IHS Markit

Port and terminal operators react to US petchem renaissance

By Gregory DL Morris: Chemical Week, 31st July/7th August 2017

orth America port and terminal operators are ramping up in response to the renaissance of US petrochemical production. Operators say there is as yet no call for massive new storage capacity. Rather the focus is on incremental expansions and enhanced services, including extensions into blending, packaging, and even light processing.

Late in June Stolthaven Terminals broke ground on a \$45-million jetty that will accommodate deepsea parcel tankers for its big terminal on the Houston Ship Channel. Just two months before that Oiltanking completed a deal for an existing terminal and a parcel of raw land both adjacent to its terminals at Texas City on Galveston Bay.

US petrochemical producers prepare to increase annual US exports of plastic resins by at least 500,000 20-foot-equivalent container units within the next few years. Attracted by cheap natural gas feedstocks, producers have announced more than nine million metric tons/year of North American polyethylene (PE) production by 2021. The increased production is centered in Texas and Louisiana, and will be mainly for export. North America's net PE exports are expected to triple to about 9.6 million metric tons a year by 2026, according to estimates from IHS Markit.

Diversification may extend further into ethylene export terminals, an interesting counterpoint to the boom in polymer packaging operations for export. Growing pains are starting to be evident in the Houston Ship Channel, where terminal companies and shipowners cite high levels of traffic. Port officials tell Chemical Week they are working with shippers and carriers to coordinate movements, particularly for parcel tankers that tend to make multiple calls within the port.

The Port of Houston is investing \$1.3 billion in improvements aimed at handling additional volume, but lacks the necessary container ship services to handle all the growth. Supply chain managers are pursuing alternative routes using bulkto-container packaging centers and intermodal rail via the US West Coast, the US East Coast, Mexico, and New Orleans.

Guy Bessant, president of Stolthaven, says that its jetty in Houston will be in service early in 2019. "We currently have two docks for ships and a barge dock that can handle two barges." On the other side of the world, an expansion is due to be completed at the joint-venture terminal in Ulsan, South Korea. "We bought into that in the late 90's and business has grown both inbound and outbound. It has become a hub for north Asia serving China and Japan as well as Korea."

Despite volume growth in North America "trade lanes are not changing too much," Bessant says. "We are still seeing aromatics from Asia-Pacific and out of India into the United States because it is short of benzene. The US is also short of propylene. In some areas propane dehydrogenation makes sense, but we still see imports into the United States from Asia and Europe."

An anticipated boom in methanol shipments has so far not developed. "At least not to the scale that was anticipated," Bessant adds. Though he notes that Methanex, one of the largest producers, has its own dedicated fleet of tankers. More broadly, Bessant anticipates more and different volumes as refineries along the Gulf Coast proceed with their own incremental expansions. "Overall we are not seeing imports declining, despite growing production in North America. And we are very bullish on exports."

Refinery expansion and integration is also driving terminals business in Texas City. In April, Oiltanking acquired the terminal now called OT Galveston County. It handles specialty chemicals and petrochemicals with capacity of 69,000 cubic meters (430,000 barrels). The terminal sits on more than 200 acres allowing room for expansion. OT Galveston County is just to the northwest of Oiltanking's existing Texas City marine terminal and has extensive pipeline connections to it. The newly acquired terminal has 78 tanks, five truck racks and significant railcar spots for loading, unloading and storage. The incumbent Oiltanking terminals, called OT Texas City, was acquired in 2004 from Dow Chemical, it had originally been a Union Carbide facility. "It was a 100% chemicals terminal," says Jerry Hardman, director of business development for Oiltanking. "We spent millions to diversify it and now we operate about one-third each in chemicals, ethanol, and gasoline components. We already have unit train capacity at the existing OT Texas City terminal. The terminal receives trains daily. At present it's mostly ethanol."

OT Texas City has capacity for 550,000 cubic meters (3.5 million barrels) of liquid as well as gas storage. It also has rail and truck capability and two docks for vessels of as much as 40 feet draft as well as eight barge docks.

The acquisition of the Galveston County terminal was done in parallel with the recently announced purchase of the 220 acres of waterfront and raw industrial land to enable the development of what the company is planning as the Texas Independent Deepwater Expansion (TIDE) terminal.

During the initial phase of development, construction of a finger pier will begin with two deep-water docks up to 45 feet draft. The TIDE parcel has space for more than 1.6 million cubic meters (10 million barrels) of storage, pipeline interconnectivity and additional jetties, up to five deep-water berths as needed.

The two parcels just acquired are the fulfilment of several different transactions. OT Galveston County is already operational, and permits have been filed for the development of OT TIDE. That is scheduled to be in service by the end of 2019.

"Growth has been dramatic, driven primarily by liquids," Hardman says. "Because crude volumes are typically large, the first phase for OT TIDE will be for crude oil. At the outset we are going to focus on base load, not speculative capacity. But eventually we anticipate handling refined products, natural gas liquids, and chemicals. It is going to be a wellrounded hub. There are huge opportunities given the growth of the refineries and chemical plants in the immediate area."

