Re-thinking Traditional Oil & Gas Investment Theses

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November 8, 2018

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Market conditions combined with future realities: Is a new and broader midstream development/investment thesis required?

Prevailing market conditions

- The US and Canada are facing many of the same energy infrastructure issues
- Historic differentials for crude and natural gas (Canada)
- Delays in infrastructure permitting driven by the “keep it in the ground” movement
- Investor uncertainty

Our view on future realities

- Continuing shift to renewable energy
- Crude and natural gas development and utilization will remain key to economies
- Associated gas is a major “wild card”
- Building infrastructure hasn’t been easy and will not get any easier
- Infrastructure (and associated investments) that made sense 10 years ago may not be ideal today…and vice versa
- Under pressure from environmental interests, the US may see a diminished role as a reliable outlet for Canadian crude and natural gas
- US politics and energy policy will continue to impact Canadian crude and gas investment

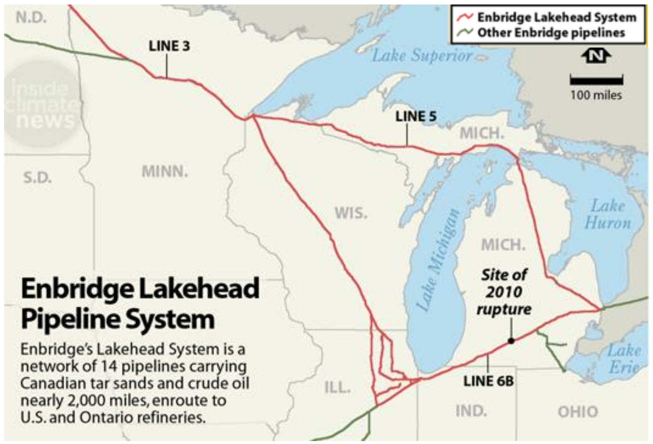
Case study: Michigan midterms and Enbridge's Line 5

With the fate of Line 5 at stake, so too is the primary distribution method of Canada's oil sands to the US Midwest and Ontario.

vs.

Former state senator Gretchen Whitmer

Attorney general Bill Schuette



Energy impacts

- At stake is the future of Enbridge Energy's aging, 645-mile Line 5 oil and NGL pipeline
- Current Governor inked a deal under which Enbridge would build a utility corridor tunnel along the current route to house a new pipeline as well as power and telecommunications cables
- Existing line would remain in service during the project, which is estimated to take up to 10 years
- Whitmer has vowed to move quickly to negotiate the shutdown of Line 5, which carries upwards of **540,000 b/d of crude and NGLs** from Canada's oil sands to the US Midwest and Ontario

US midterms will indicate future US energy policy trends – with corresponding impacts for the investment community

Transformational issues in play for the US energy landscape

- Potential tightening of oil and natural gas supply due to significant restrictions on drilling in Colorado and prohibitions in Coastal Florida
- Major boosts to renewables at the expense of nuclear and fossil-fueled power generation
- Greater obstacles for developers of natural gas infrastructure and gas fired generation in the Northeast
- Greater scrutiny and potential closure of crude lines into and through the US
- Headwinds for rolling-back Obama-era EPA regulations

Further divergence between US Federal and State level energy policy = greater need for exports

- Federal energy policy supports hydrocarbons while states are supporting renewable initiatives
- While federal regulatory authority has a greater influence over production, the states have greater influence on demand growth
- States retain the right to use residual permitting authority to deny or delay gas infrastructure development in support of climate initiatives
- Downstream market participants (utilities) trending to alignment with state energy policies

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Case study: Exploring non-pipeline solutions

Utilities in New England provide examples of different approaches to fulfilling gas requirements.

conEdison	NYSEG	nationalgrid
Dec. 2017 ConEd issued RFP for "non-pipes alternatives" to manage gas growth.	**Dec. 2017** NYSEG sought proposals from developers for innovative, alternative solutions.	**Oct. 2017** National Grid and NYSERDA announced two demonstration projects.

