ARTICLE

Secure Your Refinery Profit Margins by Keeping Planning Models Up to Date

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Refineries often operate in a market with fluctuating demands and multiple feedstock options, and planning and scheduling software is used to guide decisions on what feedstocks to buy, how to run the refinery, and what products to produce. In order to make the most profitable product slate out of the most economical feedstock, refineries have to continually change their operating conditions. As a result, the models used in the planning and scheduling tools get outdated quickly, which can lead to suboptimal plans with diminished value in operational decision-making. As operating conditions in the refinery change Aspen HYSYS®, a rigorous and predictive process simulation software, can help keep the planning model up-to-date.

Aspen HYSYS simulates the process in a refinery and helps predict the operating conditions. Calibration features in the software ensure that the simulation model reflects actual plant conditions. The factors derived from a well-calibrated process model in Aspen HYSYS are then transferred to planning and scheduling software models to improve their accuracy. Over the years AspenTech has improved the integration between its planning software, Aspen PIMS, and Aspen HYSYS. This integration enables easy sharing of data and improves the efficiency of the workflow used to update the planning model, while reducing the likelihood of errors from manual input.

For instance, the assay management tool used in both Aspen PIMS and Aspen HYSYS is identical, enabling the easy transfer of crude oil assay information between planners and process engineers. This facilitates greater accuracy in operation plans and ensures consistency in the information used in both planning and process simulation models. Likewise, the Aspen PIMS crude distillation unit (CDU) model can be calibrated to better match plant performance using the short-cut distillation models that Aspen PIMS shares with Aspen HYSYS. Another benefit of this integration is that the rigorous reactor models in Aspen HYSYS — such as FCC, Hydrocracking, Delayed Coking, and more — can be used to update the Aspen PIMS reactor sub-models. These types of integration create a streamlined and more efficient workflow for planning model updates.

The integration between Aspen PIMS and Aspen HYSYS not only helps update planning models more efficiently, it can also help to identify gaps in the planning model through the development of a refinery-wide process model. The integration allows process engineers to easily transfer Aspen PIMS reactor sub-models into Aspen HYSYS flowsheets in order to develop a refinery-wide process model. By selectively upgrading simpler sub-models to rigorous models in Aspen HYSYS, the accuracy of the refinery-wide model can be improved while controlling its complexity. The refinery-wide model enables process engineers to help planners validate results on a case-by-case basis. The refinery-wide process model also acts as a one-stop repository for all HYSYS-based planning support tools.

By exposing the planning model structure to the process engineer through an Aspen HYSYS interface, AspenTech solution promotes **collaboration** and **better understanding** between process engineers and planners.

Streamlined data transfer spanning assay management, crude distillation units and reactor models help process engineers work with planners to maintain accurate planning models. In addition, the ability to create a refinery-wide process model with a mixture of rigorous and simple sub-models helps process engineers evaluate and identify potential gaps in the planning model. By exposing the planning model structure to the process engineer through an Aspen HYSYS interface, AspenTech solution promotes collaboration and better understanding between process engineers and planners.

Aspen Technology is committed to continually bring new innovation and integration across its product offering to improve customer workflows and enhance customer value. Companies that license Aspen HYSYS have access to the entire aspenONE® Engineering suite of products. This enables process engineers to model rigorous heat exchangers, assess energy consumption and the operating expenditure of the plant, and design pressure safety valves and flare networks from within their Aspen HYSYS process simulator. **Learn more** about Aspen HYSYS in refining or find information on the **aspenONE Engineering**.

AspenTech is a leading supplier of software that optimizes process manufacturing—for energy, chemicals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit **www.aspentech.com**.

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