International-Matex Tank Terminals (IMTT), a portfolio company of Macquarie Infrastructure Corp, has 12 terminals in North America, including two in Canada. Of that dozen, all but two handle chemicals in some capacity, whether petrochemicals or specialties. The most recent expansion has been at Geismar, LA, which is dedicated solely to chemicals. Two new tanks were installed to handle general alcohols, Papernik tells Chemical Week. At the Quebec City terminal, a new fire-suppression system has been installed for tanks, docks, and rail racks.

By mid-August a new water treatment system is stated to be in service at the Bayonne, NJ, facility, across the Hudson from New York City. It handles both petrochemicals and petroleum. At the Chesapeake, VA, on the Elizabeth River south of Norfolk, IMTT is installing a new system for diluting concentrated urea. "That allows the client to bring in concentrate by ship and send out the blended material by truck," says Jim Papernik, director of chemical business development for North America.

Diluting is not a complex recipe, but it hints at much greater involvement in light processing by terminal operators. "That is adding value," says Papernik. "We do blending at various sites, as well as packaging at Geismar and Lemont, IL. We also do some quality testing."

On a much larger scale Papernik says IMTT is in talks with several producers about new production facilities near its terminals, or even on its property. The discussions are preliminary but involve "multiple scenarios," he adds.

Service expansion options are also on the table as the Greater Houston Port Bureau works with the port authority, shippers and carriers to resolve the challenge of parcel tanker moves in the ship channel. "Congestion really only affects the chemical ships because they are not moving with efficiency," says Bill Diehl, president of the port bureau.

Most vessels arrive, unload and reload at the same place, and then depart. Parcel tankers in contrast make multiple calls at different terminals and producer docks along the ship channel. If the next stop is not open to receive the vessel, it has to go to a lay-by berth or back out to the bay. That is the scheduling challenge.

"When a ship arrives in the roads it gives a notice of readiness to all of the terminals where it has to call," Diehl explains "They start to get ready, a process of six or eight hours to clear lines and ready tanks. Whatever berth is ready the first ship goes to. Then another ship comes in and the reservation system has not been cleared."

The port bureau is in the process of measuring

efficient and inefficient moves, Diehl adds. "We are having meetings to develop a port-wide information system for terminals and agents." The open questions are whether the shippers and carriers want an information system or a control system, and what they are willing to fund and use. At the same time, the port authority and the US Army Corps of Engineers is a year into a 4-year, \$10-million study of activity at the port.

Resin makers are also making investments to ease paths to port facilities. Chevron Philips Chemical has invested more than \$500 million in its logistics network, including transloading and packaging facilities at Fort Worth and Charleston.

CPChem investments include 3,000 new railcars as well as storage and transit systems at production facilities. The company has also invested to increase storage spots by 1,500 railcars at its storage-in-transit (SIT) yards. For exports alone, CPChem expects to load 11,000 hopper cars a year.

ExxonMobil has previously said it plans to do its own packaging for its expanded plants at Baytown and nearby Mont Belvieu, Texas. The company said it will package all the 1.3 million tons a year from its expanded Mont Belvieu plant, which has no direct rail access. The facility is similar to one at ExxonMobil's Singapore Chemical Plant, which completed an expansion in 2012.

Overseas ports are also investing. The Port of Antwerp is investing \$10 million in Porto do Açu, a port complex in private hands at Sao João da Barra, in the north of Rio de Janeiro, Brazil, the Antwerp port authority says. This investment is part of the port's push to enter the Brazilian market.

Antwerp says it chose Porto do Açu because of its location in the industrial heart of Brazil. Porto do Açu is an industrial seaport where mainly oil, gas, dry bulk goods, and containers are transported. The port is also near the Campos oilfields and serves as a support center for Brazil's offshore industry.

More than 6.4 million metric tons of freight are transported annually between Brazil and the port of Antwerp. Brazil is Antwerp's sixth-biggest trading partner, the authority says.

For more information visit www.ihs.com/mtforchem



DISCLAIMER: The information contained in this presentation is confidential. Any unauthorised use, disclosure, reproduction or dissemination, in full or in part, in any media or by any means, without the prior written permission of IHS Markit or any of its affiliates ("IHS Markit") is strictly prohibited.

Opinions, statements, estimates and projections in this presentation (including other media) are solely those of the individual author(s) at the time of writing and do not necessarily reflect the opinions of IHS Markit. Neither IHS Markit nor the author(s) has any obligation to update this presentation in the event that any content, opinion, statement, estimate or projection (collectively, "information") changes or subsequently becomes inaccurate.

IHS Markit makes no warranty, expressed or implied, as to the accuracy, completeness or timeliness of any information in this presentation, and shall not in any way be liable to any

recipient for any inaccuracies or omissions. Without limiting the foregoing, IHS Markit shall have no liability whatsoever to any recipient, whether in contract, in tort (including negligence), under warranty, under statute or otherwise, in respect of any loss or damage suffered by any recipient as a result of or in connection with any information provided, or any course of action determined, by it or any third party, whether or not based on any information provided.

The inclusion of a link to an external website by IHS Markit should not be understood to be an endorsement of that website or the site's owners (or their products/services). IHS Markit is not responsible for either the content or output of external websites.

Copyright ©2017, IHS Markit. All rights reserved and all intellectual property rights are retained by IHS Markit.