Navigating the Crude Cycle

3 strategic actions for North American midstream energy companies
Seizing opportunities to expand and realize improved results from agility

High performance. Delivered.
The aftereffects of lower and more volatile oil prices have varied greatly across the energy industry. Exploration and production companies have been affected the most negatively since prices started plummeting in 2014, and the upstream sector's underlying reserve value basis dropped by approximately 50 percent. Downstream companies, on the other hand, have benefited from reduced costs for refining operations and chemical feedstocks.

Midstream companies—which offer processing of natural gas, and transportation and storage of crude oil, natural gas and natural gas liquids—can have steady revenue streams despite price fluctuations. But potential volume and credit risks grow as upstream customers incur financial problems.

Well-capitalized companies are poised to take advantage of opportunities. Accenture has identified three primary areas of focus for the midstream sector:

1. **Expand the footprint.**
   Capitalize on market shifts and attractive valuations to increase scale, improve geographic and business-line diversification, and build an improved platform for growth.

2. **Adopt agile operating models.**
   The ability to flex with commodity price cycles enables nimble midstream players to take advantage of volatile business conditions.

3. **Emphasize safe and reliable operations.**
   This focus is essential for retaining the license to operate, seeking to achieve operational excellence and generating sufficient support for expansion.
**Key challenges for the midstream sector**

By connecting supply with demand, the midstream sector is challenged to anticipate changes reverberating from volatility. Integrated energy companies are reviewing capital spending, shifting capital from upstream to downstream or to midstream projects (Figure 1).

Due to the multiyear lag between upstream drilling and midstream investments, the sector is still catching up with the furious pace of shale-driven growth of the past five years. Despite drilling cuts, layoffs and deferred capital projects upstream, levels of production have remained high. Although the rig count is down, production in many cases has increased, thereby fueling demand for greater connectivity (Figure 2). While overall production is expected to grow through 2016, we may see declines in some basins, limiting volumes through some midstream networks.

Along with price volatility, additional issues challenging the midstream sector in North America are:

- Aging infrastructure, which can undermine safety and efficient operations.
- New regulations, particularly in regard to safe rail transport.
- Reconfiguring assets and flows (e.g., line reversals, switching from gas to oil and vice versa, and building new infrastructure for unconventional energy).
- Keeping pace with demand for refining and chemicals being driven by favorable prices for raw materials.
- An extended regulatory process to secure approvals for export of liquefied natural gas.

Strategies are needed to reverse the decline of returns experienced by most midstream companies in fiscal years 2012 through 2014 (Figure 3). The need to add value drives the three actions Accenture describes in the remainder of this paper.

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**Figure 1. Midstream is the connector for upstream and downstream sectors.**

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<tr>
<th>Upstream</th>
<th>Midstream</th>
<th>Downstream</th>
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<tbody>
<tr>
<td>Oil</td>
<td>Transportation (Truck, Rail, Barge, Pipeline)</td>
<td>Refining and Marketing</td>
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<tr>
<td></td>
<td>Gathering and Processing</td>
<td>Natural Gas Liquids (NGLs) Terminals and Transportation</td>
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<td></td>
<td>Fee</td>
<td>Residential, Industrial and Power</td>
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<td>Percent of Proceeds (POP)</td>
<td>Chemicals</td>
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<td>Keep Whole (KW)</td>
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<td>Fractionation</td>
<td>Natural Gas Liquids Terminals and Transportation</td>
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Source: Accenture.
Figure 2. Overview of recent US drilling and production trends.

Change in Rig Count, October 2014 – May 2015(e)
Change in Oil and Natural Gas Production, October 2014 – May 2015(e)

Legend

Sources:
Drillinginfo Map (http://info.drillinginfo.com/unconventional-play-development-in-one-map/)
EIA Drilling Productivity Report, April 2015 (http://www.eia.gov/petroleum/drilling/) 
EIA STEO May 2015 (http://www.eia.gov/forecasts/steo/data.cfm) 
Accenture analysis.

Figure 3. Returns have declined across most midstream companies, which continue to operate at negative returns.