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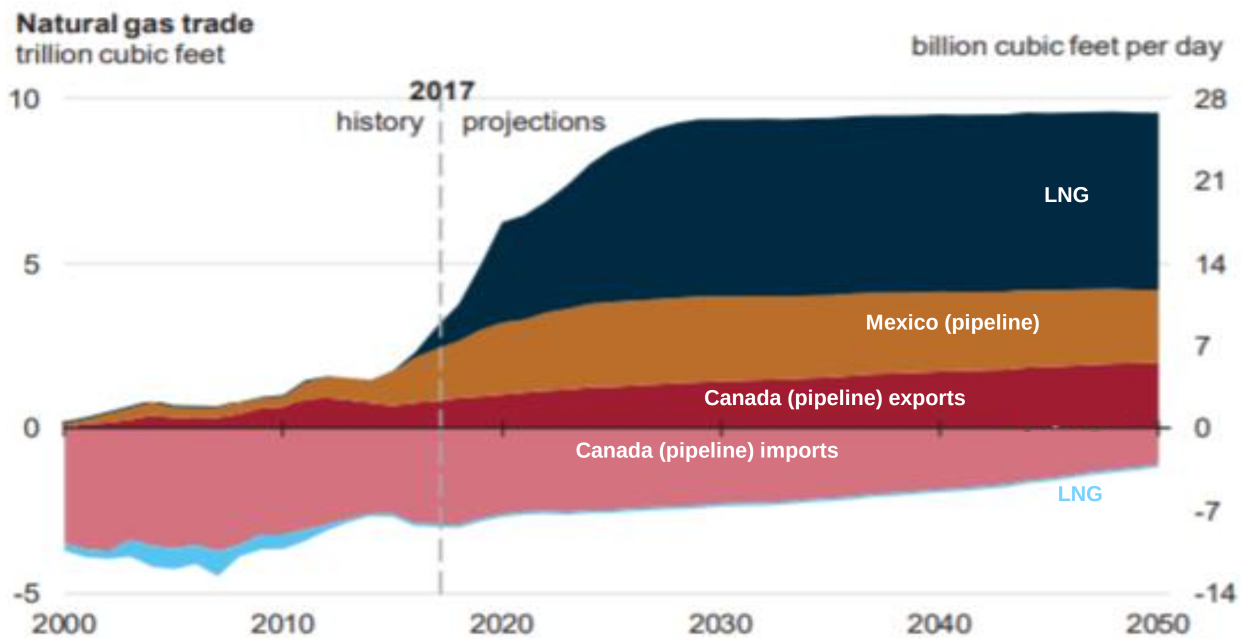
Contrasting US and Canada

In 2017 the US became a net exporter of natural gas – low cost shale and access to global markets via distribution points in the gulf continue to drive position.

Net Exports (Bcf/day)



Will LNG exports impact pricing and asset valuations in the Gulf Region?

 Source: EIA 2018; NEB and StatsCan

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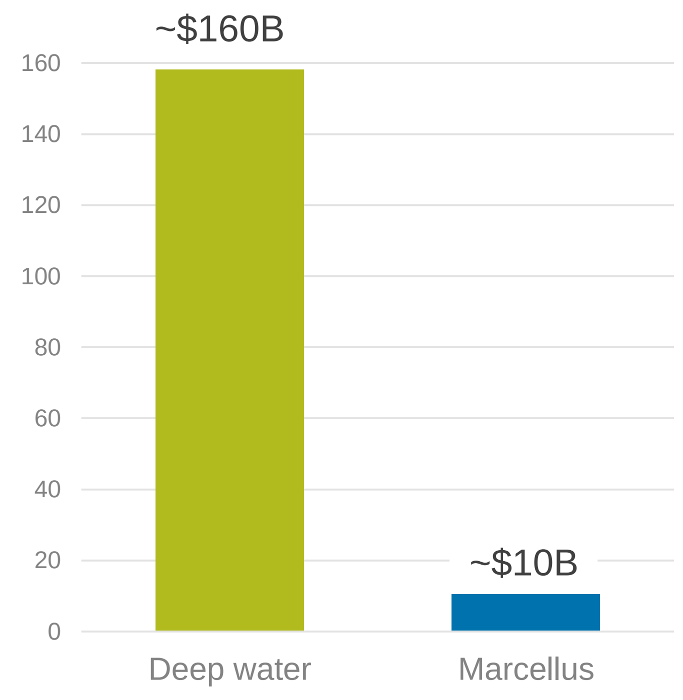
Contrasting US and Canada – The shale effect

Shale production growth is driven by the make up of the players as much as it is driven by the make up of the rock.

