



CASE STUDY

Octave's design solutions help PERENCO and AENTEC deliver offshore gas-fired power plant in record time



Key facts:

Company: PERENCO and AENTEC

Website:
www.perenco.com
www.aentec-groupe.com

Industry: Oil & Gas

Octave products used:
Forte 3DWorx (CADWorx Plant Professional),
BricsCAD

Operating in 14 countries across central Africa, Latin America, Southeast Asia and Europe, PERENCO is a leading independent oil and gas company involved in the entire lifecycle of projects, from exploration to decommissioning.

This family business prides itself on its entrepreneurial spirit: "Our company is one of a kind, just like the made-to-measure solutions we create. We do things differently," explains François Perrodo, the company's chairperson.

The conception of the TCHENDO 2 gas platform, inaugurated in 2023, is a great example of how this spirit is put into practice.

Identifying Goals

For this project, which began in March 2021, PERENCO partnered with AENTEC Normandy.

AENTEC is an international engineering company that carries out design and manufacturing studies for complex projects. Its responsiveness, innovative approach and ability to work quickly with major players have earned it a strong position in the energy sector, as well as in the food and healthcare industries.

Designing this platform from scratch would have taken years. Instead, PERENCO and AENTEC chose a rare strategy: repurposing a drilling platform, originally built in Dunkirk in 1982 and shipped to the company's Middelburg site in the Netherlands, into an electrical generation platform.

Key benefits:

- A project completed in record time – around a year and a half from the initial scan to the completion of the new platform.
- The ability to create comprehensive, large-scale models, including more than 1,500 tons of metal structures and hundreds of kilometers of piping, in one place.
- High-precision deliverables that eliminate the need for rework and site adjustments, ensuring faster timelines and reduced costs.
- Streamlined collaboration, allowing dynamic adjustments to project changes and equipment specifications.



There, the AENTEC team conducted a comprehensive, millimeter-level 3D laser scan of the existing platform and modeled it using Octave's software, BricsCAD and Forte 3DWorx. This step was completed in only a month, helping to reduce the project's timeline considerably.

The 3D models were then edited to account for the new platform's specific needs, most notably the addition of three gas turbines to supply 27 MW of electrical power capacity and a bridge. AENTEC also conducted detailed engineering work, including modeling the structures, piping and instrumentation, equipment, pressure equipment and performing detailed surveys and calculations. Overcoming Challenges

Octave's Forte 3DWorx played a pivotal role in supporting the collaboration between PERENCO and AENTEC. "With Forte 3DWorx, we were able to collaborate very easily and exchange 3D models and piping classes with PERENCO.

It saved us time, improved efficiency and PERENCO was able to use our models immediately, generate isometrics and make all the changes they needed," recalls AENTEC's General Manager, Nourredine Echioui.

The software was able to provide the levels of precision and fidelity needed: "On such a project, precision is essential - in this case, we've scanned the platform with a precision of two millimeters. But visual fidelity also plays a role. For example, we ensure that essential components such as pipes, equipment, and valves are displayed in their actual colors within Forte 3DWorx. This minimizes the risk of misunderstandings and errors, making it easier for the client to navigate this complex 3D model," explains Nourredine Echioui.

Project Manager Sylvain Bouvard also praises the ability to view structures along with piping and equipment: "Even before structures are detailed, we were able to import client data and visualize how it would look. It was particularly important for a project like this, that included significant work on metal structures. In addition, we were able to adjust rapidly to any changes or new input from the client side. Whenever we would receive new 3D models, for example to incorporate cranes or turbines, we would import them as DWG files and integrate them directly into the project."

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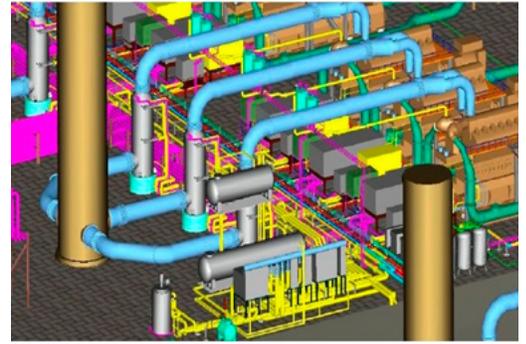
Nourredine Echioui
General Manager,
AENTEC

Realizing Results

This fluid process, along with the high-precision deliverables AENTEC was able to deliver, ensured that the project could be completed in record time. Barely a year and a half passed between the moment the team performed the initial scan of the model platform and when the new one was fully built. Traditional construction methods typically take two to three years.

This short timeframe was made possible by the fact that bad surprises and last-minute on-site rework were all but eliminated: “We didn’t have the gaps that you traditionally observe between the designs and the construction. When we visited the site to perform the final, as-built scan, we were able to see all elements fit into the exact space that had been designed,” says Nourredine Echioui.

The benefits of building a gas platform 40 kilometers off the coast cannot be overstated: every component is fabricated onshore, shipped by boat and assembled onsite. Any design error can result in expensive and time-consuming adjustments, and rework can cause months of delay.



Additionally, the 3D models serve to improve operations - for instance by allowing highly accurate simulations and staff training to be performed off-site.

Today, although AENTEC has now partnered with PERENCO for over 10 platforms, Nourredine Echioui still recalls this initial project as a distinctive experience. “Scanning the existing platform, carrying out the transformation studies, then returning to the Netherlands with the team to see the completed work and perform the as-built scan based on our studies—all within less than two years—is something rare. There aren’t many projects like this in a career. I’m grateful to the Perenco teams for their trust and professionalism.”

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property, and assets— for any scope, at any scale. For decades, we’ve partnered with customers to sharpen performance, elevate efficiency, and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what’s possible from day one onward.

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