Drivers of Shareholder Value – Revenue Growth vs. Returns
FY 12/2012 – FY 12/2014; Returns - Annual (Mid-Year ROIC with Goodwill - WACC)

Note: Last reported returns of FY 12/2014 have been used for all companies; WACC has been sourced from analyst reports; company names have been masked and categorized. Source: Companies’ Quarterly and Annual Reports; Accenture analysis.
Strategies for midstream energy companies

By capitalizing on market shifts and attractive valuations, midstream companies have opportunities to expand. Price volatility and changes up and downstream are making the case for nimble operating models to increase returns and better navigate crude and natural gas cycles.

Due to increasing scrutiny of safety and environmental issues, midstream companies also need to pursue safe operations to retain the license to operate and win support for expansion. What follows is a closer look at each of these areas.
Expand the footprint.

Capitalize on market shifts and attractive valuations to expand inorganically. Increase scale and diversification—geographically and in business lines—and build an improved platform for growth.

Deals for pipeline, processing and storage assets were churning in the first few months of 2015 with 30, which was similar to the same period in 2014 but with a much higher value of $30.7 billion. Among the largest were Energy Transfer Equity’s acquisition of affiliate Regency Energy Partners for $17.9 billion and Kinder Morgan’s purchase of Hiland Partners from Harold Hamm and his family for $3 billion.

The latter deal allowed Hamm to monetize midstream assets within his upstream portfolio, which allowed him to generate capital and focus more narrowly on upstream while giving Kinder an opportunity to pick up new assets in an attractive basin. Due to financial distress in the upstream space, more of these types of deals are likely, and midstream companies have opportunities to add to their asset bases.

Master limited partnerships (MLPs), in particular, need to feed the beast and continue to grow to satisfy distribution needs. Due to the number of companies chasing opportunities in the midstream sector—more than 140 by one count—consolidation is inevitable. Witness Enterprise Products Partners picking up Oiltanking Partners for $6 billion; Targa Resources and its MLP buying Atlas Energy and Atlas Pipeline Partners for $7.7 billion; and Tesoro Logistics’ acquisition of QEP Resources’ midstream business for $2.5 billion.

Larger investment-grade midstream names are likely to be acquirers, as they are better positioned due to liquidity and access to capital markets. Purchasing assets can help provide greater scale, geographic and business line diversity, and a solid platform for future growth.

Some areas of attention for midstream companies include diversifying the asset portfolio, improving product interconnects and transportation options, and making better use of storage capacity.

- **Asset portfolio diversification.** Gas companies are adding liquids assets, and upstream gathering companies are adding downstream terminaling assets. Upstream players are shedding non-core assets that fit better into midstream portfolios. An example is Pioneer Natural Resources Co. and Reliance Holding USA Inc. selling their Eagle Ford Shale Midstream business to Enterprise Products Partners LP for $2.15 billion.

Figure 4. US comparison of crude-oil inventories and capacity by Petroleum Administration for Defense Districts (PADDs).

![Figure 4. US comparison of crude-oil inventories and capacity by Petroleum Administration for Defense Districts (PADDs).](image-url)
• **Opportunities to add product interconnects and transportation.**
Lower prices for natural gas liquids (NGLs) and other chemical feedstocks could result in additional demand. Chemical plant or similar expansions and additions provide opportunities for midstream companies to add NGLs or products capacity. PTT Global Chemical Plc, Thailand’s biggest petrochemical maker, expects to sign a US$5 billion joint-venture agreement with a Japanese partner to develop a petrochemical complex near the Marcellus Formation in the United States.7

In addition, the construction of facilities for exporting liquefied natural gas along the US Gulf Coast would expand markets and generate new interconnect opportunities.

• **Market additional storage capacity.**
US inventories remain at their highest levels in at least 80 years, according to the Energy Information Administration (EIA).8 Midstream companies, however, need to optimize existing facilities before adding capacity.

Inventory data for February 2015 showed total utilization of crude oil storage capacity in the United States at approximately 60 percent, compared with 48 percent at the same time the previous year.9 Most US crude oil stocks are held in the Midwest and Gulf Coast, where storage tanks were at 69 percent and 56 percent of capacity, respectively (Figure 4).

