



Tight Oil Resources: Possibilities, Challenges, Policy Implications

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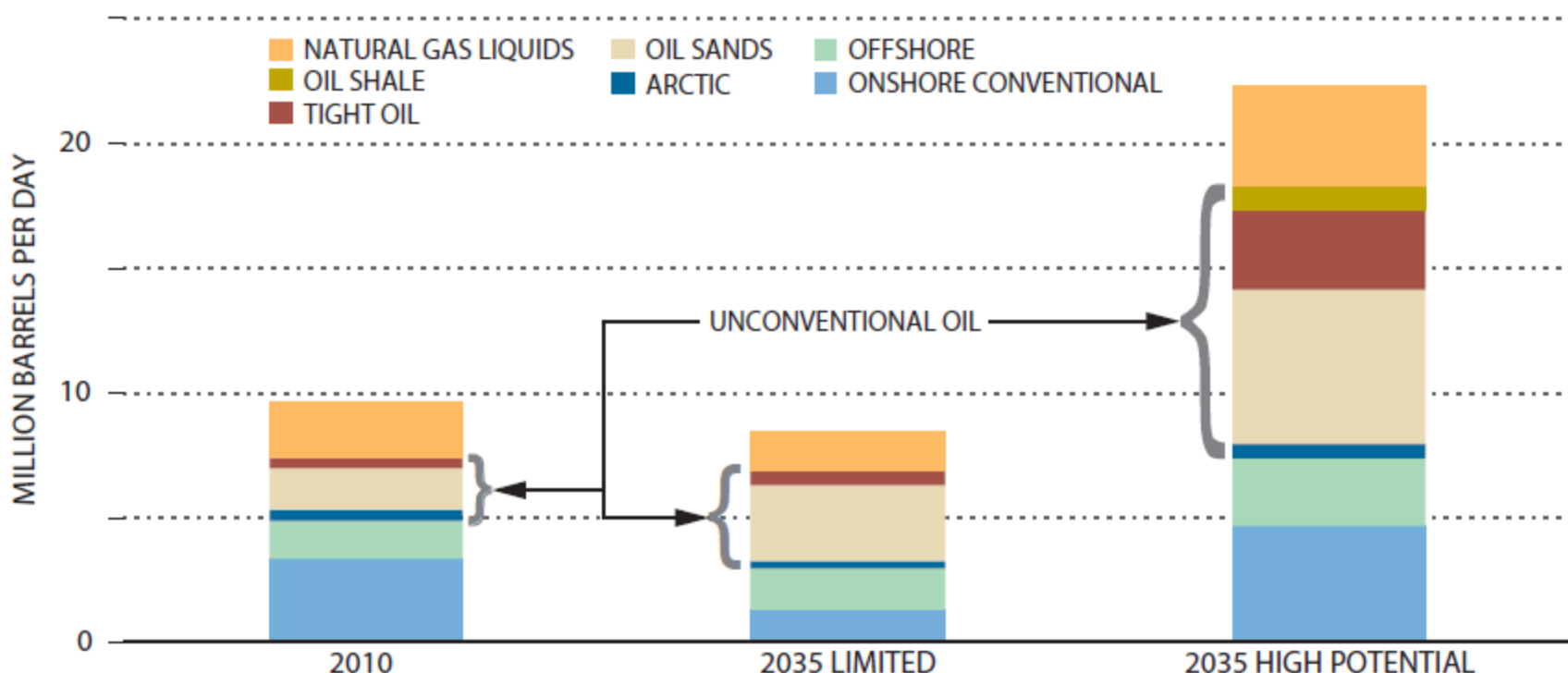
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NA Oil Supply Potential in NPC Study

