

INSIDE LOOK AT PROCESSING

As Processors Seek More Information, AspenTech Can Offer Solutions

It's been said before, but it bears repeating: The midstream industry is booming with new construction projects springing up not just in North America, but around the globe. Thus far we have seen a number of large LNG projects in Australia, and Europe, South America and Asian countries are involved in unconventional E&P operations that will soon require midstream infrastructure build-out.

In the past few years there have been a number of international energy companies investing in North American shale production assets in order to learn how to translate unconventional development and technology in their own backyards. Arguably the biggest of these investors has been China, which acquired a 33% interest in Chesapeake Energy's South Eagle Ford leaseholds.

"China will be taking on a more prominent focus on their shale gas plays, which will drive significant infrastructure build-out," Ken Dooley, industry marketing manager at AspenTech, told *Midstream Monitor*.

China's build-out could occur relatively fast as the country will benefit from working with an experienced shale gas producer in Chesapeake, as well as the fact that the country lacks many of the regulatory and political hurdles that other countries face in regard to hydraulic fracturing and water safety.

"I think China will very quickly accelerate their development because of their North American shale investments and the knowledge gained from working with proven technologies. I think in the next several years we're going to see some significant construction there because it's not bound," he said.

China's midstream infrastructure needs are very widespread since the country has historically favored oil production and because current facilities are fairly old. As the country expands its shale production, these production centers and hubs will be located in other regions than have been focused on the past. This will mean that the country will largely be starting from ground zero in terms of midstream operations with a need for processing and treating facilities, compressors and pipelines that are not in place today.

In addition to its domestic resources China is also tied into many of the offshore LNG projects in Australia as the primary customer, which will require the construction of new receiving and regasification terminals.

"These investments are taking place on the coastal regions, but from there they will be investing in distribution networks to move this gas within the country to power plants and chemical plants. These networks could eventually be tied into their systems directed at their shale resource developments and lead to more investments in the country's interior region," Sanjeev Mullick, AspenTech's director of industry marketing, said.

AspenTech is one of the largest suppliers of process simulation software, including Aspen HYSYS. This modeling software is used in the design, optimization, planning, management and monitoring of oil and gas production, natural gas processing, and petroleum refining.

"Once volumes are flowing out of the well, our tools are designed to work with processing facilities, compressors, gathering systems, oil and gas separa-



Sanjeev Mullick, Director, Industry Marketing at AspenTech (Courtesy: AspenTech)

tion facilities, gas-treating plants and dehydration units. Many of our tools are then used to help a customer monitor the operations of these facilities, troubleshoot them and help optimize the production and maximize the margins," Mullick said.

Being used so extensively in the industry, especially in construction and operations, the company is able to provide a pretty strong outlook for not just new builds, but where the processing industry is headed.

"We offer the technical solutions to help companies design and manage plants in a very efficient way by maximizing engineering and production activity. This is why E&C companies such as KBR, Jacobs, WorleyParsons, Foster Wheeler and Technip have standardized on our portfolio. Our products help them design these facilities in a very productive and efficient fashion, including optimizing the designs for performance and

in terms of capital and operating costs,” Mullick said.

Between 50% and 60% of the company’s business comes from outside North America, and both Mullick and Dooley noted that customers were beginning to increase their use of the company’s simulations to monitor carbon emissions. Mullick added, “We’ve seen this trend grow over the last four to five years, especially in Canada, Australia and Europe, which all have tight regulations for a variety of emissions.”

Many of the company’s customers in these countries are using software they developed on top of HYSYS to keep track of their emissions and make reports to regulatory agencies on a daily basis. This enables them to predict where emissions are going in any given month and make adjustments to stay within their allotted emission level.

Such usage has become so popular that AspenTech’s latest versions of HYSYS and Aspen Plus, which are used by petrochemical manufacturers, track carbon emission potential on every stream and piece of equipment. “Whenever you do a simulation, even during design, you will know the carbon emission potential of each design. It can even calculate the potential carbon tax if there is one in place in that country,” he added.

Although it doesn’t appear that federal cap-and-trade legislation on carbon emissions will be getting passed anytime soon in the United States, domestic producers and midstream monitors can benefit from having the capability to track emissions should state or federal emission reduction legislation eventually pass.

In addition to China and South America, there is also a lot of oil and gas construction activity in India, the Middle East and Russia. “From a long-term trend, we are seeing a lot of demands for our products in these regions because of new

construction. It’s related to both new production as well as increased demand for plastics and other petrochemicals from growing populations,” Mullick said.

While the rest of the world is just beginning to eye midstream growth because of the advent of shale plays, the U.S. remains the largest shale gas player in the world. This is, of course, leading to not just an incredible increase in natural gas and oil production from unconventional plays, but to new infrastructure to transport these volumes since the regions this production is coming from hasn’t been a focal point for the energy industry in recent memory.

This has seen quite an uptick in midstream construction projects in the “hot” shale plays such as the Marcellus, Bakken and Eagle Ford, along with more mature shales such as the Barnett and Haynesville.

In the case of the Marcellus, there is uncertainty as to whether there will be much more processing growth outside of the MarkWest Liberty system, but there

is still a great need for additional transportation capacity out of the play to regions with spare capacity.

The same holds true for petrochemical plants, where companies such as Shell, Dow and ChevronPhillips have expressed interest in building ethane crackers in the Gulf Coast or Northeast. Even if an ethane cracker isn’t built in the Northeast, there will still be a need for a pipeline to transport ethane from the Marcellus to crackers in the Gulf Coast and/or Sarnia, Canada.