- While the size of the shale resource base and production efficiencies are contributing factors to production growth, there may be another structural factor at work
- Shale plays have been dominated by small to midsized operators who lack the capital wherewithal or basin diversity of their “major” counterparts
- Simply put, shale producers have been drilling to cash flow while majors attempt to drill to price
- To their benefit, shale producers have been more efficient in adopting new drilling technologies, allowing this approach to work

Average Market Cap[1] – Deep Water vs. Marcellus Producers



 Source: Nasdaq

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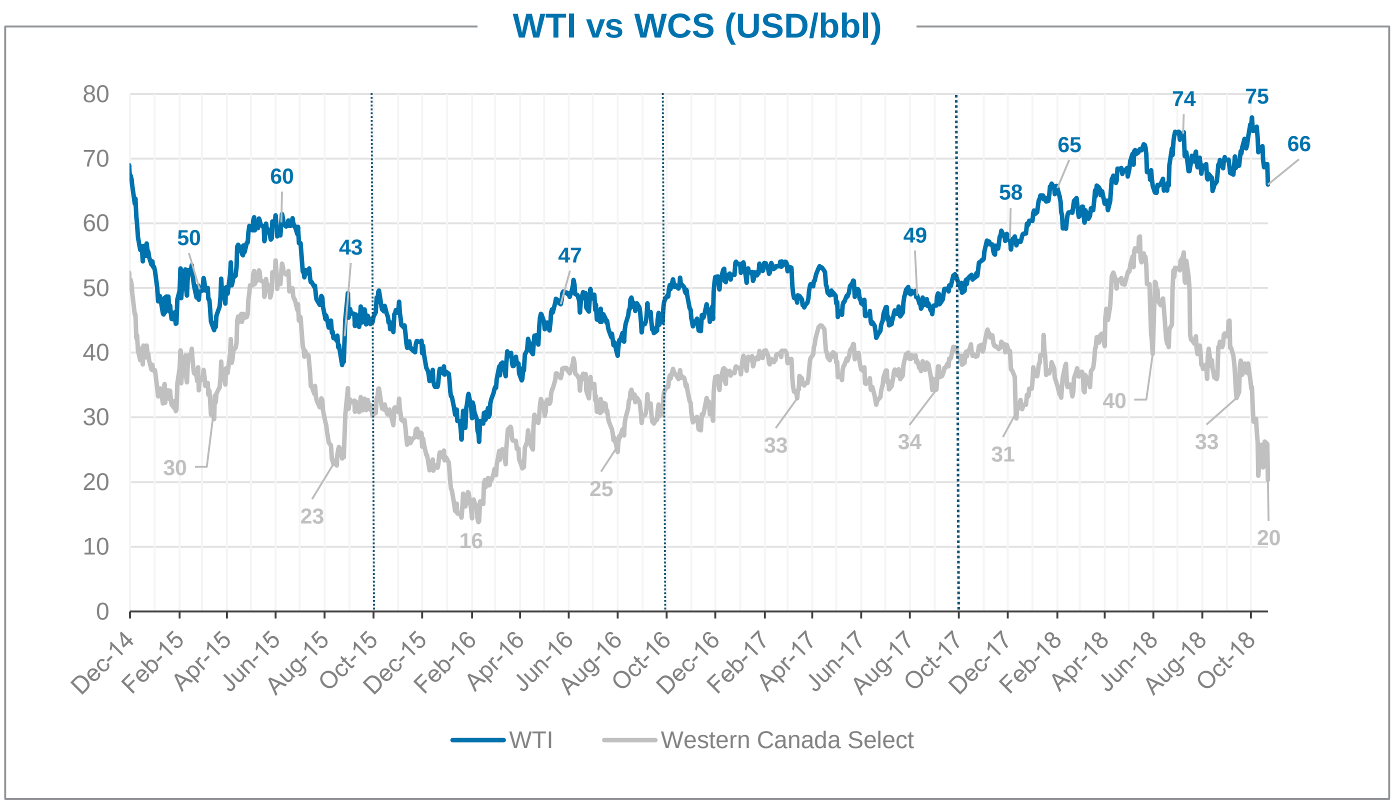
Contrasting US and Canada – Oil pricing outlook

