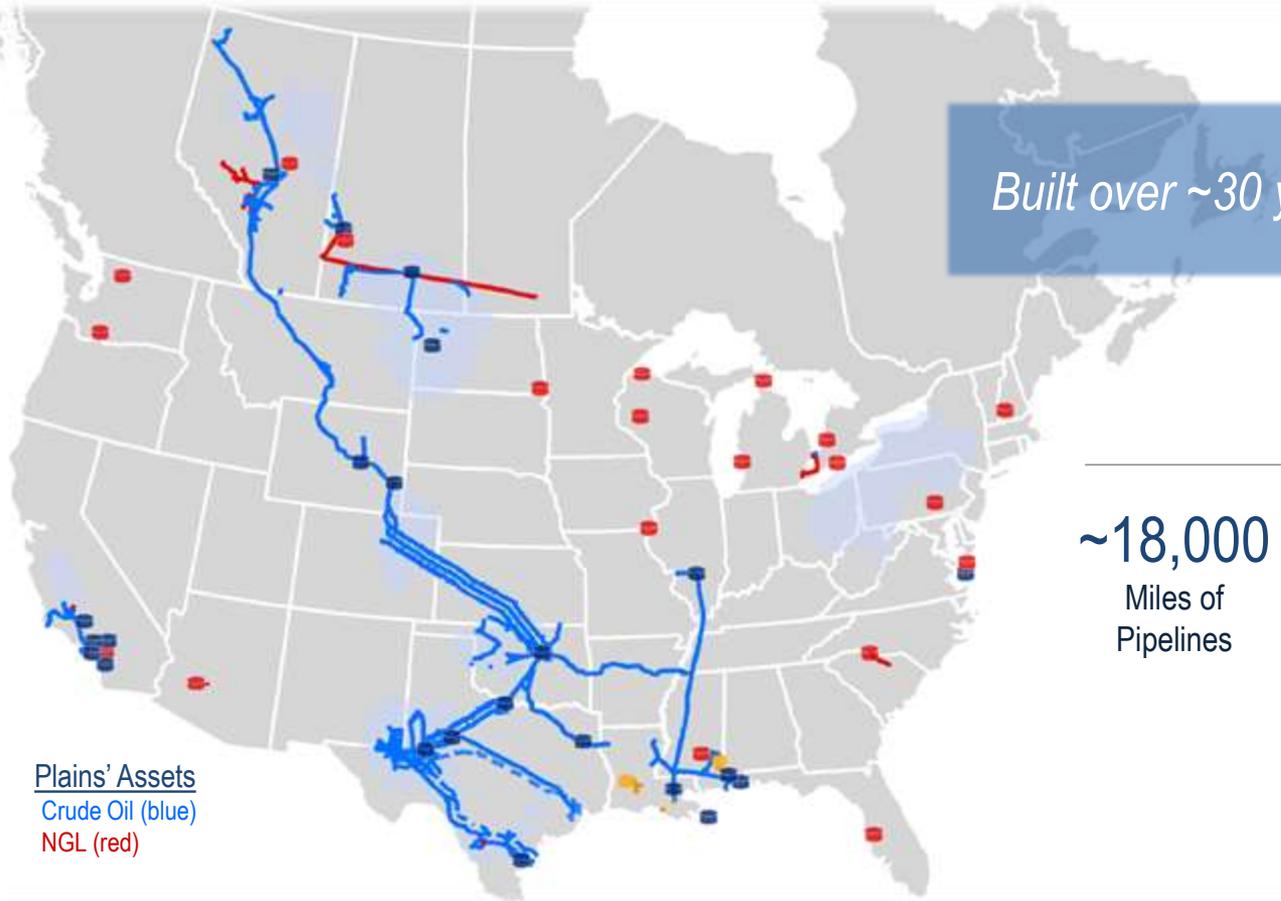


Plains All American: Crude Oil & NGL Transportation Network



Built over ~30 years through multiple cycles.

