

TAB 2 – Corridor Certificate Application Exhibits

- Appendix 2.A Bentek Energy LLC "The Williston Basin: Greasing the Gears of Growth" North Dakota Forecast Study – July 2012 – pp. 47-49 only
- Appendix 2.B ND Pipeline Authority – Slides from ND Oil & Gas Research Council Presentation – May 23, 2013 - pp. 1-24 only

WILLISTONBASIN



The Williston Basin:
Greasing the Gears for Growth in North Dakota



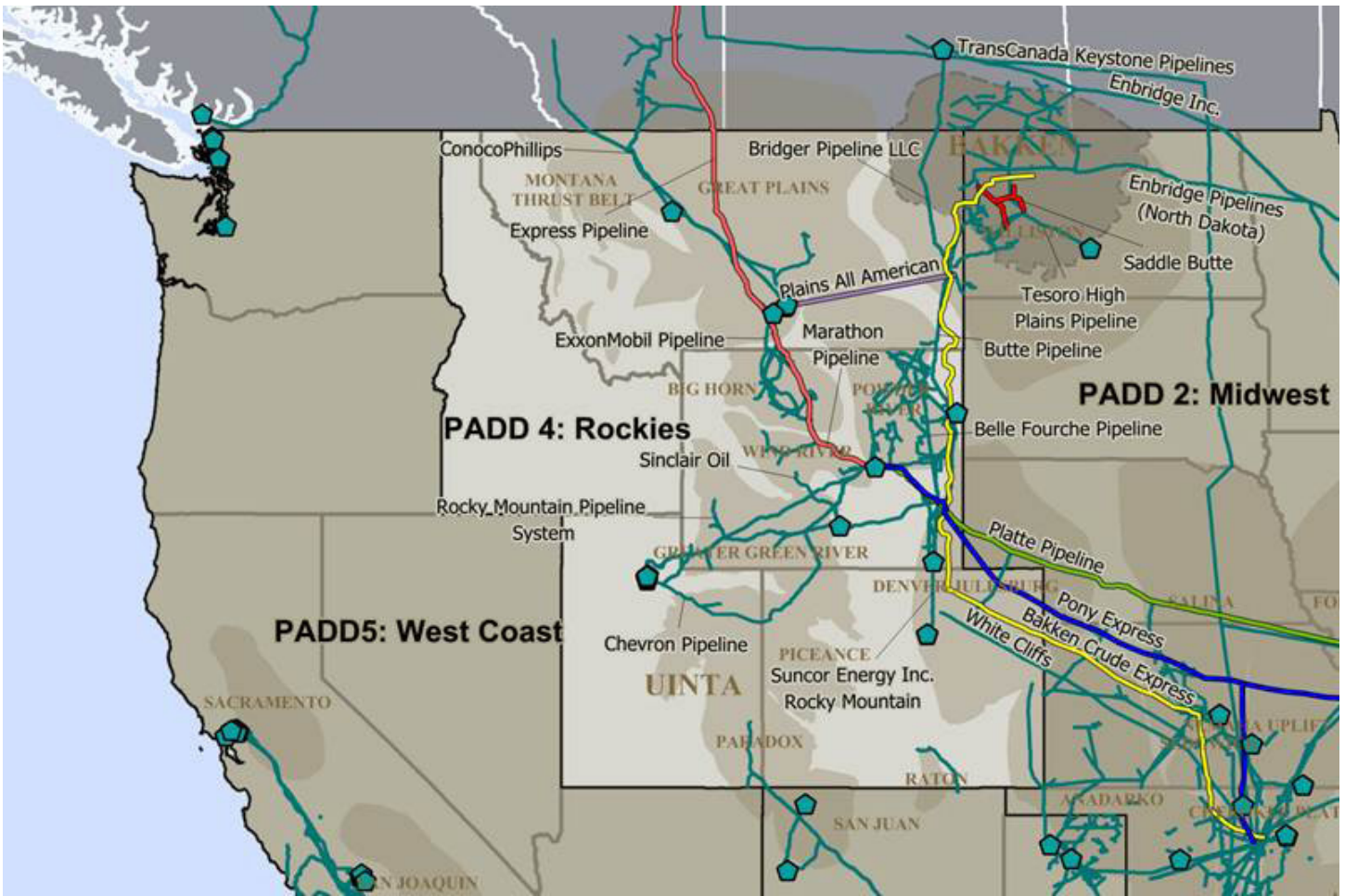


Figure 44. SOURCE: BENTEK

Oil Markets and Infrastructure

Crude oil production in the Williston Basin is transported to one local refinery and to downstream markets on two major pipelines and several rail facilities. These facilities have been barely enough to accommodate the rapid production growth in the basin, leading to at times steep price discounts to WTI. Four refinery expansions are planned in the basin that will add about 65 Mb/d of refining capacity over the next three years. In addition there are nine crude oil pipeline expansions planned that will add 1 MMb/d of takeaway capacity, and there are seven additional rail expansions planned to accommodate oil production growth. BENTEK estimates that the pipeline and refinery projects will be inadequate to keep up with expected growth and the producers in the basin

will continue to rely on more expensive transportation options such as rail and truck over the forecast period.

Refining

Tesoro’s Mandan Refinery began operations in 1954 and has a capacity of 58 Mb/d, which is being fully utilized. The refinery is served by a 750-mile crude oil gathering and mainline system. Mandan manufactures gasoline, diesel fuel, jet fuel and heavy fuel oil along with liquefied petroleum gas, all of which are shipped via truck to markets in North Dakota and Minnesota.

After local refining demand is satisfied, remaining Williston crude oil supply moves out of the area on two major pipelines, Enbridge’s 185 Mb/d North Dakota system and Bridgers’ 150 Mb/d Butte Pipeline. The Enbridge system ships about 211 Mb/d of crude eastward to the company’s terminal in Clearbrook, MN, and another 25 Mb/d north to the Enbridge mainline and on to

Clearbrook terminal. Butte takes 150 Mb/d of Bakken crude to Guernsey, WY.

Enbridge recently completed two expansion projects. The first expansion removed 5 Mb/d of sour crude transportation service from the pipeline and added 25 Mb/d of sweet crude capacity. The added capacity has been fully utilized. There also no longer are interruptions in pipeline flows to segregate shipments of sour and sweet crude. The second project on the Enbridge North Dakota system was the Portal Line Reversal, which involved the reactivation and flow reversal of 85.7 miles of existing pipeline between Berthold, ND, and Enbridge's Steelman terminal in Saskatchewan.

The Butte Pipeline is a 16-inch diameter, 323-mile crude oil pipeline system from Baker, MT, to Guernsey, WY. Bridger added 32 Mb/d of capacity to the system in 3Q2011, bringing capacity up to 150 Mb/d.

Oil Transportation Options

With the sudden growth of Williston Basin oil production, transportation capacity has struggled to keep pace. Two main oil transport options currently exist in the Williston Basin: pipeline and rail. Pipeline transport is the preferred option as it is the least expensive. However, all pipelines out of the Williston Basin are currently running near capacity.

Rail transport is more expensive than shipping on a pipeline on a variable cost basis. However, building a rail loading facility takes only 12 to 15 months, whereas trying to expand or build a new pipeline can take several years. Williston Basin producers have relied on rail as a quick fix to its growing production needs.