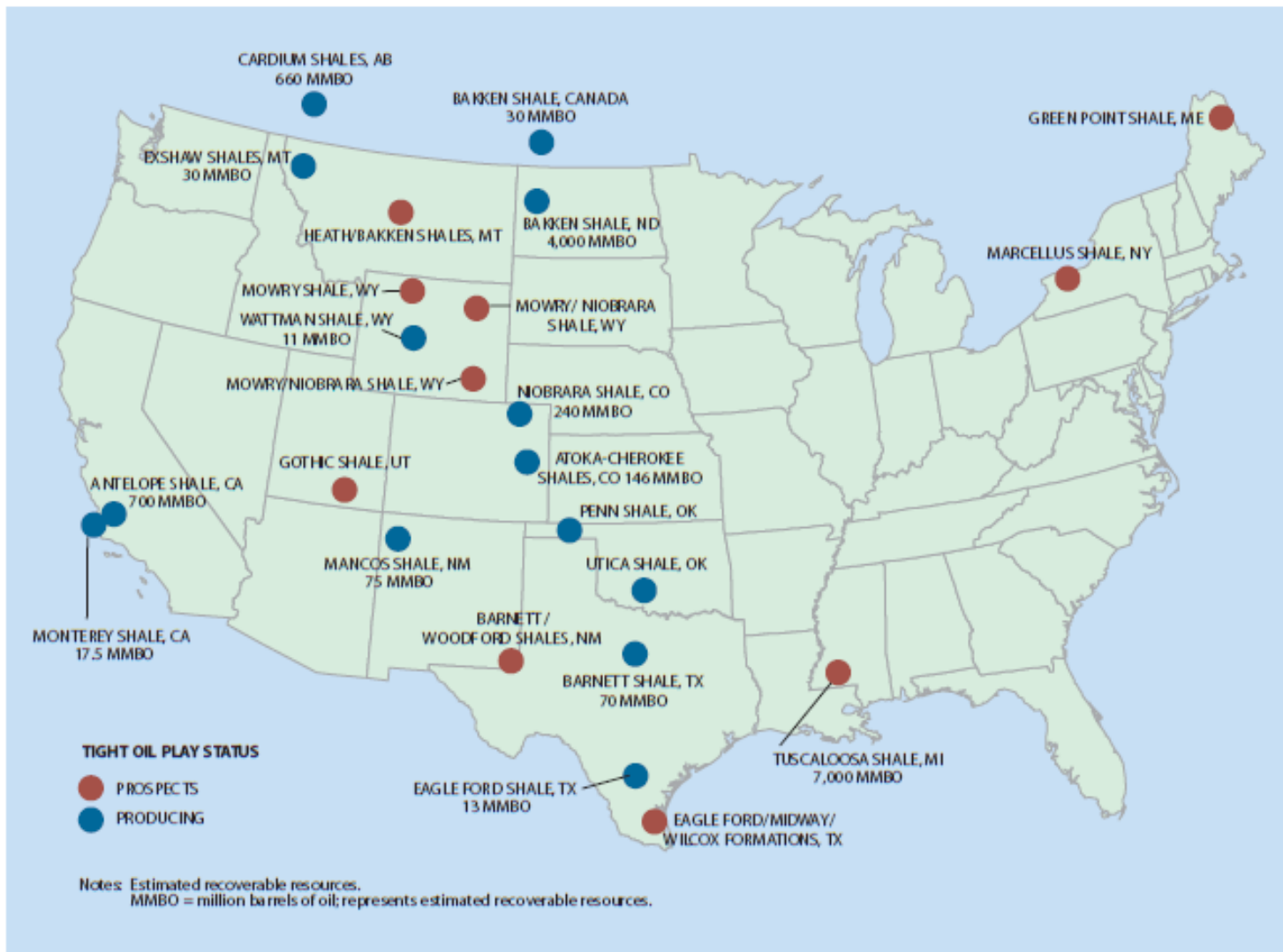
Figure 1-5. More Resource Access and Technology Innovation Could Substantially Increase North American Oil Production



Note: The oil supply bars for 2035 represent the range of potential supply from each of the individual supply sources and types considered in this study. The specific factors that may constrain or enable development and production can be different for each supply type, but include such factors as whether access is enabled, infrastructure is developed, appropriate technology research and development is sustained, an appropriate regulatory framework is in place, and environmental performance is maintained.

Source: Historical data from Energy Information Administration and National Energy Board of Canada.

