



Environment

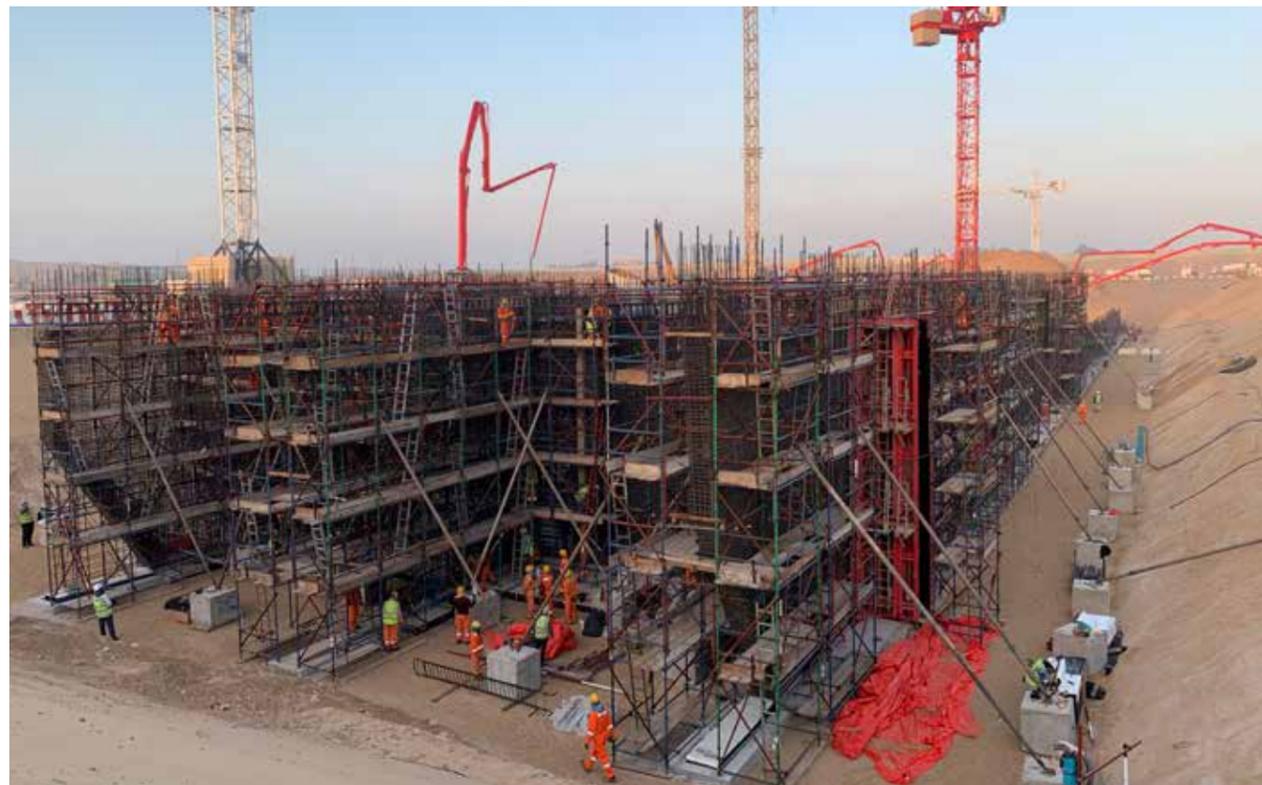
DUBAI WASTE-TO-ENERGY, A WORLD-CLASS PROJECT WITH BESIX'S MARK OF EXCELLENCE IN EVERY RESPECT

IT WILL BE THE LARGEST WASTE-TO-ENERGY PLANT IN THE WORLD BUILT IN A SINGLE PHASE. CONSTRUCTION BEGAN IN 2020 AND WILL BE COMPLETED IN A PARTICULARLY SHORT TIME, GIVEN THE SCALE AND COMPLEXITY OF THE PLANT. THE CONCEPTUALISATION OF THE PROJECT AND ITS DESIGN, CARRIED OUT FROM A TO Z BY BESIX AND HITACHI ZOSEN INOVA (HZI) WITH CLIENT DUBAI MUNICIPALITY, AS WELL AS THE SITE PREPARATION, ALREADY CONSTITUTE A TEXTBOOK CASE OF EXCELLENCE. THE CONSTRUCTION, WHICH REQUIRES UNPARALLELED COORDINATION AND SEQUENCING OF WORKS, IS WELL ON ITS WAY TO FOLLOWING THE SAME PATH. BESIX ALSO PARTICIPATES IN THE FINANCING OF THE PROJECT AND WILL OPERATE AND MAINTAIN THE FACILITY FOR 35 YEARS.