The third and final transport choice and option of last resort for Williston crude is long-haul trucking crude volumes to Canada. Again, this is a last resort due to the expense of such transport. However, during times of tight oil transportation, Williston producers have relied on long-haul trucking to Canada to fill the transportation gap.

Pipelines

Three main oil pipeline options exist for Williston Basin producers and are shown in Figure 44. The first option is to ship crude west into the Clearbrook, MN, market on Enbridge's North Dakota system. The North Dakota

system runs from the western part of North Dakota west into Clearbrook, MN. The pipeline has undergone several expansions and has the ability to transport 210 Mb/d. The pipeline is currently 100% utilized.

The second option is to ship crude north from the Williston Basin into Canada. Enbridge's newly-completed 25-Mb/d Portal Link project allows for the transfer of volumes from Berthold, ND, north to the Steelman terminal in Saskatchewan. At the terminal, the crude then flows on Enbridge's Westpur system where it connects to Enbridge's 2,500-Mb/d mainline system in Cromer, Manitoba. On the Enbridge Mainline, Bakken producers must compete for space with Canadian oil.

The third pipeline transport option for Bakken producers is to ship volumes south into the lower Rockies crude oil market. The Butte Pipeline transports 150 Mb/d from Baker, MT, to Guernsey, WY, and is currently the only pipeline which travels south out of the Bakken. At Guernsey, Bakken barrels compete for demand at local refineries and also for space to exit the PADD 4 market on the Platte Pipeline. The Platte Pipeline is a 165-Mb/d pipeline, which runs from Casper, WY, to Wood River, IL. The pipeline carries lower Rockies barrels (Powder River and Denver-Julesburg basin production) as well as Canadian barrels it receives from an interconnect with Express Pipeline. Platte Pipeline also runs full on a daily basis.

Rail

As stated earlier, rail transportation has been able to help fill the gap between growing production and pipeline capacity. Currently, there are 15 existing rail loading facilities in North Dakota with the ability to transport approximately 420 Mb/d. The main destination for railed volumes has been the Gulf Coast market. However, there has been talk of volumes going to California, Washington, Philadelphia and even to Eastern Canada via rail. While rail is a more expensive transport option when compared to pipelines, it does provide the flexibility to choose an end market and has been an integral part in the basin to help alleviate near-term transportation bottlenecks.

Truck

The final transport option is to truck volumes to nearby pipelines. The main long-haul route is north from the basin into Canada. In Canada, the volumes are then transferred to Enbridge's mainline where they are transported back into the U.S. to the Clearbrook, MN, market. During

the past few months, about 40 Mb/d was transported from the Bakken by truck into Canada.

Pipeline Expansions

Despite new transportation additions over the past several years, the transportation market remains tight in the basin. In anticipation of further growth in crude oil production and more transportation constraints in the Bakken, several companies have proposed new pipeline projects, including:

- ONEOK's Bakken Crude Express Pipeline has an announced capacity of 200 Mb/d and will transport crude 1,300 miles from the Bakken to Cushing, OK. The estimated in-service date is 2015.
- The expansion of the Butte Mainline will add 120 Mb/d of capacity from Baker, MT, to Guernsey, WY, beginning in 2015.
- Banner Pipeline's Banner project would transport 100 Mb/d of Bakken crude from Baker, Montana to the Pony Express Pipeline in Guernsey, Wyoming. An in-service date for this project has not been announced.

- Saddle Butte's High Prairie Pipeline has an announced capacity of 150 Mb/d and would transport Bakken crude to Enbridge's terminal in Clearbrook, MN. Recent news puts this project into question as Enbridge has refused to allow High Prairie an interconnect at the terminal.
- The Keystone XL project would add 508 Mb/d of capacity between Alberta, Canada and Steele City, NE. Approximately 100 Mb/d of this capacity would transport Bakken crude beginning in 2015.
- Enbridge announced the Sandpiper Pipeline project with 325 Mb/d of capacity with an estimated in-service date in 2015.

Considering only these larger projects, the Williston Basin stands to gain nearly 1 MMbbl/d of additional pipeline capacity by 2015. However, this capacity may not be sufficient to transport all of the oil that will be produced. Hence, BENTEK expects rail to be a necessity for Bakken producers to move crude out of the region. By the end of 2013, more than 400 Mb/d of rail capacity will be available for Bakken producers and BENTEK expects capacity to be nearly fully utilized by the end of 2013.