LARGE UNCONVENTIONAL OIL RESOURCES



Bakken Reserve Estimates (bbls)

- **1995 USGS** **151 Million**
- **2008 USGS** **4.3 billion**
- **2010 addition (Three Forks)** **+1.9 billion**

- **2011 ND state estimate** **11 billion (ND only)**
- **Continental Resources** **20 billion**
- **Pending USGS Update** **?**

BUT IT'S MORE THAN THE BAKKEN

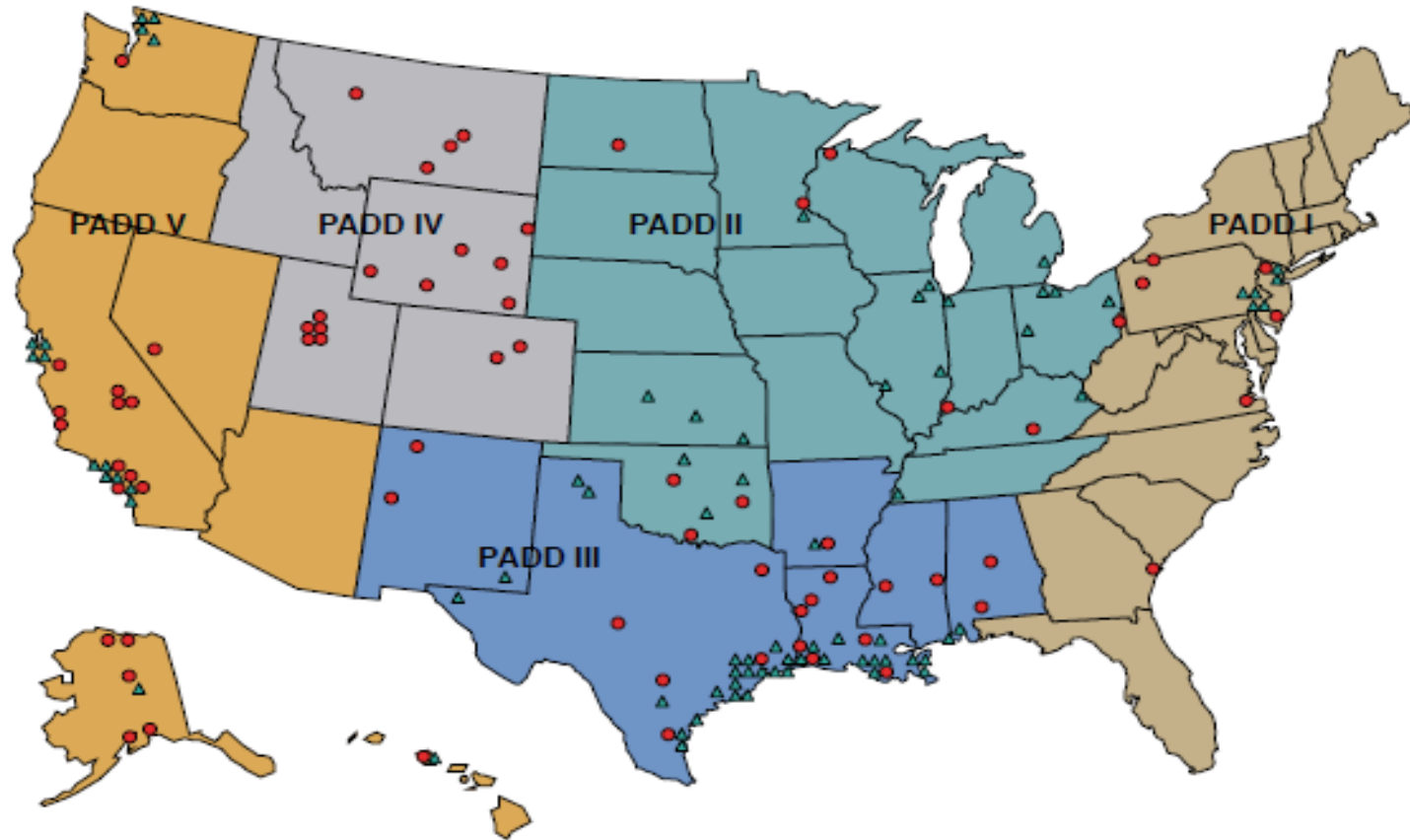
Pre-Bakken North Dakota Traffic Jam



Dunn County (2011) traffic

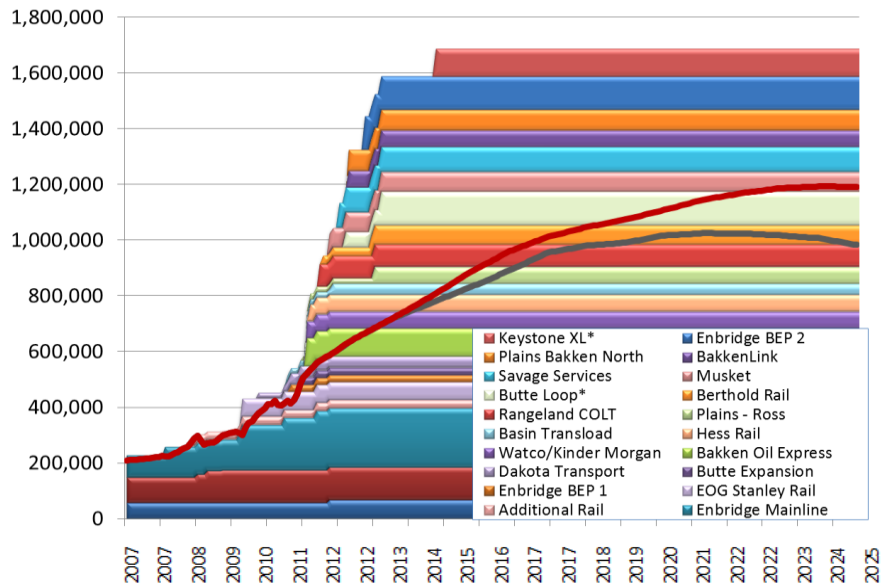


PAD Districts and Refinery Locations