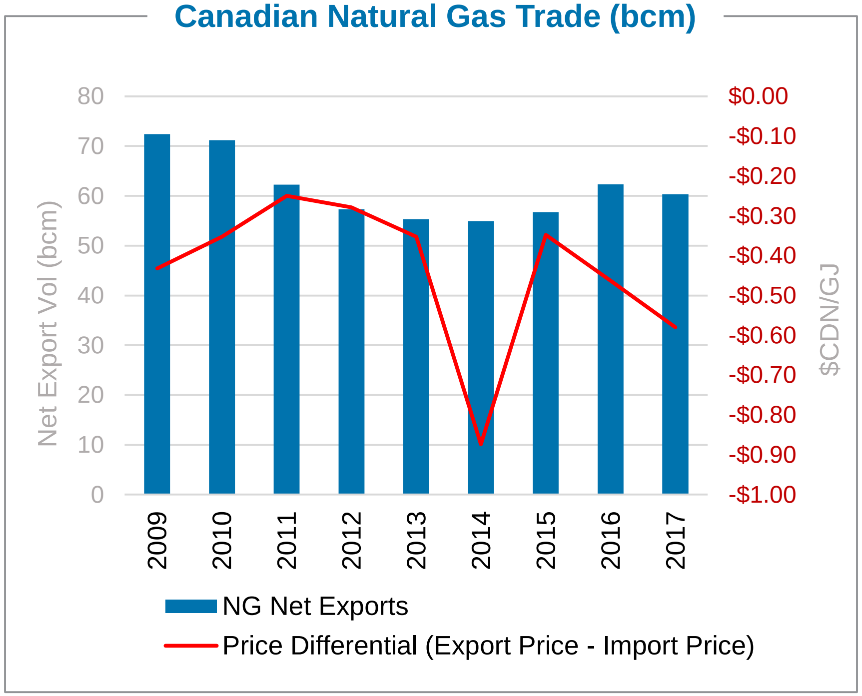
While global markets appear to be recovering, western Canadian oil prices are trading at an unprecedented discount to WTI – western Canada may not be able to take advantage of the global crude market recovery.

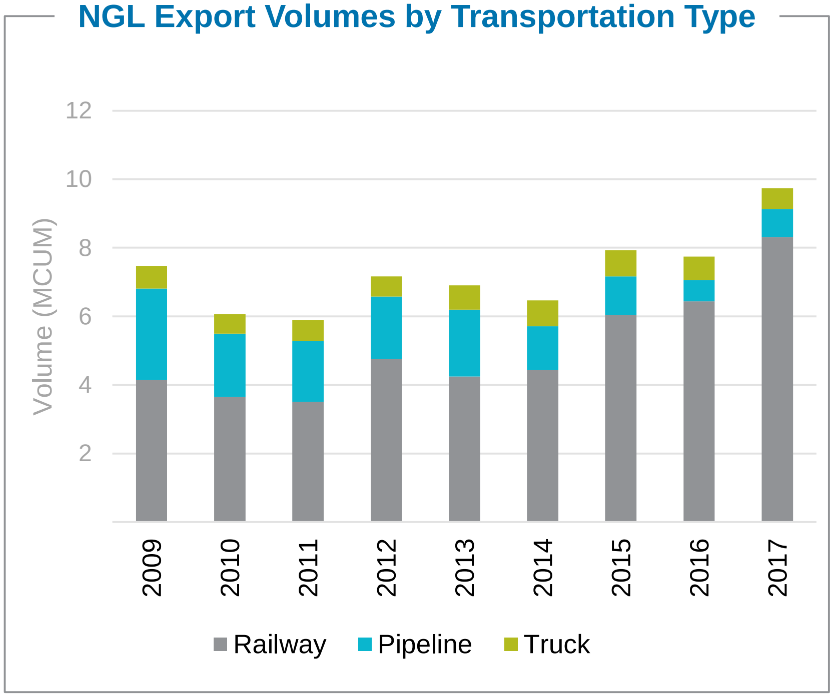


 Source: Bloomberg

Contrasting US and Canada – Gas trade

Canada's net export position of NG and NGL has been flat to decreasing since 2009.