More storage tanks are being built in the United States, and some large tanker ships are being leased to house oil. Fairway Energy Partners LLC is planning to use underground salt caverns, located two miles south of NRG Stadium in Houston, to store nearly 19 million barrels of crude oil by the end of 2016.10
Adopt agile operating models.

An enhanced ability to flex with commodity price cycles enables midstream companies to turn price volatility into an advantage.

Shifting production patterns and demand changes can spur reassessment of the midstream operating model and asset footprint. Nimble operating models can help companies benefit from these shifts.

A nimble operating model allows a company to adjust faster to external market changes. This model is characterized by a core platform with “plug and play” capabilities for adding and shedding of assets, businesses, capabilities and services (“unplug and sell”). It also allows for rapid reconfiguration of contract portfolios and thus active management of risk exposure. Prerequisites for the nimble operating model are systems, processes, organization structures and legal boundaries around the operating footprint that enable fungibility. For the contract portfolio, this translates into much enhanced optionality.

- **Scenario planning.** Assuming lower prices and volatility are the new normal, scenario planning is useful for time horizons of six to 18 months. For example, how might basin preferences shift in view of a flattening and evolving supply cost curve? Companies need scenario planning and frameworks to iteratively go through rebalancing of portfolios.

- **Reassess the gas/liquids ratio.** A nimble operating model could help a midstream company capture differential plays for natural gas liquids, lightly processed crude, products and numerous blends. Assessing exposure to different commodity classes helps to build more balanced portfolios.

- **Review the slate of crude-oil capital projects.** Realigning their reserve portfolios, upstream players are delaying or abandoning new projects on the higher end of the US$50-$100 price range. They are keeping current producing assets and extracting higher yields from existing wells. The net result could be a drop or delay of crude pipeline, rail and terminal projects for midstream players.

Figure 5. Planned projects for natural gas to enhance flexibility in the US Northeast.

![Figure 5. Planned projects for natural gas to enhance flexibility in the US Northeast.](source: US Energy Information Administration, Pipeline Projects)
• **Shift to fee-based arrangements.** Fixed-fee-based gathering and processing contracts are not impacted by commodity price fluctuations. Keep-whole (KW) and percent-of-proceeds (POP) contracts, on the other hand, expose midstream players to lower prices for oil and liquids. If contracts are rolling off, consider shifting away from KW or POP to fee-based arrangements. It can also help to restructure contracts with upstream clients stipulating minimal volumes flowing through pipelines.

• **Manage credit risk.** This is likely the biggest area of risk for many midstream operators. Some customers may be under pressure to reduce contracted crude pipeline or terminal capacity, or indeed may face bankruptcy. Companies need to understand exit and termination clauses, and devise response and negotiation processes. Crestwood Midstream Partners LP, for example, announced after a gathering and processing customer in the Barnett Shale filed for bankruptcy protection that it expected to participate actively in the legal proceedings.11

• **Engineer more flexible flows.** Most natural gas in North America has flowed from the Gulf Coast and the US and Canadian West to the US Midwest and Northeast. However, with record gas production in shale plays, such as the Marcellus and Utica, pipeline companies are looking to reverse the direction of some pipelines to supply industrial demand on the Gulf Coast (Figure 5). Modifying a line to run in a different direction requires less investment and avoids complex regulatory issues of laying new pipe.

The EIA notes that pipeline companies have planned modifications that will allow 8.3 billion cubic feet of gas per day to leave the Northeast via bidirectional flows.12 If such projects are completed, about 32 percent of natural gas capacity running into the Northeast could be two-way capable by 2017. In the Western region, projects include Rockies Express Pipeline’s 2.5 billion cubic-feet-per-day partial reversal to send gas from the region, according to the EIA.

Further afield, changes are emerging on the export scene. Refiners and other buyers of light oil in Asia are increasing demand for condensate. Overseas prices will need to be considerably higher than in the United States to justify the costs of shipping across hemispheres.

• **Stay on top of regulatory change.** Since the US Department of Commerce has ruled to expand oil exports to lightly processed “condensate,” a debate has emerged as to what qualifies. In December 2014, Commerce detailed why companies could export condensates, including steps to avoid violating export law.13 However, guidance on the definition of condensate was lacking, and the EIA is trying to clarify.
Emphasize safe and reliable operations.

