Reliance Industries Limited
Optimizes its Crude Supply Chain
with AIMMS-based Tool

About Reliance Industries Limited
Reliance Industries Limited (RIL) is an Indian company headquartered in Mumbai. The company owns businesses engaged in energy, petrochemicals, textiles, natural resources, retail and telecommunications. It is the second most profitable company in India and the second largest publicly traded Indian company by market capitalization.
Problem

RIL operates the world’s largest refinery at a single location in Jamnagar, India. With an overall processing capacity1 of more than 1.2 million barrels of crude oil per stream day, the refinery is also one of the world’s most complex. The Jamnagar refinery has been designed to process heavy, high sulphur and acidic crudes. These crudes are more difficult to process than lighter crudes, but they are cheaper and can provide refineries with a higher margin. In order to achieve this higher margin, the company’s planners needed to implement an optimized monthly plan with an effective schedule to run the refinery’s daily operations. However, the planning and scheduling of crudes is a resource intensive and intricate processes. Decisions have to be taken at different stages of the crude supply chain, and at different levels in the management hierarchy. The wrong schedule could lead to:

- Gross Refinery Margin leakage between monthly planning, daily scheduling and actual operations
- High demurrage cost and delay of crude VLCC’s
- Piling of opportunity crudes at the end of the planning month

Solution

Shell Global Solutions was selected by RIL to improve the company’s optimization of their crude supply chain. Working with ORTEC (an AIMMS implementation partner), AIMMS and Shell, the RIL team was able to develop a highly responsive decision support system named GeCOS (Generic Crude Oil Scheduling System). GeCOS provides advice to the user and enables planners to modify, enhance, and overrule proposed decisions at any point in time. Moreover, it captures all the complex hardware constraints of the RIL refinery and delivers optimized and practical crude blends on a daily basis, while anchoring decisions to the overall business plan which aims to maximize refinery’s margin.

Results

GeCOS enabled effective crude blending at RIL’s refinery. The company was able to reduce excess crude tanks and marine tank farm facilities. Stockpiles of crudes that were too difficult to process were also reduced, meaning the company now purchases less complementary blending crudes to blend with heavier ones. With the new GeCOS system, Reliance can now process a substantially larger quantity of crudes than was originally planned.

Benefits include:

- Improved planning and decision support
- Higher margins
- Better capacity and asset utilization

1 For details on the refinery’s capacity see: http://www.ril.com/OurBusinesses/PetroleumRefiningAndMarketing.aspx

Contact Us for a Demo

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About AIMMS

The AIMMS Prescriptive Analytics Platform helps you evaluate and identify the best options to tackle your most pressing challenges with sophisticated analytics that leverage mathematical modeling and scenarios while pulling from multiple data sources. You can immediately gauge, not just what is likely to happen, but what you should do about it for the best possible outcome. Whether you seek to improve your strategy, planning, operations or transform your entire supply chain, AIMMS software is the ideal combination of being tailored to your unique situation paired with speed to value (ROI). That’s why teams at Shell, Johnson & Johnson, GE and Heineken and many more fire up AIMMS every day.

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