Canada pays more for gas it imports than it receives for gas it exports.

Mode of transportation is increasingly shifting towards rail and away from pipelines.

 Source: EIA 2018; NEB and StatsCan

Impacts for investment

Investors should examine opportunities outside of the traditional “banker” deal flow, prompting a re-examination of investment thesis.

CRA Outlook

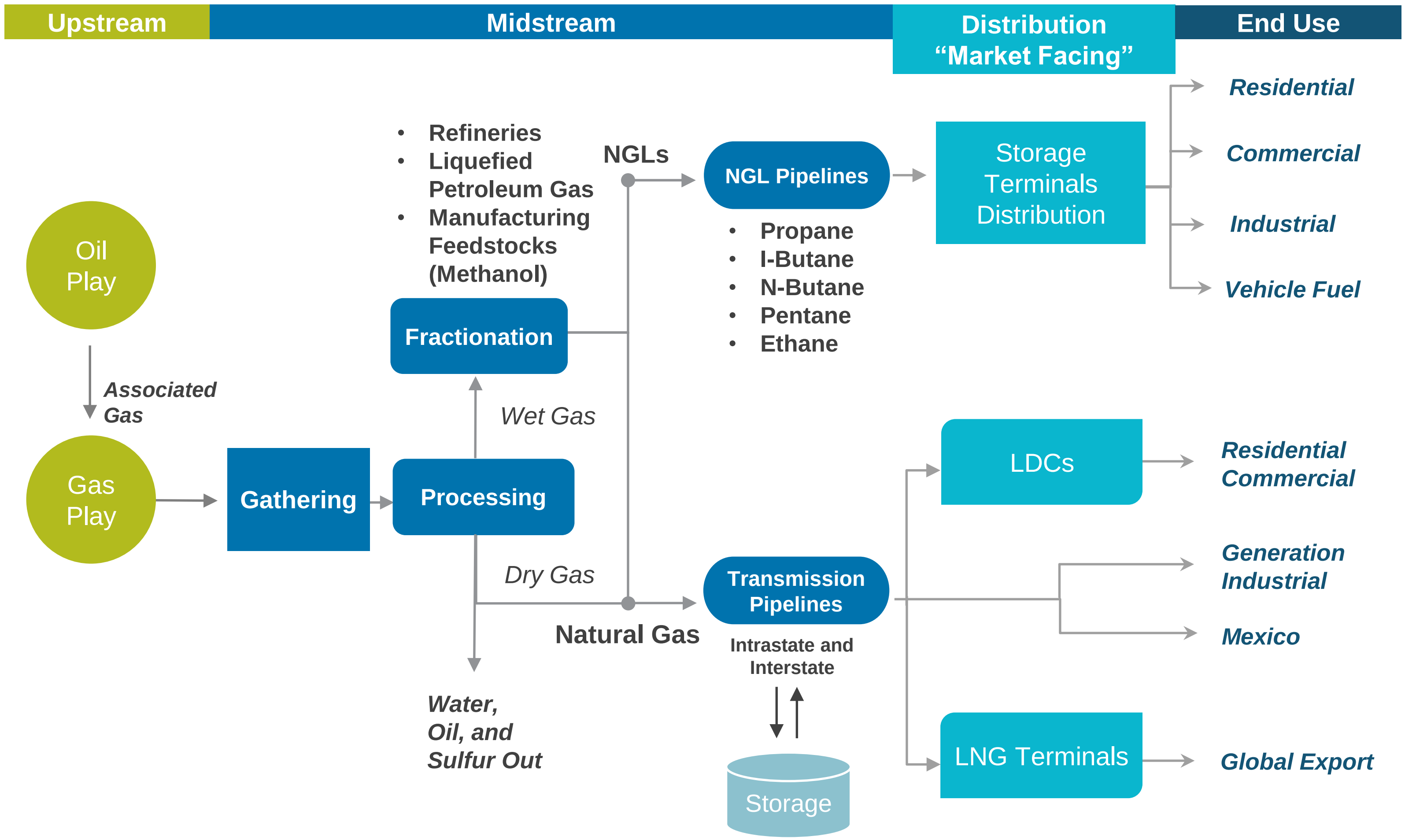
- Continuation and expansion of renewable programs and initiatives
- Continued headwinds for pipeline development in “non-producing” regions
- Greater dependence on export markets (federal jurisdiction)
  - Midstream players will seek path of least resistance
  - Downstream markets (utilities) are pivoting toward state commission recovery mechanisms
  - Financial sector revisiting investment strategy

