

# A pioneering environmental PPP in the Middle East

In Dubai, BESIX and Hitachi Zosen Inova (HZI) are currently realising one of the world’s largest and technically most advanced waste-to-energy facilities. With a capacity of producing up to 200 MW of electricity from municipal waste, the project plays a key role in both Dubai’s 2050 Clean Energy Strategy and its goal of zero waste to landfill by 2030. In addition to the construction, BESIX and HZI participated in the conceptualisation, design and financing of the plant and will co-manage its operations and maintenance for 35 years when operational. With this PPP, BESIX successfully demonstrates its ability to support public authorities from A to Z in the realisation of their strategic ambitions.



## A growing portfolio of PPPs

The Waste-to-Energy project adds to BESIX’s rapidly growing portfolio of environmental PPPs in the Middle East, including Ajman Sewerage and SAFI in Ajman and the ISTP2 venture in Abu Dhabi. The company has also started tendering for social infrastructure PPP projects in the region (e.g. schools, hospitals...). In this area, it won the contract for Zayed City Schools in May 2022.



## Involvement from A to Z

The plant is designed to process 1.9 million tonnes of municipal waste per year, producing approximately 200 MW of electricity through incineration. This electricity will be fed into the national grid. The project started in 2017 as a tender from Dubai Municipality for the design and construction of a waste-to-energy plant. “As BESIX and HZI accompanied Dubai Municipality in the conceptualisation of the whole project, we could tailor it to the exact needs of our client. This has been an extremely effective collaborative effort, which has ultimately led to this major concession contract”, explains Benoit Vadani, Vice President Business Development for BESIX Middle East.

BESIX and HZI have not only conceptualised and designed the installation. They are currently building it as well and are in charge of a 35-years operations and maintenance period, combining their proven track record in managing state-of the-art industrial facilities.

## A positive impact on construction

BESIX started construction in July 2020 and has continued it at a steady pace ever since. At the end of 2022, all concrete works were substantially completed and the support buildings had entered the de-snagging and handing-over stage. In addition, the water treatment plant is fully operational, producing the demineralised and soft water required for the water steam cycle of the plant’s heat recovery. On the façade as well, great progress was made with the building’s final shape and outlook slowly being revealed.

The main challenge for 2023 is the execution of the remaining MEP works, although various areas have been powered-on permanently already. Partial deliveries are progressively taking place in the coming two years and the plant is expected to be fully operational in 2024.

## Sustainability and first-class technologies

The Waste-to-Energy project plays a key role in both Dubai’s 2050 Clean Energy Strategy and its goal of zero waste to landfill by 2030. Over its lifetime, the project will result in a total net reduction in emissions of 64.9 million tonnes of CO<sub>2</sub> equivalent compared to a scenario of continued landfill disposal and equivalent electricity generation from fossil fuel sources. In total, the project will initially divert 50 % of Dubai’s municipal waste from landfill to generate electricity.

In addition, the facility implements several advanced and innovative technologies. For example, the plant is a zero-liquid project, which means that it will not produce industrial water effluent. Its water supply will come from a nearby wastewater treatment plant, which avoids the use of fresh water, while discharged water will be recycled within the plant itself. Metals will also be recovered from the incineration process, and residues from the flue gas treatment process will be recovered and safely disposed of.

“Being involved at all stages of the project, in its design, but also in the development of how it will be operated in the long term, has a direct impact on the efficiency of construction. We are now benefiting from this full involvement and the resulting overall coherence, which has also enabled us to prepare the work in particular depth.

Peter Lembrechts,  
General Manager BESIX Middle East

4 years  
EPC

35 years  
O&M contract duration

1.9 million tonnes  
of municipal waste processed/year

200 MW  
electricity generation

64.9 million tonnes  
net reduction in CO<sub>2</sub> equivalent landfill emissions

50 %  
of reduction of waste disposal in landfills