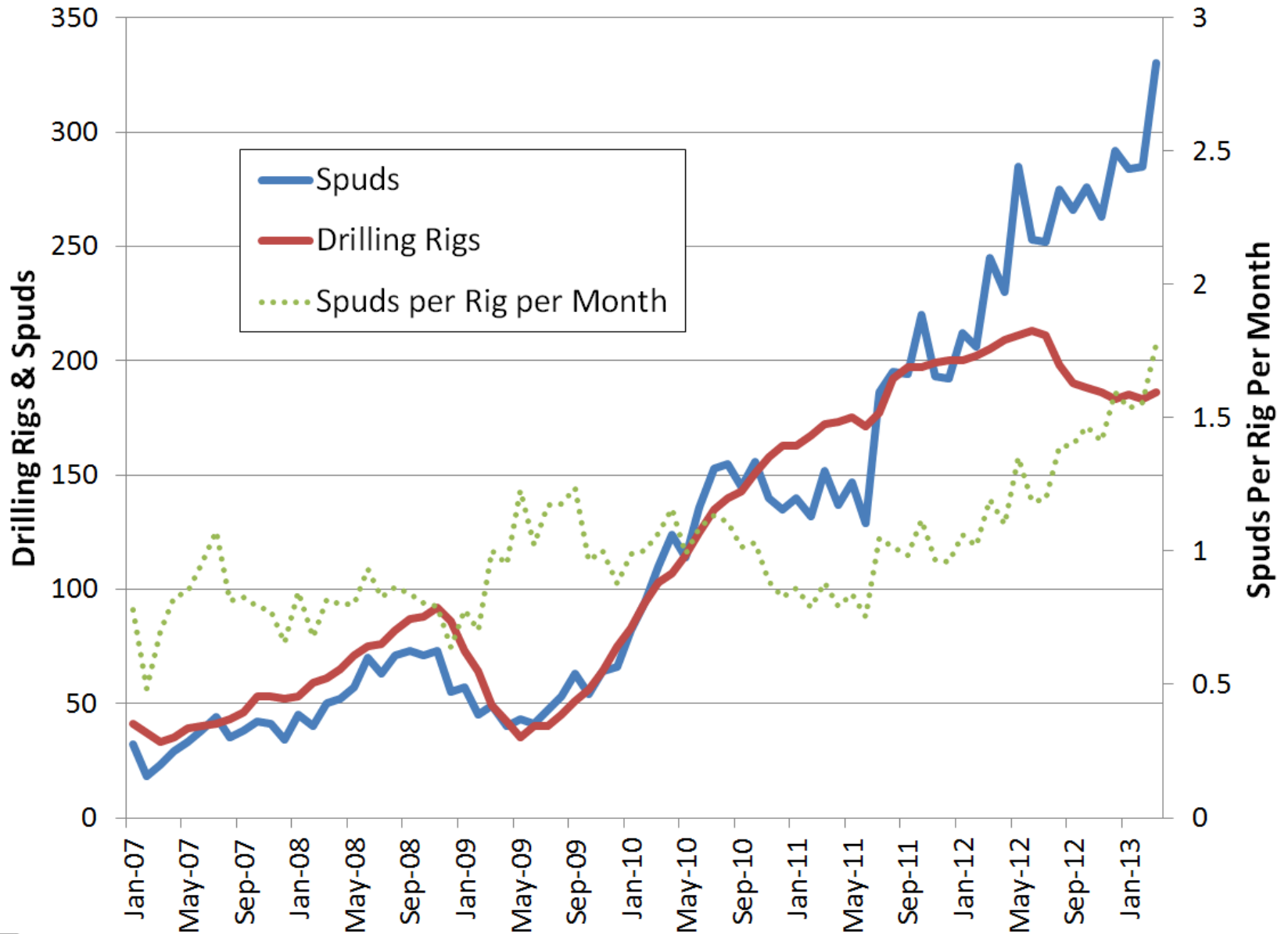
North Dakota Oil & Gas Research Council

North Dakota Pipeline Authority

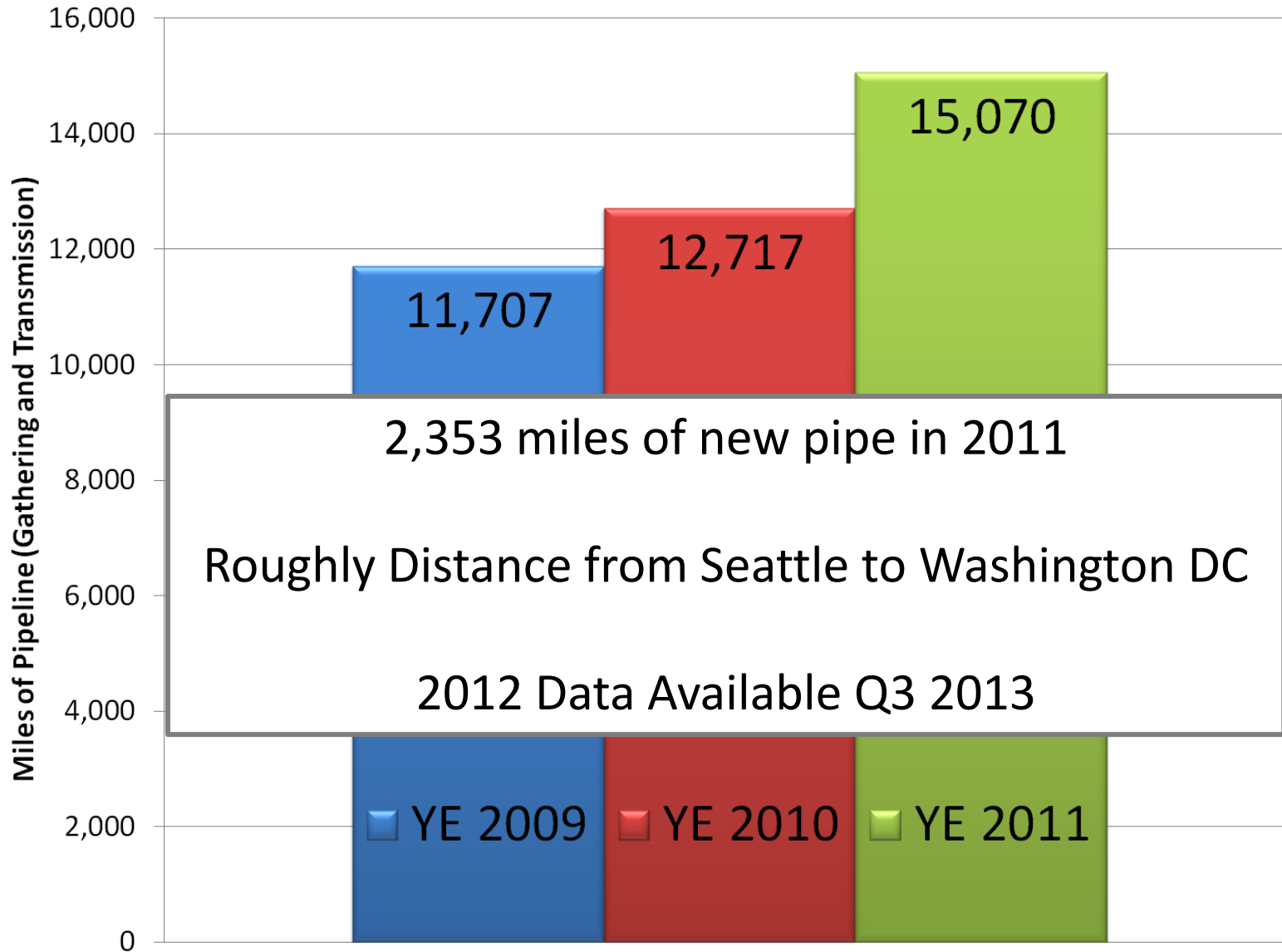
Justin J. Kringstad

May 23, 2013 – Bismarck, ND

ND Drilling Stats



North Dakota Pipeline Miles



Crude Oil

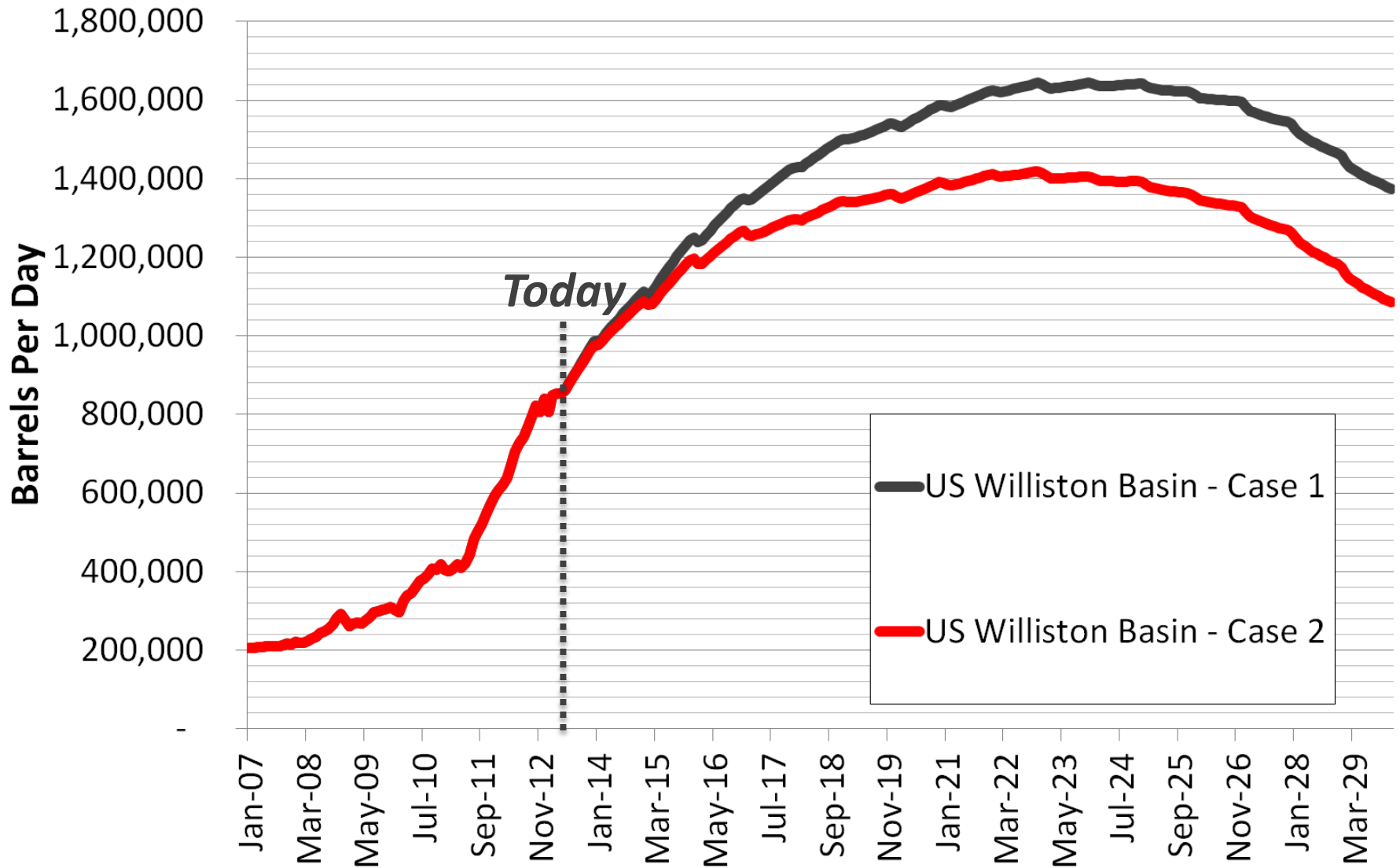
Understanding production potential