Key Takeaways

- “Non-pipeline” solutions present greater investment opportunities for “non-strategics”
- Investors should examine opportunities outside of the traditional “banker” deal flow
- Storage may be the sleeper in the midstream sector
- Market Fundamentals in a changing market are having a greater impact on valuations
- Market Facing (value added) Assets may present greater returns with lower volatility

The natural gas value chain

Falling commodity prices don't hurt everybody – while they diminish the return on investment in the upstream, they increase investment value in the downstream.



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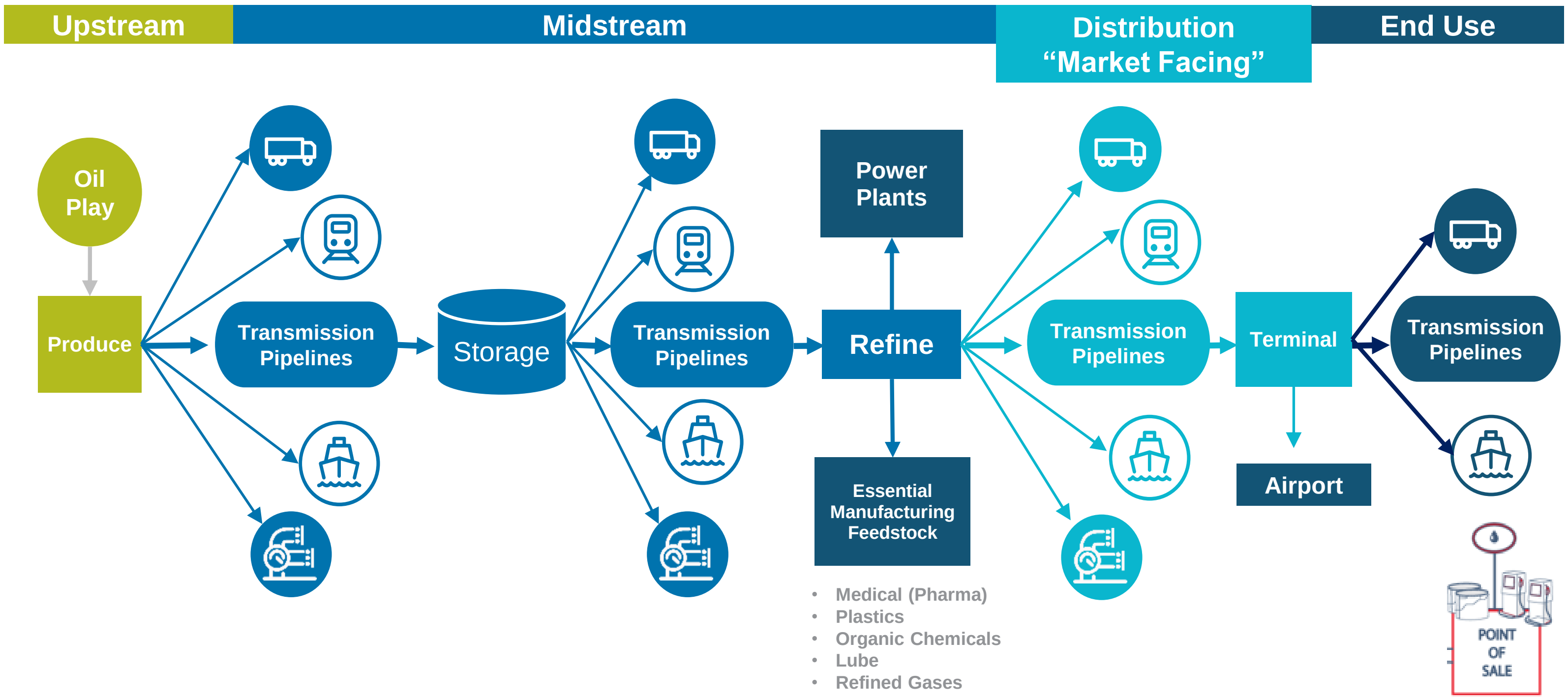
The oil value chain

Is there value in moving end use up closer to production? By increasing the amount of Canadian domestic consumption, there is less reliance on export revenues.