ACCOUNT MANAGEMENT & VALUE ENGINEERING

Originally, in 2016, the project was a tender issued by Dubai Municipality for the construction of the Emirate's first waste-to-energy plant. BESIX and consortium partner HZI submitted the most complete bid from a technical and economical point of view.

"The original EPC contract became a Build-Operate-Transfer contract and the project started in a similar way as an Early Contractor Involvement. The EPC consortium, the developers' consortium and the client worked together to develop the project into a tailor-made plant", explains Project Manager Emmanuel Craenen. "Throughout the process, Dubai Municipality, the Developers' consortium and the EPC consortium worked hand in hand to align the client's and developers' expectations and interests with the project outlines, making technical and technological suggestions to optimise the project and its functional objectives."



SITE OF THE FUTURE DUBAI WASTE-TO-ENERGY PLANT, UAE

"The creation of the project from A to Z with the client prevents any misinterpretation and ensures optimal risk management, both for construction and long-term operation, thus benefiting all parties," explains Emmanuel Gayan, Project Director.

The BIM for the project is a complete model, incorporating the methods and sequencing of the work into the design. It will be used to guide the construction process and the coordination of the works.

BETTER PREPARE, BETTER EXECUTE

Thanks to an agreement on early works, i.e. before signature of the full contract, BESIX-Six Construct were able to start construction in July 2020, with access to the site and preparation. The first concrete works followed in December.

The site can count on exceptional continuity between design and construction. Part of the design team has been integrated into the construction team. Similarly, part of the construction team was consulted during the design. The key question that both teams were trying to answer at all times was 'how will we build tomorrow the facility we design today'.

The plant will consist of five processing lines, to be delivered in 2023 and 2024. A very tight schedule for a plant of this scale. "We will reach the peak in the number of workers with

// A BOT contract & a threefold involvement

BESIX is involved in the project in three ways. As designer and constructor of the project, its share in the consortium is 30 %, while Hitachi Zosen Inova (HZI) has a 70 % share.

HZI and BESIX will also, as equal partners, be in charge of the operations and maintenance of the plant for 35 years.

Last but not least, BESIX has participated in the financing. Together with its Ajman-based partner Tech Group, BESIX is contributing 19 % of the equity. The other investors are HZI, Itochu and Dubai-based investors Dubai Holding as well as Dubai.

2,000 people on the site in 2021. For HZI, this peak will be 2,500 workers in 2022. The site requires the use of the largest tower crane in the world, in particular to install the pre-assembled equipment for the treatment process," says Emmanuel Gayan.

"Coordination on site is extremely demanding. We will have to combine very different operations in parallel," adds his colleague Emmanuel Craenen. "While BESIX will be carrying out complex civil works on one side, Hitachi will be installing high-tech equipment on the other."

BESIX is also responsible for the installation of water treatment, fire protection, air conditioning and MEP systems.

DIGITAL TOOLS

Site management can rely on cutting-edge digital tools. "Digitalisation offers outstanding solutions for managing such a demanding site. In particular, it allows faster and more reliable access to information, which is key to operational excellence", says Emmanuel Gayan.

The team will use the in-house developed Digipro system, which connects available data on quantities, cost control, manpower performance and planning. The combination of these data then allows for digital monitoring of work progress via the 3D model. In terms of manpower performance, the site is also a pilot project with the use of digital, automated timesheets.

"This project needs to become a flagship for the Group at all levels. From a lean design and detailed preparation of the works, the challenge ahead is to complete the works on time, and to the highest level of quality whilst sending the entire team home safe – every day" concludes Emmanuel Craenen.



WASTE-TO-ENERGY PROJECTS ARE A STRATEGIC FOCUS FOR BESIX IN THE MIDDLE EAST. THE MARKET IS BUOYANT AND THE SECTOR IS FUTURE-PROOF. THIS TYPE OF PROJECT REQUIRES CREATIVITY AND EXTRAORDINARY CAPABILITIES IN TERMS OF COORDINATION, CLIENT-CENTRICITY AND STAKEHOLDER MANAGEMENT. IT REQUIRES A VERY HIGH LEVEL OF EXCELLENCE IN EVERY RESPECT. MOREOVER, WE ARE CREATING SUSTAINABLE SOLUTIONS AS THESE FACILITIES OFFER AN ALTERNATIVE TO DUMPING WASTE IN LANDFILLS, REDUCING GREENHOUSE GAS EMISSIONS AND PRODUCING GREEN ELECTRICITY INSTEAD. //

PETER LEMBRECHTS, HEAD OF CONCESSIONS & ASSETS, BESIX MIDDLE EAST