Relative Size⁽¹⁾

~18,000
Miles of
Pipelines

~6 mmb/d
Transportation
Volumes

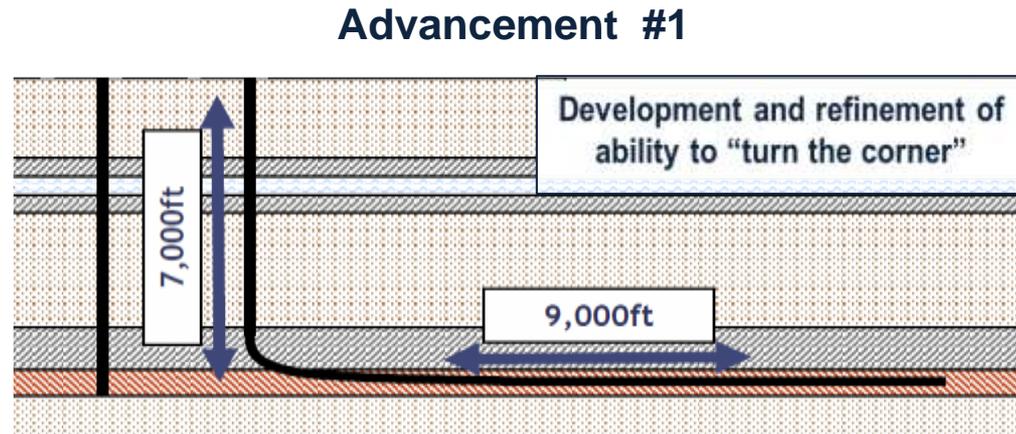
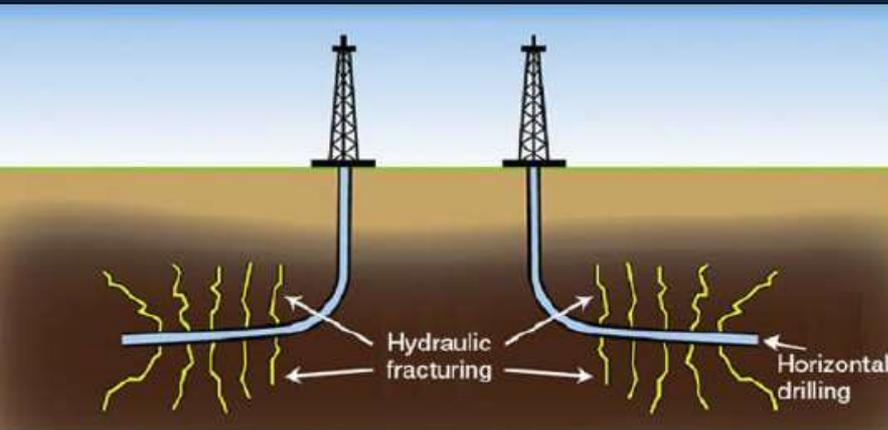
~\$30 bln
Enterprise
Value

Plains' Assets
Crude Oil (blue)
NGL (red)

Note: Map contains only most significant PAA assets, including current projects and equity-investments assets.

(1) Average daily tariff transportation volumes (including trucking) as of 12/31/18;

Technology Breakthrough – Horizontal Drilling & Hydraulic Fracturing – Combination of Two Technological Advancements



