



Perfect plans

ERIC PETELA ON
ACHIEVING A STEP-CHANGE
IN REFINERY PLANNING

Harsh economic realities are making commercial objectives difficult to achieve for refiners worldwide. Refineries are becoming more heavily integrated into the global supply chain and there is the need to be more responsive to pricing fluctuations and changing demand in the market place. Most refineries are struggling to achieve profit levels witnessed prior to the global recession as they try to place their products into, what is for many a shrinking marketplace.

Effective refinery planning is the foundation for refinery profitability. Every day, decisions are made that will affect the financial performance of the operation. Investment in leading-edge software can play a significant role in helping planners make the right economic decisions and maximise refinery margins.

Changing landscape

Before the economic downturn, a typical refinery's principal goal was to maximise throughput in the safe knowledge that the company's trading organisation would be able to profitably place the products into the market. The situation for many has radically shifted. Downward pressures on refining margins have led to a more dynamic planning environment as refiners are forced to look at a range of options in a bid to become more profitable. For example, many refiners have considered a much wider array of crude oil feedstocks than ever before in order to find the elusive optimum slate that will yield the highest margins.

In this new environment, streamlining the operational process has become increasingly important as a means of helping drive profitability. The key here is to find

solutions that free up time for the planners to experiment with new ideas and to drive innovation. If planners can look at alternatives they can make more money and drive additional profit for the plant. So, software solutions need to help refineries to increase the time that they can spend on exploring those new ideas and testing them to drive enhanced profits. In terms of economic modeling, planners will spend time looking at what crudes to purchase at the front end and assess the most economical way to produce feedstock and turn them into profitable products.

Driving better decisions

In developing solutions, refiners need to be aware of the challenging, yet pivotal role played by refinery planners - individuals who typically have to make a raft of difficult decisions in tight timeframes. Important decisions are sometimes made without much detailed information because it is difficult to anticipate problems or disruptions to supply, and predict prevailing market conditions that are likely to occur three to six months ahead and beyond. Planners typically have a lot of responsibility, albeit that they often work in isolation or small groups and without much assistance.

In many refineries, there is just one planner based on site and sometimes several at corporate headquarters. Adding further to their pressures, planners also need to continuously report to senior management in a timely manner how operations are proceeding on a daily basis while making assessments about which trading areas are likely to be most commercially advantageous in the near future. Critically too, planners have to keep three distinct groups happy; management, who principally want to ensure that the plant



is running efficiently and profitably; operations teams whose overriding concern is safety and compliance; commercial teams who are fundamentally focused on driving profit. The intensity of work, the constant need to create, publish and share plans, creates its own challenges and means there is little time to explore alternative approaches or devise new innovative techniques and methodologies.

The main purpose of the refinery planner, however, is to apply effective processes to develop the monthly refinery operating plans. By selecting and acquiring the best value crude the planner can help to maximise operating margins and maintain a robust supply chain. In view of the dynamic nature of oil markets, it is vital to be continually aware of supply demand balances and capitalise on opportunities. Speed is becoming critically important as speed of response can make the difference between a profitable trade happening or not.


How leading-edge software can help

Successful planning requires the integration of proven technologies with industry best practices to deliver the highest value. The approach needs to drive the efficiency of the hard-pressed refinery planner while also driving the efficiency and ultimately profitability. State-of-the-art planning software, such as Aspen PIMS, is able to harness vast data quantities - the thousands and thousands of numbers that production planning and processing solutions generate. By also turning these data into pictures, planners can assimilate all the important information and evaluate multiple scenarios quickly. This software capability is essential to making the difficult job of the planner easier to perform effectively, while also driving the efficiency of the refinery itself.

The majority of the world's refining operations are planned with Aspen PIMS, making it the industry-leading production planning and optimisation product. New, powerful analytics in PIMS yield faster and better evaluation of crudes available in the open market as crude cost is the major expense for all refineries the ability to determine crude choices quickly and accurately supports the planning process and enhances refinery profitability. Aspen PIMS Platinum, recently launched by AspenTech, is a significant enhancement to the PIMS family and provides a new experience for the user. The post solution analysis capability has been significantly enhanced with a new set of features including 2-d and 3-d graphs. The key to PIMS Platinum is that the software product enables planners to better understand the options quickly and ensure the best choice can be made. This powerful tool is the perfect workhorse to evaluate all the options and make the best economic decisions for business.

Paul Gallagher, refinery planning manager, Samsung Engineering recently commented "Aspen PIMS Platinum is the way that planners can make decisions, making it faster and easier. The post solution analysis capability has been significantly enhanced with this new set of features, including 2-d and 3-d graphs. Seeing the LP solution space visually is a sea-change in planning analysis and should result in better plans and greater profitability."

Bottom line results

Every refinery has seen the dynamics of their business change significantly due to the economic downturn. Understanding where opportunities exist is paramount for making sound, swift business decisions. Getting the refinery production strategy right is of great importance to ensure profitability. Through leading-edge planning software, refiners can rapidly respond to changing market conditions or upsets in their operations. With powerful tools, such as Aspen PIMS Platinum, planners will make crucial and timely decisions that drive powerful results. 

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Eric Petela is director, business consulting at AspenTech, a leading supplier of software that optimises process manufacturing for energy, chemicals, pharmaceuticals, 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 optimising 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.

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