with the Luzon grid in January this year. Operated by EDC's wholly owned subsidiary BacMan Geothermal, Inc., the power plant is projected to have a gross annual generation of 253,000 MWh and net annual generation is 219,800 MWh. This is expected to reduce the country's carbon emissions by an estimated 72,200 tons each year (which is equivalent to the CO₂ absorption capacity of a forest area 4.7 times the size of the City of Manila). Construction on the Palayan binary power plant started in mid-2021.

Selected as the supplier for this pioneering project, Turboden has delivered the ORC power plant that harnesses waste heat from the 120-MW Palayan Bayan 1 flash geothermal power plant to generate electricity without the need for additional steam supply.

The Philippines, a nation of volcanic islands and the world's third-largest geothermal producer, is actively promoting renewable energy to meet its growing electricity demand driven by GDP growth. With the highest development rate of installed capacity to resources globally, the Philippines is at the forefront of geothermal development.

*"We are proud of being The Partner of EDC in this important Project, it is a remarkable achievement and represents a key milestone in our growth strategy" said **Andrea La Gioia, General Manager of Turboden**. "The new binary Geothermal Power Unit increases the power production of the already existing Flash Plant at EDC BacMan facility. ORC technology is highly efficient in these bottoming projects since does not require additional drilling and can exploit all the remaining brine waste heat. This solution is highly replicable in many existing high-enthalpy geothermal plants both in the Philippines and worldwide."*

In addition to its environmental benefits, the project has gained international recognition. The Ministry of the Environment of Japan has selected it as one of the FY2020 "Bilateral Credit Mechanism (JCM) Funding Support

Projects." This endorsement not only highlights the project's contribution to CO₂ reduction in the Philippines but also supports Japan's goals for reducing its carbon footprint.

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About Turboden:

Founded in 1980, Turboden S.p.A. is an Italian firm and Mitsubishi Heavy Industries group company, providing global technological solutions for energy efficiency and the decarbonization of industries and utilities. It is a leader in the design, manufacture, and maintenance of Organic Rankine Cycle (ORC) systems, which are highly suitable for distributed generation. These systems generate electric and thermal power by harnessing multiple sources, including renewables such as biomass and geothermal energy, as well as waste heat from industrial processes, waste incinerators, engines, or gas turbines. Today, Turboden is expanding its technological solutions to include gas expanders and large heat pumps, enabling it to play a broader role in decarbonizing the district heating sector and energy-intensive industrial processes.