Over the past decade, the US has executed downstream investments totaling $185 billion while Alberta only invested $4 billion – just 2% of the North American total[1]

 Source: [1] EDAC. https://globallnghub.com/wp-content/uploads/2018/10/goa-00905-edac-book-final-web.pdf

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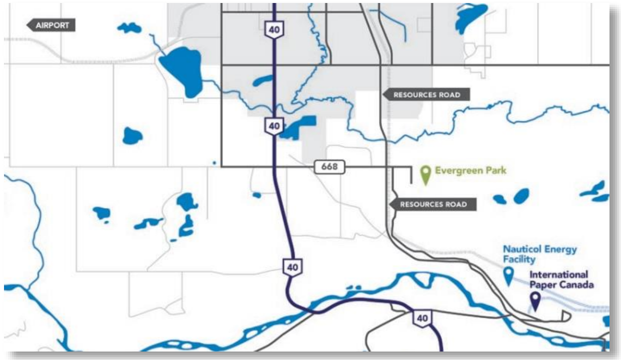
Case study: Downstream infrastructure investments

Low commodity prices drive utilization, while long-term low prices drive investment.

Appalachian Energy Hub

November 9, 2017: China Energy Investment Corp. announced the signing of a MOU to invest $83.7 billion over 20 years. West Virginia's Gross GDP in 2016 was $72.9 billion.

Methanol Plant in Grande Prairie, Alberta



October 9, 2018: Nauticol Energy announced its intention to construct a $2 billion methanol manufacturing facility in Grande Prairie, in the heart of Montney drilling activity.

Concluding remarks

1. Continuing along the present path may mitigate the current trends, but will not eliminate them
2. There is a broader investment set which may present an additional mitigating tool – trending from raw material to value-added industries expands the investment set further
3. Low commodity price environments have negative impacts on the value of upstream investment, but have value creation potential in non-pipe and downstream solutions – case studies indicate increased investment in these areas
4. Absent significant infrastructure investment in distribution points, Canada will continue to struggle to get its products to international markets and will likely continue to experience deeply discounted commodity prices
5. Increasing Canadian domestic O&G consumption (either by improving downstream opportunities and/or moving end users closer to the top of the value chain) may offer an alternative opportunity to alleviate oversupply and low pricing environment, and could prove to be a valuable investment thesis
6. Future Wild Cards – Associated Gas, Storage and LNG dispatch

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Appendix:
Attractive Fundamentals + Limited Assets + Auction = High Valuations

High valuations require a new approach to identifying midstream opportunities

- The current “deal flow” is managed to a large extent by investment banks with a specific formula regarding “actionable” transactions
- This formula does not include many assets, which require some restructuring which may be physical or related to regulatory classification
- Assets outside of the current “deal flow” may represent the greatest opportunity for value creation

Investment Implication

- There are a significant number of assets with latent value that are not being “shopped” due to the extra time or work required for them to realize their full value
- Not being in the deal flow, these assets may be in less crowded spaces or avoid bid up auctions
- Initiating these transactions may create the opportunity to partner with valuable markets, which otherwise has been difficult for PE firms

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Appendix:

Five emerging trends impacting gas infrastructure

Investments outside the traditional investment banking "deal flow" may present the greatest opportunities for value enhancement

Emerging trends

- Diverging State and Federal Policies
  - NG Supply Leading Demand
  - Lower for Longer
- Capital Discipline for Shale Producers
- New Load Patterns – Gas and Electric Sectors
- High valuations require creativity and need to restructure existing assets
- Evolving FERC Policy
- Associated Gas

Gas infrastructure investment opportunity

- Oil and Gas Field Services
- NGL Logistics
- Gathering (Header systems)
- Export Terminals
- Gas-fired generation
- Export related infrastructure
- Storage