Understanding current transportation dynamics and potential transportation constraints

Understanding current and future market conditions



Forecasting Williston Basin Oil Production, BOPD



Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.



Crude Oil

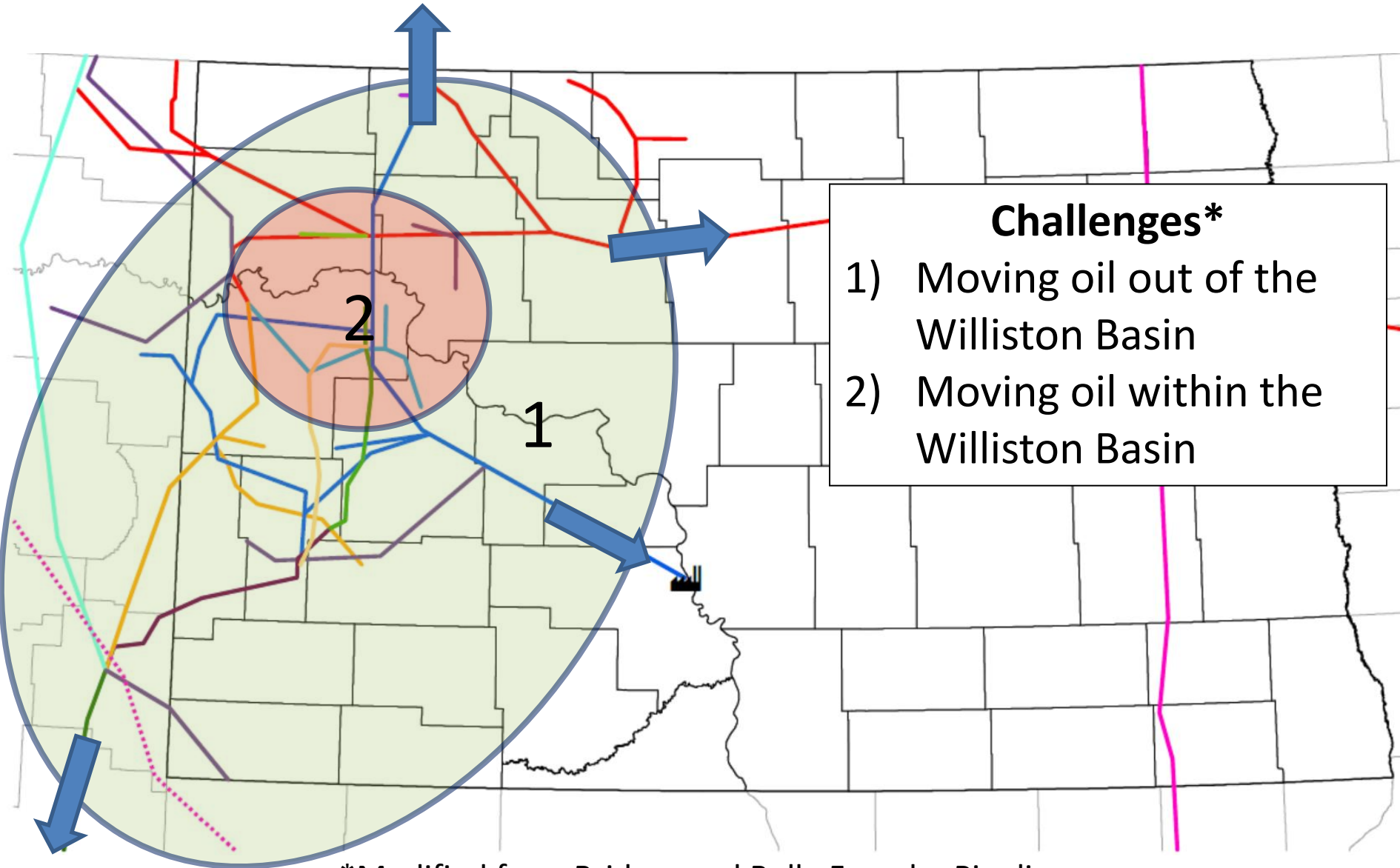
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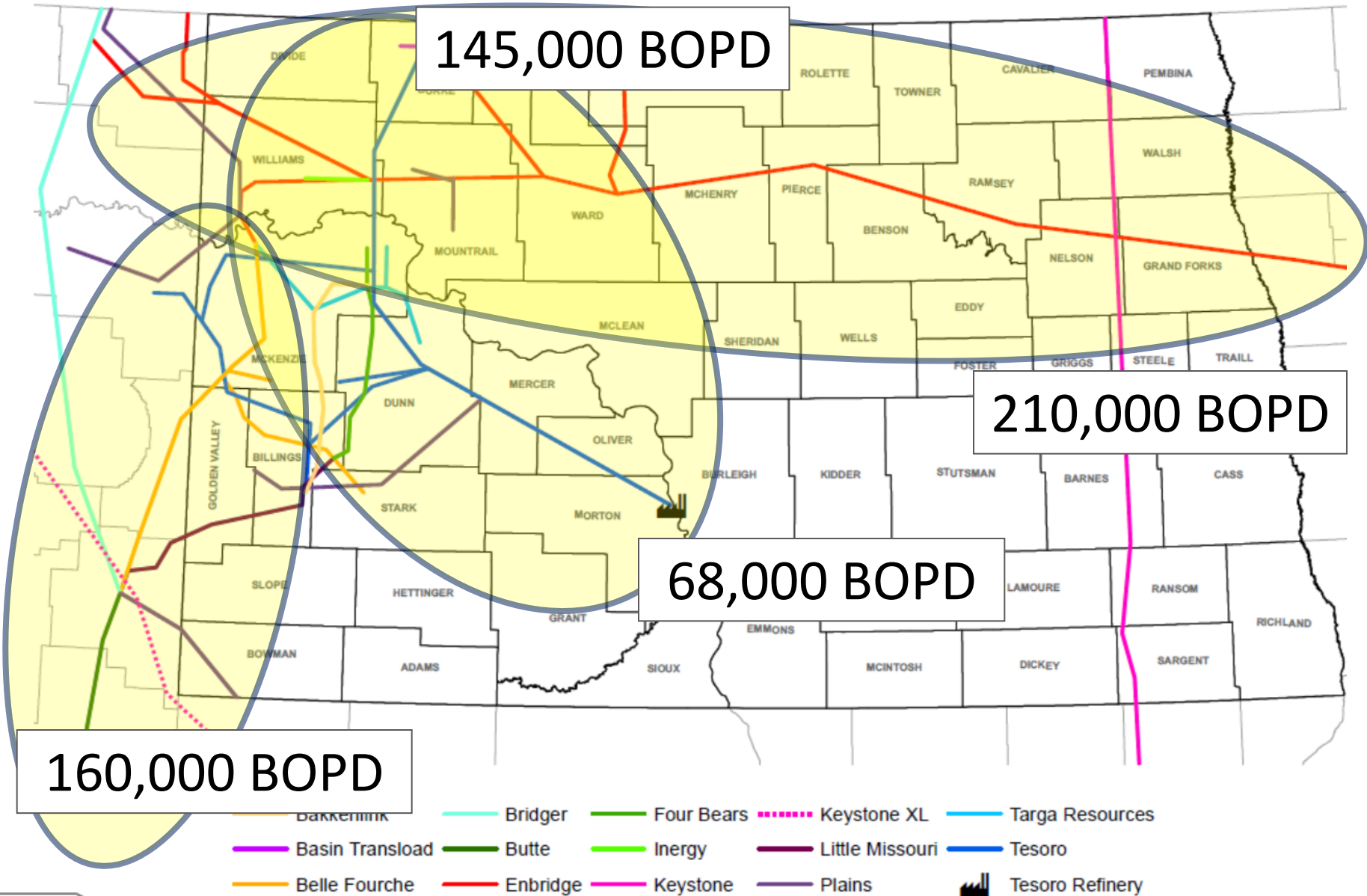
North Dakota Crude Oil Pipelines