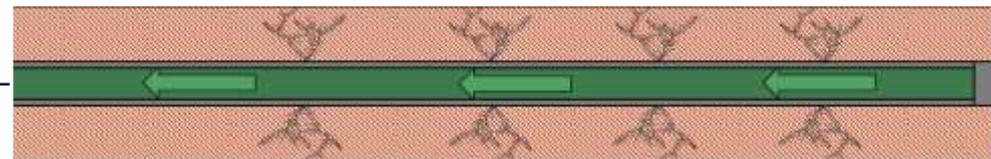
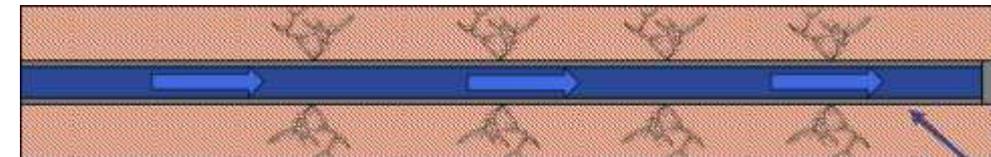
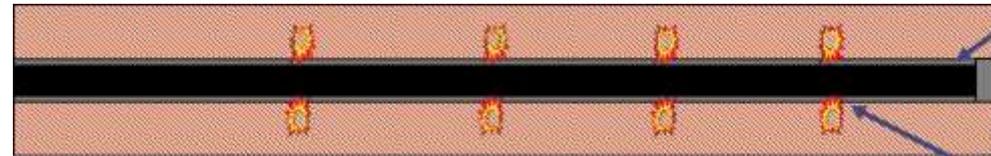
Development & refinement of High Volume Fracturing

Perforate horizontal pipe

Pump water and sand @ high volume & high pressures to create fractures

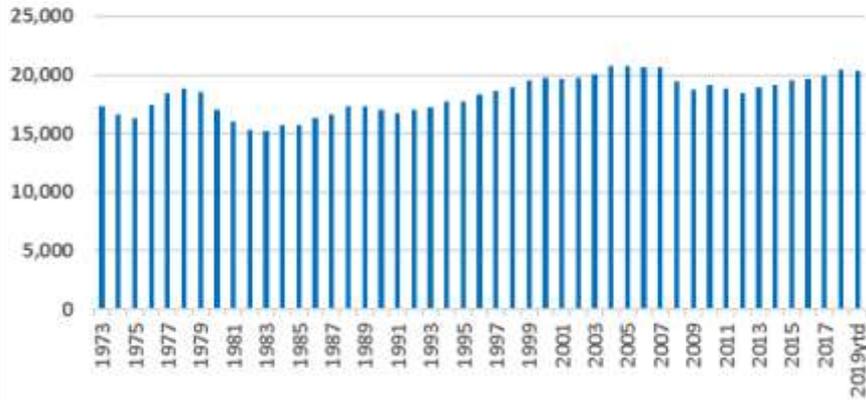
Flow back oil, gas and water through expanded communication fractures

Advancement #2



Very Positive Disruption For U.S. Economy & National Security

U.S. Petroleum Consumption
mmb/d



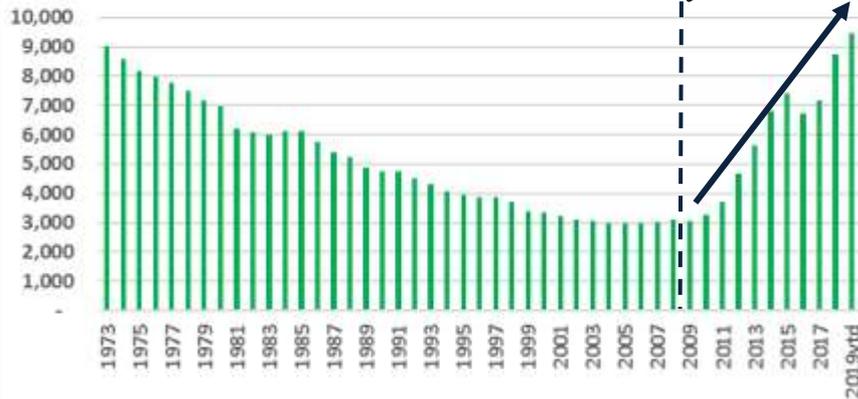
- Against a 30 to 40 year backdrop of stable to increasing petroleum demand...

