Techint led a project for the engineering, procurement, construction and commissioning of a new Liquefied Natural Gas (LNG) Receiving, Storage and Regasification Terminal at the entrance to the Port of Rotterdam, NL, for Gate Terminal B.V. Techint, with its construction expertise, ran the project consortium in a 50-50 joint venture (TS LNG) with SENER Ingeniera y Sistemas, who brought in their process know-how. A further sub-consortium was set up, involving Entrepose Contracting and Vinci Construction Grands Projets, bringing experience in the LNG tanks business to the consortium.

Project Highlights:

The Gate Terminal project involved delivery of:

- Two LNG jetties, able to receive LNG Carriers of up to 270,000 cbm (Q-max) in size.
- Unloading lines to enable the transfer of up to 15,000 cbm/hr of LNG.
- Three LNG storage tanks, each with a net (pumping) capacity of 180,000 cbm.
- LNG pressurization with maximum NG grid pressures of 80 bar and vaporization based on Open Rack Vaporizers, using a waste water cooling return system from a nearby power plant.
- A send-out capacity of 12 BCMA, 20% swing, and guaranteed levels of availability in excess of 99.5%.
- Metering before tie-in to the national gas grid.
- Options for an additional tank and output capacity of up to 16 BCMA.
The challenge
The Gate project, built on reclaimed land in Maasvlakte, is the largest LNG Regasification project developed in one single stage, taking into account the latest European standard requirements for LNG terminals, EN1473.
Four companies joined to carry out the project, forming the TSEV consortium. As the consortium leader, Techint needed to identify key issues, focusing on the expectation and demands of the parties involved, selecting the best international LNG subcontractors, as well as local subcontractors for civil and minor parts of the project. TS LNG’s role in project management would be critical to the successful, timely delivery of the project, which was on a 44-month from Notice to Proceed to Takeover schedule.

Solution and Services
Safety & Quality Excellence
TS LNG met all the key performance and project objectives. A clear schedule along with safety objectives were laid down, as well as quality and budget restraints. In meeting the safety targets, excellent HSE performance was achieved: from commencement in 2009 to completion, 1.8 million Lost Time Injury (LTI) free hours were recorded. The quality targets were all successfully achieved, with the customer expressing satisfaction regarding the way TS LNG had effectively met the requested quality standards.

Financial Soundness
During the project, TS LNG employed sound financial arrangements in dealing with subcontractors and suppliers, applying risk management and Earned Value Analysis to track schedule efficiency and budget execution. As a result, the project was fulfilled to budget.

Timely delivery
The project was completed exactly on time. On the very day of the contractual due date, 1st September 2011, the Gate Terminal was officially handed over to the client.

Open and transparent communication
As TS LNG headed the project, an open-minded and transparent approach was established, where managers supported and promoted project excellence. Prime project goals were clearly met and the client appreciated the honesty and openness demonstrated throughout the project in relation to progress, issues that occurred and the way they were handled. Communication issues that arose were dealt with effectively, such as collocating critical resources at the construction site in Rotterdam, illustrating how continual improvement was achieved by fostering daily face-to-face contact.

Accurate planning
In order to arrive at successful completion, objectives were defined and outlined in the Project Execution Plan with input from the client and team members. This was combined with a comprehensive review and identification of ‘stage gates’ at critical stages of the project. HAZID, HAZOP, 3D Model Reviews and Peer reviews were carried out at key stages. A centralised information system (SENET) was used for data storage and workflow within the team in Madrid, Milan and Rotterdam, while CO-CONSOLE was employed for structuring commissioning activities.

Innovative Technical Solution
Innovation was actively encouraged throughout the project, leading to value-enhancing solutions, such as moving from in-situ to pre-cast structures and erection of the natural gas pipeline in one single lift. The project was also unique from a technical point of view, making it stand out in comparison to other existing European LNG terminals: the high degree of automation means that the plant requires minimum intervention from operators. Use of warm water from the nearby power plant makes for a more environmentally friendly facility, where Open Rack Vaporisers can be used, making for energy savings.

For contact information, please visit http://engineering.techint.com
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