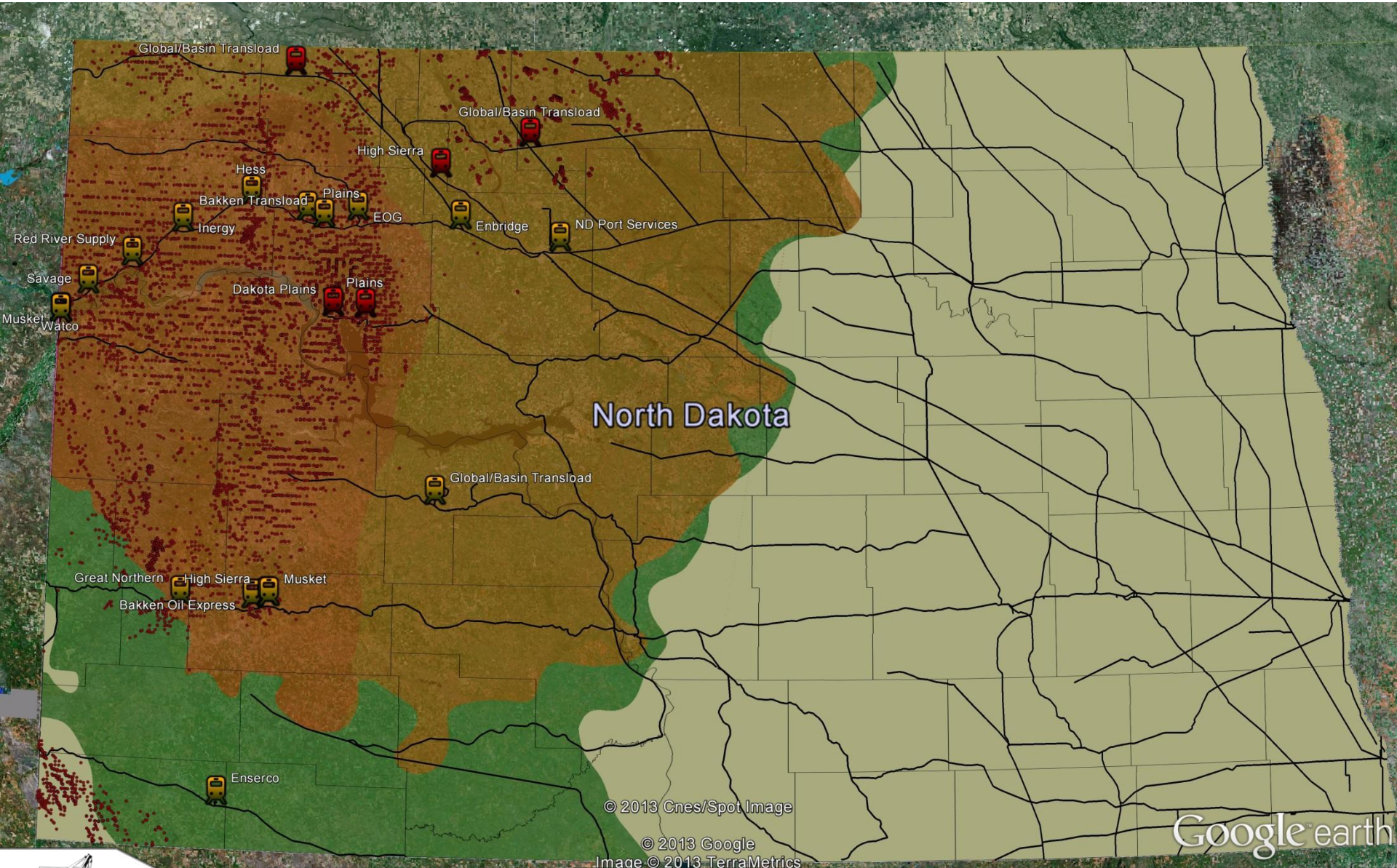
*Modified from Bridger and Belle Fourche Pipelines