- Hz drilling & hydraulic fracturing:

- ✓ Facilitated reversal of multi-decade decline in U.S. oil production

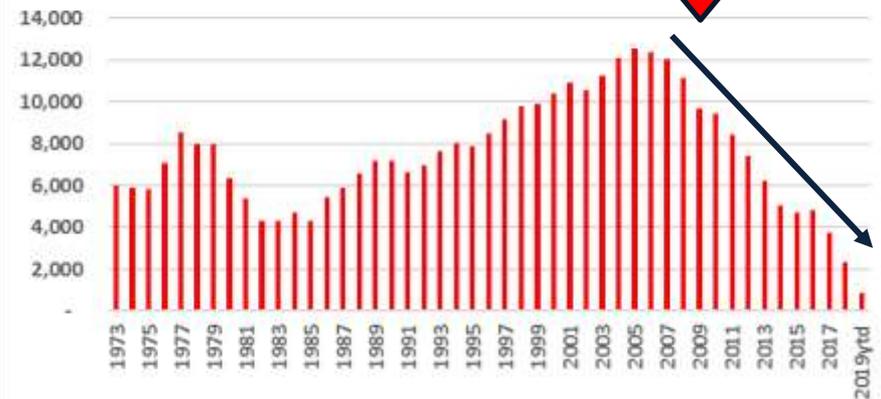
- ✓ Resulting reduction in net imports improved U.S. trade balance by +/- \$250 Billion/year

U.S. L48 Onshore Oil Production
mmb/d



Hz & Hyd Frac

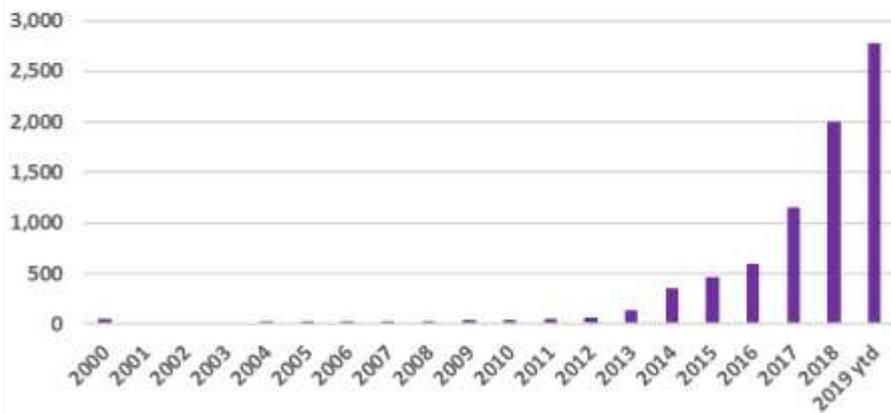
U.S. Net Petroleum Imports
mmb/d



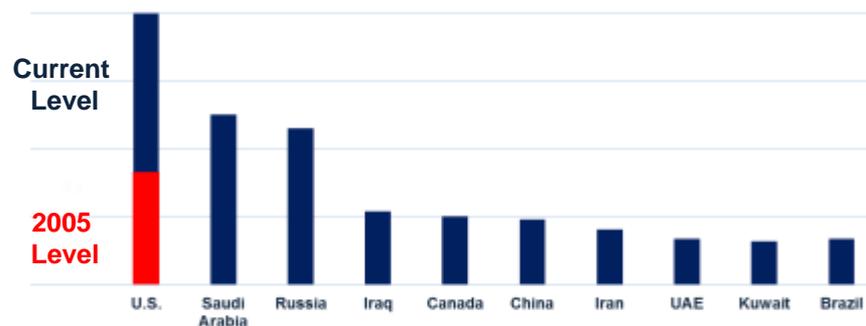
Significantly Changed the Domestic Pipeline Transportation Landscape & Elevated the U.S. Among World Petroleum Powers

- Rapidly filled slack in existing pipelines
- Caused removal of multi-decade restriction on U.S. crude oil exports
- Triggered reversal / conversion of certain pipelines
- Stimulated significant investment in new midstream infrastructure
- Raised U.S. from #3 to #1 petroleum producer worldwide

U.S. Crude Oil Exports
mmb/d



Top Ten Petroleum Producers
(all sources)
(mmb/d)



Also created challenges: new sector entrants, increased competition, margin compression, skilled labor shortage, amplified environmental opposition, etc.