

Energy Improvements Saved LNG Plant Over USD 70 Million/Year

Non-investment savings with over 250 million of short payback opportunities

Benefits

- Increased production by USD 73 million/year
- Energy savings of 3 million/year
- Multi-year investment plan with 250 million/year payback

Background

- South East Asia LNG plant with eight trains
- Looking to reduce energy costs and improve yields
- Desire to create a continuous improvement culture

KBC Solution and Results

- Performed a site-wide energy study and optimization roadmap
- Used Petro-SIM to create a digital twin to model and value test proposed improvements
- Identified 100 opportunities with eight non-investment projects

Client Challenge

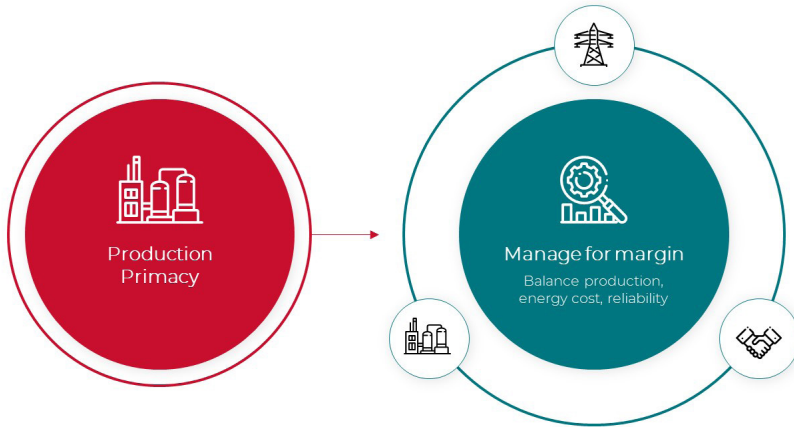
A liquified natural gas (LNG) plant in South East Asia has eight trains. Their energy consumption is tightly linked to production. The reduction in global oil prices pushed the operator to move towards a “manage for margin” approach. Energy efficiency, the plants largest controllable operating cost became a concern. Their goal was to increase profits by reducing their energy costs and improving their yields.

They contacted KBC to help them improve their yields and identify energy saving methods. In addition, the operator wanted to develop a corporate culture of continuous improvement. They needed to improve their employee skill set so they could identify and implement their own profit improvement programs.

The Solution

KBC applied a structured margin optimization methodology, considering process energy and reliability interactions. The consultants performed a sitewide energy review of all eight trains using Best Technology benchmarking and gap analysis. They identified more than 100 profit improvement opportunities.

This included energy improvement potential projects. However, it was not practical to address this issue for just one train as it relates to site-wide power and boil-off balances. Complexity increases on multi-train sites, which typically share product storage and utility systems. This means changes on any one train will affect the others.



Only a structured methodology and tools that consider the interactions will achieve improvement in the production margin. By using Petro-SIM simulation software, KBC and the client team worked together to build a digital twin of the first train. KBC developed a complex-wide roadmap to outline constraints and manage uncertainty around gas feed composition changes and site expansion plans.

The digital twin helped to identify gaps and test the value of the proposed improvements. The project team agreed to implement 6 of the identified production improvement opportunities worth over 73 million/year with no capex.

Using a holistic approach, the consultants managed the complex interaction of process, fuel, steam, and power balances. They provided reduced bottlenecks and improved reliability performance.

Results

The operator increased profits by 73 million/year.

The organization now has a robust multi-year investment plan and sustainable improvement processes as part of their culture. This project enhanced the skill set of the plant engineers so they could sustain their own profit improvement initiatives going forward for the other seven trains. They continue to identify and implement profit improvement programs to maintain their competitive edge.



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