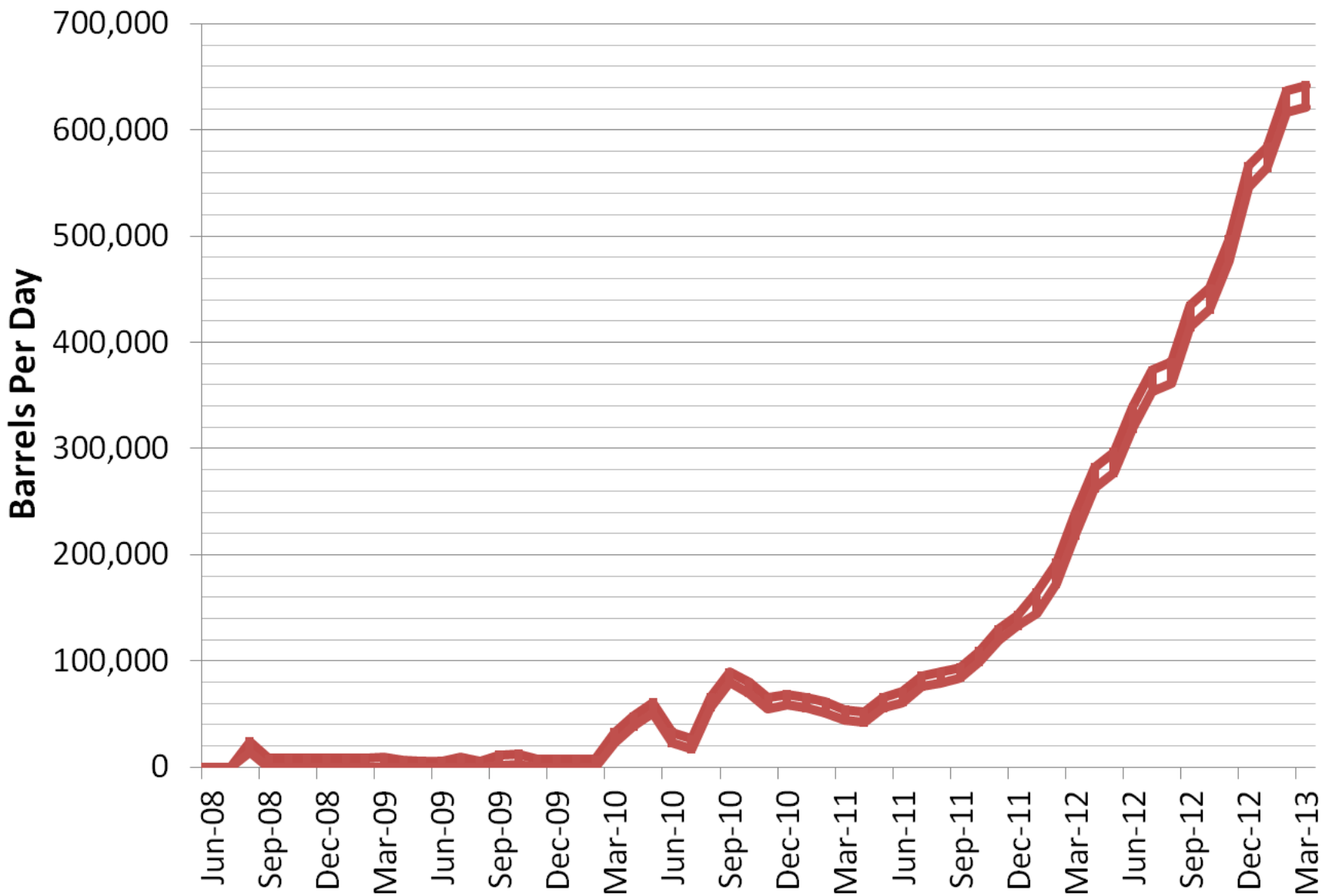
North Dakota Crude Oil Pipelines



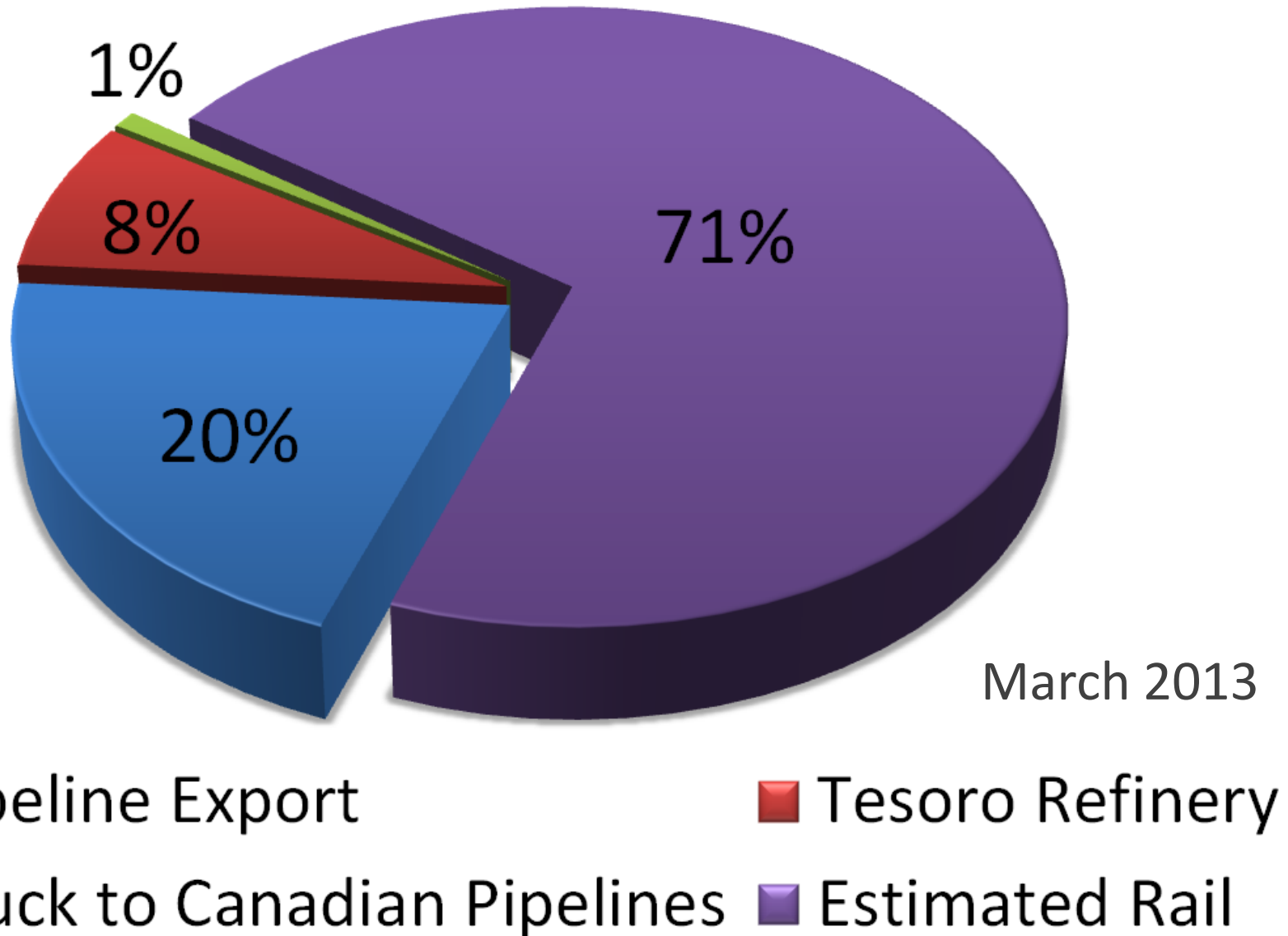
Oil Loading Rail Facilities



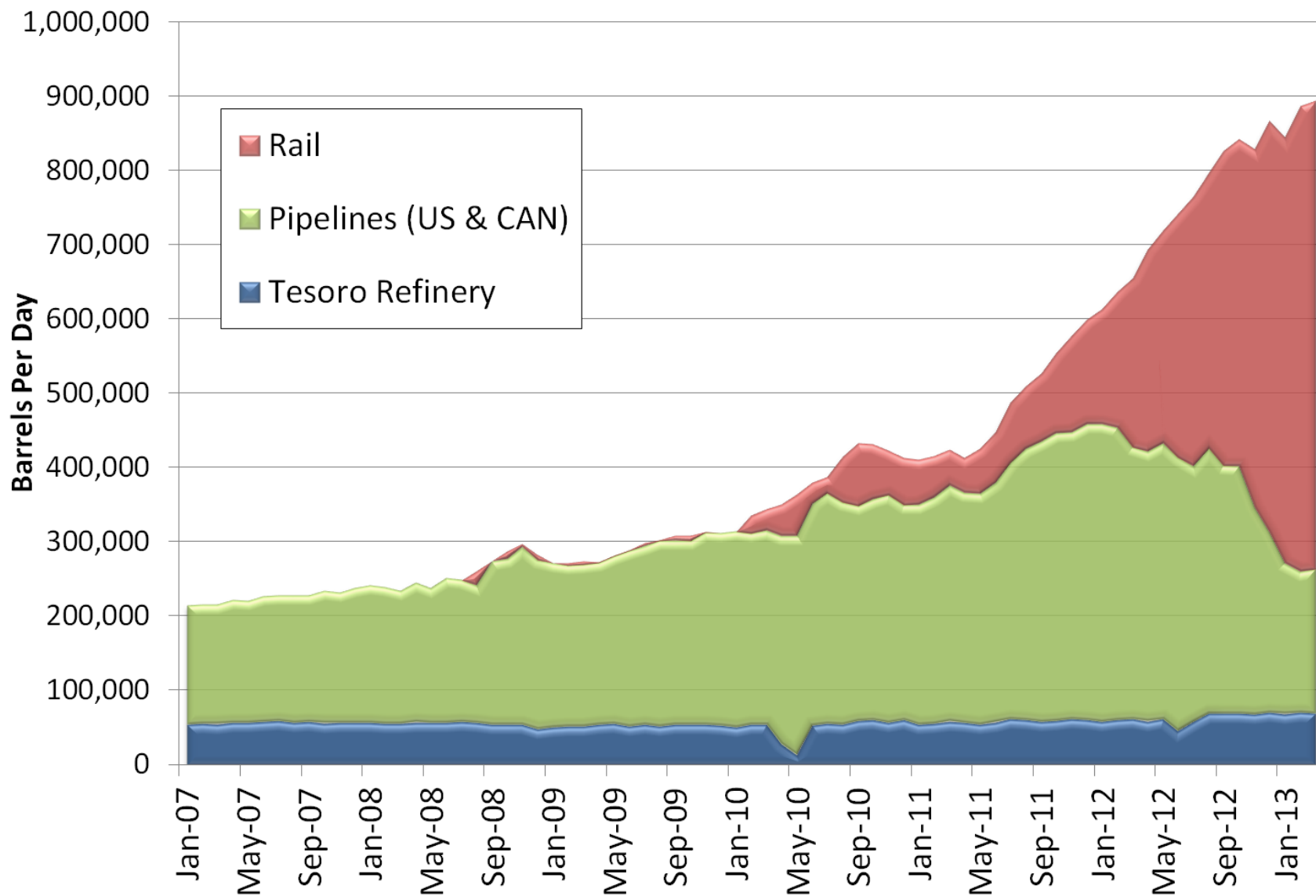
Estimated ND Rail Export Volumes



