Accessing the Energy Evolution

Fourth quarter 2019

Investing in essential assets
Advancements in technology create opportunities

• The world is embarking on a significant energy transition

• Technology advancements have increased production of U.S. oil and gas

• Pipelines play an essential role in transporting energy resources to growing areas of demand, including exports to the rest of the world

Energy value chain

Source: Tortoise
U.S. producing ample amounts of low-cost, lower carbon energy supply

U.S. production outlook

Natural gas

EIA historical • Forecast

Crude oil

EIA historical • Forecast

Natural gas liquids (NGLs)

EIA historical • Forecast

Source: EIA and Tortoise estimates as of 12/31/2019.
The projections on this page are based on industry estimates and are no guarantee of future outcomes.
Robust buildout of energy infrastructure required to facilitate exports to the rest of the world

Infrastructure growth initiatives 2019e - 2021e
Approximately $108 billion in pipeline and related projects

Midstream pipeline attributes

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<th>Real asset class fundamentals</th>
<th>Operating characteristics</th>
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<td>Essential assets</td>
<td>Critical assets that fuel the North American and global economies</td>
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<tr>
<td>Long-lived</td>
<td>Economic lives &gt; 50 years</td>
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<td>Stable recurring revenues</td>
<td>Generally operated with fee-based, long-term contracts</td>
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<td>Inelastic demand</td>
<td>Transports energy commodities used for daily needs</td>
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<td>High barriers to entry</td>
<td>Capital intensive construction</td>
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<td>Monopolistic</td>
<td>Regulatory oversight</td>
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• Impending wave of LNG project buildouts as countries transition from coal to natural gas and renewables
  – India’s demand for LNG is set to increase in its effort to double its share of natural gas in the energy mix by 2030 by deploying more than $140B in committed investments
  – South Korea remains a top importer of U.S. LNG and is likely to continue increasing demand

• Exports to high demand regions such as China, India and Europe remain primary outlet for excess inventory

• Current loading dock capacity for LPGs nearly maxed out, incentivizing approximately 900,000 b/d of capacity additions by midstream operators in 2020

• International Maritime Organization 2020: increases demand for low sulfur light oil with a low residual fuel oil cut

• Shale oil is low in sulfur, easy to refine and contains a higher light-end cut with less “bottom-of-the-barrel” material

Source: IHS and Wood Mackenzie. ¹BP, BTU Analytics, East Daley, EIA and Morgan Stanley as of 12/31/2019. ²EIA, EnVantage, IHS, UBS and Wells Fargo as of 12/31/2019. ³EIA as of 12/31/2019. The projections on this page are based on industry estimates and are no guarantee of future outcomes.
About Tortoise

Tortoise invests in essential assets – those real assets and services that are indispensable to the economy and society. With a steady wins approach and a long-term perspective, Tortoise strives to make a positive impact on clients and communities.