Large: Over 75,000 b/d ▲
 Small: Under 75,000 b/d ●

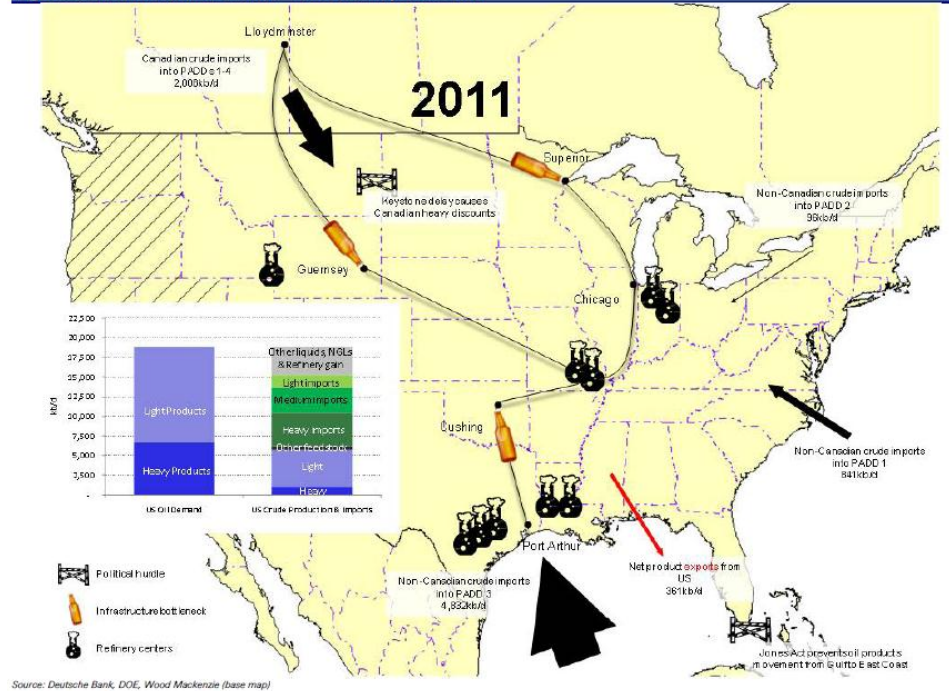
Projected Williston Basin Production and Export Capacity



Source: North Dakota Pipeline Authority, Included Planned Projects

Bottlenecks and Infrastructure

Figure 2: The Infrastructure Clash – the current picture 2011



Source: Deutsche Bank

Realizing the full benefit of unconventional (oil & gas) is not guaranteed

Need to address variety of challenges:

- **Technical**
- **Commercial/Economic**
- **Environmental**
- **Regulatory**
- **Societal**