“The prevalence of shale gas and liquids has flipped the economics to the point where the U.S. is one of the most economic regions for petrochemical production. We now find that a lot of customers are looking at projects to enhance or build new petrochemical plants in the U.S. At \$2.50-\$3.00 per million Btu, shale gas and associated NGLs are the cheapest source for energy and raw materials,” Mullick said.

Although the Northeast is one of the regions of the U.S. that will be experiencing the most new midstream construction, it is unlikely to become a major hub because of political and regulatory issues, according to Dooley.

“There are two issues in the Northeast: one is the actual building out of the infrastructure and the other is the roadblocks from local, regional or state groups that will accompany these build-outs. Creating a Northeast hub certainly makes sense from a logistical and technical standpoint. However, I think the barriers will make it difficult,” he said.

The same holds true for the bottlenecks that the industry is experiencing in the Midcontinent at Cushing and Conway. “These bottlenecks are non-technical, which makes it very difficult to predict when they’ll actually be lifted. There are political and regulatory issues and in some cases there’s uncertainty,

KEY NORTH AMERICAN HUB PRICES	
2:30 PM CST / March 15, 2012	
Gas Hub Name	Current Price
Carthage, TX	1.95
Katy Hub, TX	1.96
Waha Hub, TX	1.97
Henry Hub, LA	2.07
Perryville, LA	1.97
Houston Ship Channel	1.98
Agua Dulce, TX	2.64
Opal Hub, Wyo.	1.93
Blance Hub, NM	1.91
Cheyenne Hub, Wyo.	1.87
Chicago Hub	2.03
Ellisburg NE Hub	2.07
New York Hub	2.14
AECO, Alberta	1.83

Source: Bloomberg

which is probably the worst thing for businesses,” Dooley said. “Right now, things are almost at a standstill in the Midcontinent until the Keystone XL decision is finalized. I think there’s a finality that if Canadian producers make the decision to steer the oil sands production to the West Coast for export, it will be very hard to reverse that decision and steer this production to the Gulf Coast.”

The prolific nature of shale plays has helped to lower U.S. natural gas prices to the point where it is amongst the cheapest in the world and could provide producers with extremely attractive margins should it be exported to higher-priced regions such as Europe and Asia.

Already several U.S. LNG import terminals owners are seeking to reconfigure their facilities to act as export terminals. “If the U.S. gets into the gas export business, European markets will be the biggest target markets,” Mullick said. That would lead to the construction of new regasification terminals in these markets, he added.

Lower gas prices have caused producers to divert rigs to liquids-rich plays because of the higher liquids and oil prices. In an effort to optimize their per-

formance and production, AspenTech customers have also used the company’s simulation tools in processing and production optimization to target wells tied into their facilities that will produce more liquids than gas.

“Our customers can switch production from wells to maximize their liquids production if they have the flexibility of switching production from different wells. If they have to deliver certain contracted volumes of gas, they will operate a gas well on a certain day to meet these demands. Above that on the spot market they will favor production, which maximizes their revenue,” Mullick said. The simulation tools that the company offers provides users with this data in near real-time for operational decision support.

This ability could be even more important as both Dooley and Mullick sense that more of the large integrated companies will be getting into the midstream sector. “Several of the large companies have been divesting and splitting back apart. The trend of consolidating everything is now ending,” Dooley said.

“A lot of the investments in shale and early risk taking were done by smaller

and midstream companies. We’ve been seeing the larger players watch from the sidelines and they are now beginning to take equity positions through acquisitions,” Mullick said.

Mullick added that this trend is also taking place in the engineering sector with larger companies acquiring smaller engineering companies. “It’s just the nature of the game where the big guys don’t want to be left out on the engineering, midstream or E&P front. This is especially true in E&P since the international oil companies are getting access to fewer and fewer production assets – especially internationally, where the assets are controlled by governments and their national oil companies. Shale is one way for these companies to grow their proven reserves.”

Regardless of the customer, Mullick is confident that AspenTech can provide them with valuable tools for their projects. “We have been very successful in selling to our engineering customers as well as the owner-operators who pay for these projects is that there is a better way of doing things by integrating the engineering workflow. In most projects, 80% of the costs get locked in before most of the engineering is done, and that is because decisions have to be made very early. By enabling early insight and collaboration between engineering disciplines, our customers are able to optimize designs for better performance and return on investment.”

More companies are beginning to utilize concurrent engineering on their projects with these sorts of solutions, which allows companies to screen and optimize more options early in the process.

– Frank Nieto

RESIN PRICES – MARKET UPDATE – MARCH 16 2012

TOTAL OFFERS: 20,328,752 lbs		SPOT		CONTRACT	
Resin	Total lbs	Low	High	Bid	Offer
LLDPE - Film	3,730,992	0.73	0.78	0.67	0.71
LDPE - Film	2,966,876	0.74	0.84	0.72	0.76
PP Homopolymer - Inj	2,908,416	0.77	0.85	0.77	0.81
HDPE - Inj	2,425,060	0.71	0.74	0.66	0.70
HDPE - Blow Mold	2,355,956	0.64	0.76	0.65	0.69
PP Copolymer - Inj	2,157,668	0.70	0.88	0.79	0.83
HMWPE - Film	1,234,576	0.75	0.76	0.70	0.74
LDPE - Inj	1,184,208	0.72	0.85	0.72	0.76
GPPS	615,000	0.86	0.86	0.87	0.92
HIPS	380,000	1.01	1.03	0.98	1.03
LLDPE - Inj	370,000	0.77	0.79	0.70	0.74