Safety is essential for the license to operate, and for winning support and approval for expansion plans.

In light of media reports on accidents and environmental risks, midstream business leaders need to emphasize safety, asset integrity, regulatory compliance and operational excellence.

A recent National Transportation Safety Board study on the integrity of gas-transmission pipelines focused on highly populated areas and identified weaknesses in inspection plans and federal oversight. Of particular concern: the risk of accidents due to aging infrastructure, such as corrosion in lines installed before 1970.

The study was spurred by pipeline accidents in Florida, California and West Virginia. Explosions and fires killed eight, injured more than 50 and destroyed 41 homes.

“Improving pipeline safety is a critical human safety issue that can and must be improved now,” stated acting NTSB chairman Christopher Hart. The report called for expanded resources to oversee inspections conducted by pipeline companies.

The large increase of crude-by-rail (CBR) shipments demonstrated the sector playing catch-up with production. CBR movements within North America were more than 1 million barrels per day (bbl/d) in 2014, almost a 20-fold increase from 55,000 bbl/d in 2010. Regional distribution of movement has also changed (Figure 6).

Figure 6. Immense growth in crude-by-rail in under five years.

Source: US Energy Information Administration (EIA), March 31, 2015, New EIA monthly data track crude oil movements by rail.
Transportation by rail and truck emerged as alternatives in the high-priced environment, but the economic rationale for these modes has eroded. Low oil prices could speed development of pipelines but to gain approval, the industry needs to emphasize safety.

**Intelligent pipelines.** Midstream companies need highly effective ways to view pipeline assets, enhance situational awareness and run predictive analytics at scale. Digital technologies and the Industrial Internet can be used to integrate internal asset data with operational and integrity data, along with external data such as weather and one-call tickets. This functionality can then visually display assets and asset condition on a map along with interactive dashboards highlighting key facts and output of analytics, enabling operators to make more informed decisions faster, improving safety and integrity and optimizing operations.

**Operational excellence and workforce performance.** Of the 122,000 job losses in the energy industry since December 2014, the midstream sector accounted for a mere 0.2 percent of the total.\(^\text{15}\) Much of the sector seems to be holding the line on headcount or reducing it only slightly. Since the energy industry has been short of talent for many years, midstream operators might consider luring experienced people laid off in other sectors or those who are still employed but receptive to making a change.

Some midstream companies have made reductions due to restructuring or as a response to the sharp decline in prices. DCP Midstream reduced its workforce by approximately 20 percent in a corporate restructuring, resulting in the closing of the company’s Oklahoma City regional office, as well as reductions in the Tulsa and Midland offices.\(^\text{16}\) Enbridge’s Midcoast Energy Partners cut jobs in the domestic gas pipelines and processing unit as the result of reductions in natural gas volumes as prices weakened.\(^\text{17}\)

Considering the desire for operational excellence to improve safety, effectiveness and reliability, midstream companies need to balance cost control with the hunt for talent that can lead to high performance.
Price volatility presents financial distress as well as opportunity, as portfolio realignments within the midstream and adjacent sectors are increasing prospects for acquisition and expansion.

Companies gathering, processing, storing and transporting hydrocarbons need to focus intently on safe and reliable operations. Attention to safety is essential for the license to operate, and midstream companies need to demonstrate a solid ethical record to lay the foundation for expansion.

Nimble operating models can help leaders in the midstream sector enhance organizational adaptability, creating agile businesses that can navigate any aspect of the crude and natural gas cycles to achieve high performance.
Endnotes


2 “Kinder Morgan poised to pounce on midstream M&A opportunities,” SNL Extra, April 15, 2015 © SNL Extra, via Factiva.


7 “PTTGIC eyes deal on shale project in US,” Bangkok Post, April 24, 2015, via Factiva.

8 “Worrying signs as global crude oil inventory hits 80-year high,” Business Standard, March 5, 2015, via Factiva.


About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 336,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world’s most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US$30.0 billion for the fiscal year ended August 31, 2014. Its home page is www.accenture.com.