

PetroLogistics Nets Success with Retrofitted Olefins Plant

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An investment in a defunct olefins plant, coupled with a turbulent propylene market, is paying off for PetroLogistics LLC.

The Houston-based firm bought the plant on the Houston Ship Channel from ExxonMobil Chemical Co. in 2008. After retrofitting it to make “on-purpose” propylene— propylene made through propane dehydrogenation (PDH) instead of as a byproduct of cracking ethylene — PetroLogistics began production in February.

The site now has 1.2 billion pounds of annual propylene capacity, said PetroLogistics President David Lumpkins.

“In 2005, most people thought that propylene demand would continue to grow at or above the rate of GDP. No new ethylene crackers were in the foreseeable future, so we expected tight propylene markets,” Lumpkins recalled at Chemical Market Associates Inc.’s World Petrochemical Conference, held March 23-24 in Houston.

“What actually happened from 2008-10 was the recession, the emergence of shale gas and divergence between oil and gas prices. Propylene demand went down, but supply went down even more, so there were increasingly tight propylene markets.

“Now, propylene supplies are tight and prices are high despite economic recovery,” he added.

Propylene is the key feedstock used to make polypropylene resin, and also is used in production of plastic feedstocks acrylonitrile and cumene. Almost 60 percent of global propylene supplies are used to make PP.

Trends in feedstock sourcing also seem to favor PetroLogistics. In 2006, North American propylene production was split almost evenly between ethylene cracking and refining operations. But by 2010, refining had claimed a share of 60 percent.

In spite of this need for more propylene — and with the North American market waiting to see if PetroLogistics could succeed — the firm experienced some delays at its new propylene unit, which had hoped to begin production in mid-2010.

At the CMAI event, Lumpkins said the delays stemmed from “difficulty in mundane things like boilers,” and that the parts of the plant related to producing propylene “have been fine.”

“We hope to be at full production very soon,” added Lumpkins, whose firm also operates a pair of olefins units in Louisiana.

PetroLogistics even may be able to increase its annual production 10-20 percent through debottleneckings, once the site is fully operational, he said. As for additional sites making PDH propylene, Lumpkins said that his firm will look at expanding its current site instead of building a new one elsewhere.

The key factor for future PDH projects, according to Lumpkins, is that a higher price of crude oil equals a higher profit margin. He pointed out that, historically, propylene always trades at a premium to oil, while propane always trades at a discount to it. That difference makes the profit margin for the PDH process.

“PDH economics currently are favorable,” he said. “Ethane feeds [from natural gas] are advantaged, propane is abundant and derivatives demand is recovering.”

Lumpkins also said his firm’s channel site — including a new splitting tower that’s more than 300 feet tall —

“is uniquely suited for a PDH project.”

“There was a lot of existing equipment here that we could use,” he said. “And the ship channel has access to one-third of U.S. propylene consumers and access to a propane hub in Mont Belvieu. You could say it’s the most advantaged place in the world for PDH.”

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