Energy supply in Island countries. Malta case.

The actual challenge that are phasing island countries like Indonesia, Sri Lanka, Mauritius, Aruba, Curacao... to move their generation mix source from heavy fuels to a clean fuel like LNG has been successfully solved and managed in Malta, where the local company Electrogas Malta awarded the PPA tender launched by ENELMALTA, the national electrical company, to generate and supply electricity at a cheap cost.

The Delimara LNG terminal in Malta is based in a FSU vessel and a regasification compound at shore, completely heat and energy wise integrated with a 225 MW CCGT power plant. The LNG terminal also supplies gas to a 150 MW engine power plant, that has 8 Wartsila dual fuel engines.

Reganosa has contributed to the safe and successful commissioning and finalization of the EPC project and now operates the LNG terminal in coordination with the CCGT and the FSU vessels.

The operation requires real time balance of the LNG and the BOG generated in the vessel with the electrical demand of the island, that has to be absorbed by the CCGT and the Engine power plant.

This kind of island based terminals can be replicated in other islands taking into account the particular operation and weather requirements of the site, like metoscean information, the availability of other offshores that could justify the construction of transmission and distribution gas pipelines or the use of LNG trucking.

LNG terminal description

The LNG storage

The FSU is designed for LNG discharge to the shore facilities, including simultaneous receipt of LNG from LNGC. The nominal storage capacity is 125,000 m³ and the containment system consists of five Moss 80 type spherical storage tanks of aluminum alloy, single wall and insulated on the outside.

The BOG created in the FSU storage tanks due to heat transfer must continuously be removed from the tanks to prevent pressure and temperature increase. It is considered that the FSU has a normal BOG generation rate between 4,700 kgh and 5,000 kgh.

The power supply required by the FSU is provided from shore side, via a Static Frequency Converter Unit, which adjust the power supply to 60 Hz and 6.6 kV, meeting the FSU specifications. Apart from electricity, the FSU also receives from shore nitrogen supply, potable water and fresh fire-fighting water.

The Jetty

LNG is offloaded from the FSU to the jetty through a marine type 6-inch unloading arm connected to the new FSU liquid manifold, located at the jetty platform. A flexible hose is also installed as back-up transfer, to be used when the arm is undergoing maintenance or in case of high wind velocities. Both, the arm and the hose, are under FSU responsibility.

The Jetty is also provided by a mooring system, including gangway, mooring hooks and fenders.

HP pumps (6) and BOG compressors (3)

Integrated vaporization system

Delimara Regasification Plant is practical case of energy integration between a Regasification Plant and a Combined Cycle.

The cold energy of the LNG is transferred by the Water Glycol to the inlet of the Gas Turbines, where it is used to cool the air entering in the gas turbines, boosting the power generation. After the heat transfer, the Water Glycol returns to the Regasification Plant carrying enough heat to vaporize the LNG in the IPVs.

On 12th April 2017, Reganosa Malta started to operate the Regasification Plant of Delimara. During 2017, 2,810 GWh had been delivered to the gas consumers, as per the profile shown in next figure. The hourly reliability achieved for the O&M was 99.9%.

All the Ship-to-Ship Operations were completed without burning gas in the flare.

The milestone of Zero Last Time Incidents and the accreditation as per ISO 9001:2015, ISO 14001:2015 and OSHA 18001:2015 were also achieved.

Reganosa Services for the Energy Sector

Development, management and investment in natural gas infrastructures

Services provided for the complete life cycle of gas assets:
△ Consultancy
△ Operation and maintenance

WE PROVIDE:
△ FEED and PM/TIMC Support
△ O&M & Commissioning Consultancy
△ Training in real life plant and Operator Training Simulation
△ O&M
△ LNG HUBs development
△ Optimization and design of gas transmission networks
△ Power to gas and gas to power project development

Reganosa, your best partner for energy solutions

Research & Innovation Showcase

研究与创新展示