



Global Oil Producer Leverages Real-World Models to Help Deploy Offshore Control System in Record Time

Genesis delivers “accelerated first oil” by linking Aspen HYSYS® to a new Process Control System (PCS) in dry-dock to commission controls hardware ahead of time. Faster implementation saves \$3 million.

As a leading consultancy and engineering company, Genesis Oil & Gas Consultants serves a large number of clients in the upstream oil & gas process industries. Leveraging expertise from over 500 in-house engineers and scientists—as well as established partnerships with global solution providers such as AspenTech—Genesis focuses primarily on offering high-quality engineering support to the worldwide Exploration and Production market.

Recently, one of the top 25 global independent oil producers approached Genesis to develop a redeployment strategy for a Floating Production Storage and Offloading (FPSO) unit deployed in the UKCS. Genesis evaluated the situation and recommended an integrated AspenTech modeling solution to replicate real-world conditions and variables, ensuring the timely and successful completion of the project.

What’s more, Genesis has received inquiries from other companies to learn about the modeling capability of AspenTech to accelerate project schedules, reduce costs, mitigate risk, and speed time-to-revenue.

“This is an offshore industry first. We commissioned the Process Control System onshore, resulting in a project time saving of approximately two weeks and cost savings of at least \$3 million.”

— David Cox, Senior Engineer, Genesis Oil & Gas Consultants

Customer Profile

Genesis Oil & Gas Consultants
Crude Oil Production

Challenge:

Commission FPSO controls hardware in an onshore environment, shortening the project’s critical path.

Solution:

Leverage Aspen HYSYS® to build a dynamic model, which is then controlled by the actual PCS, PSD, and ESD hardware for use offshore.

Benefits:

- Reduces “time to first oil” by two weeks, saving the oil producer \$3 million
- Helps identify major bugs in dry-dock for faster, easier resolution
- Saves additional expense by allowing third-party personnel to be trained onshore
- Reduces the cost, risk, and complexity of offshore deployment



Offshore Deployment Presents an Array of Challenges

Deeper waters, distant locations, and smaller oil fields make the FPSO a perfect solution for many oil producers; however, the benefits are sometimes outweighed by the complexity and unpredictable consequences of offshore deployment. It is costly, logistically challenging, and often hazardous, typically requiring a highly skilled team of engineers to make several trips offshore to achieve first oil. Genesis knew that the best way to overcome these obstacles was to test and commission the FPSO—especially its new process control system—while the unit was still in dry dock.

Model Complex Conditions to Eliminate Unexpected Issues

Having identified the need for a model-centric approach to the project, Genesis helped design a fully representative model of the new compression trains using Aspen HYSYS. This model was then linked to and controlled by the systems of the FPSO. No small feat, there were six hardware systems to be integrated, a disparate composition of raw materials, a new gas-to-oil ratio, and a demanding schedule that required accelerated testing. These variables would have to be perfectly aligned to ensure a successful deployment.

Deployment Complete in Two Weeks, Saves \$3 Million

Once the dynamic model built in HYSYS was connected to the FPSO's controls system, Genesis uncovered major bugs in the PCS, PSD, and ESD hardware. More importantly, Genesis was able to diagnose and correct all issues before startup to reduce project uncertainty and risk. Additionally, the integration of the controls system—normally a major endeavor—could be taken off the project's critical path and resolved independently and at faster speeds, resulting in an early and seamless deployment. And because all problem resolution took place in dry-dock, the client avoided the expense and logistics of multiple trips to an offshore facility.

Modeling the Future

Following of the success of the FPSO project, the client has discussed the possibility with Genesis to create a similar model for a training facility located onshore. This model would look at compression trends to assist with operator training by presenting various scenarios that demand risk mitigation. The Aspen HYSYS solution combines the control screens that the operators will see in the offshore environment with the accessibility and safety of an onshore classroom.

About AspenTech

AspenTech is a leading provider of award-winning process optimization software and services. AspenTech's integrated aspenONE™ solutions enable manufacturers to reduce costs, increase capacity, and optimize operational performance end-to-end throughout the engineering, plant operations, and supply chain management processes, resulting in millions of dollars in cost savings.

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