Estimated Williston Basin Oil Transportation



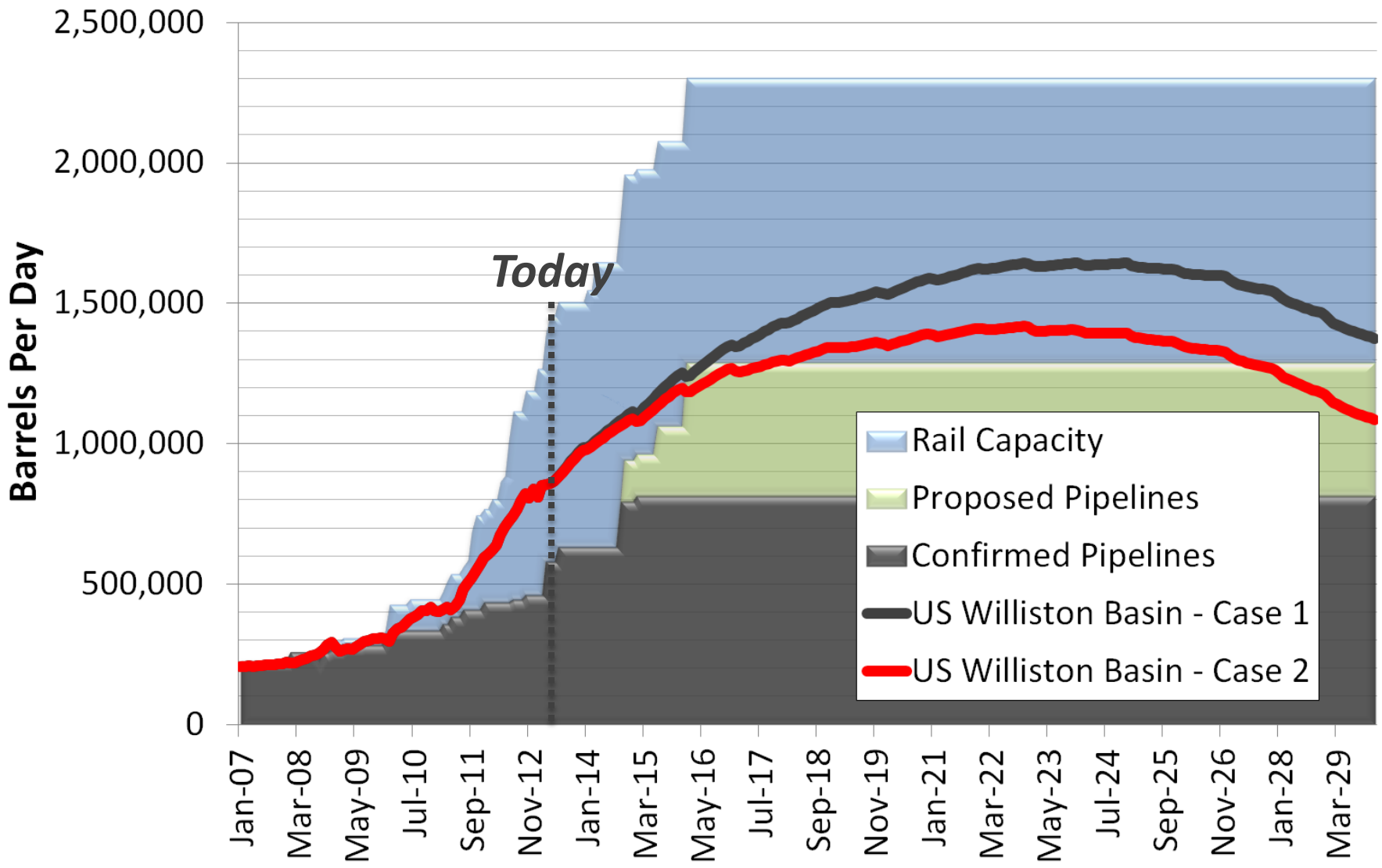
US Williston Basin Oil Transport*



**Some data based on estimates or assumptions*



Williston Basin Oil Production & Export Capacity, BOPD



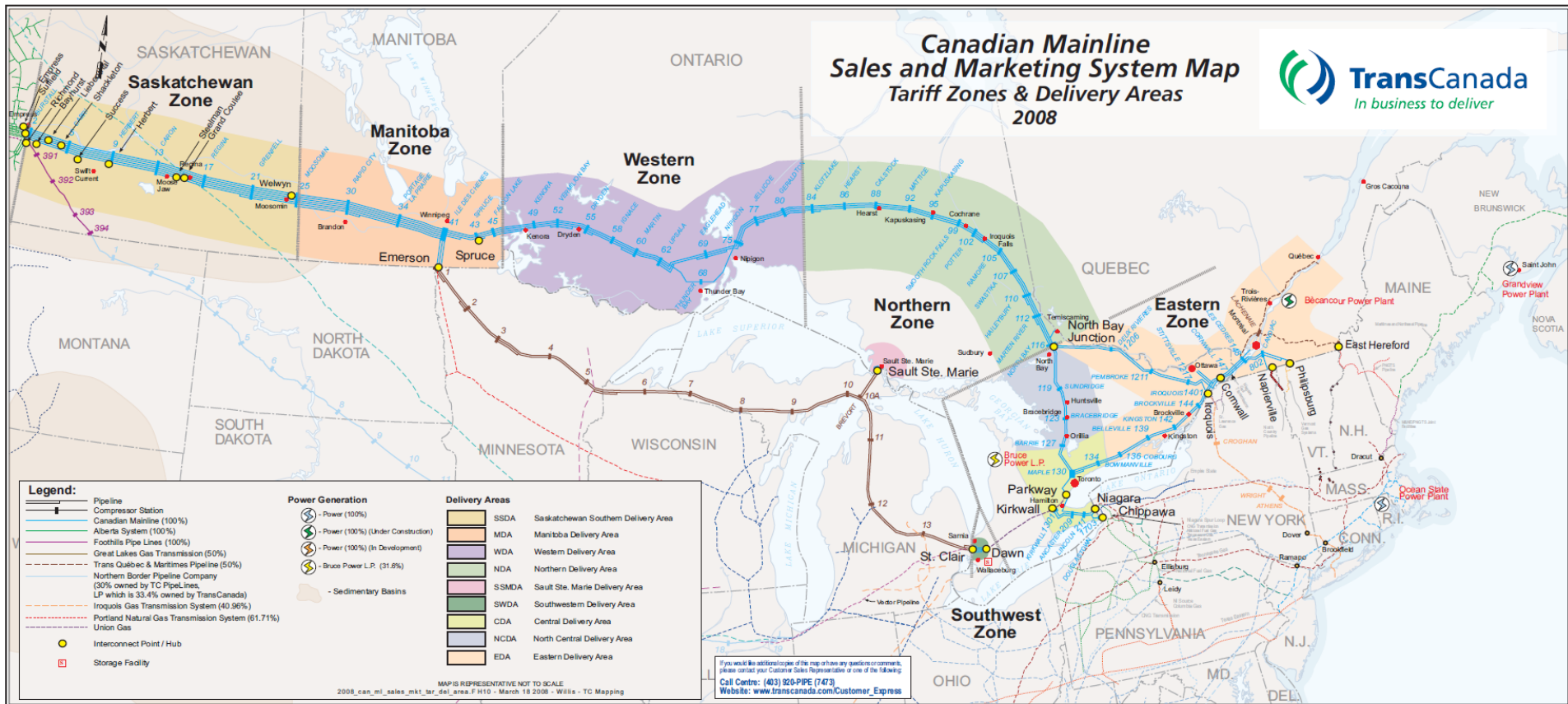
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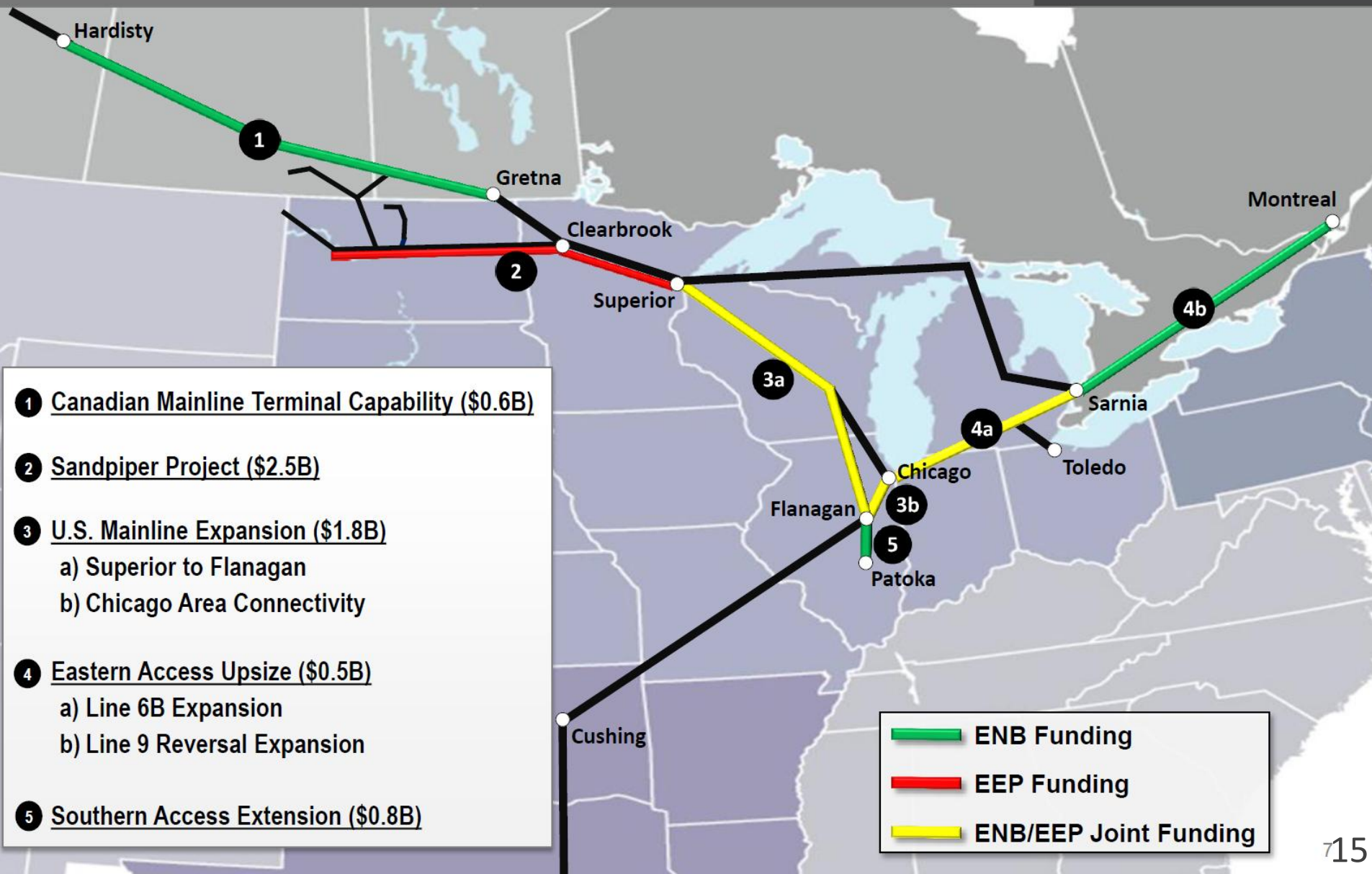
TransCanada Open Season

April 15-June 17 Up to 850 mbpd

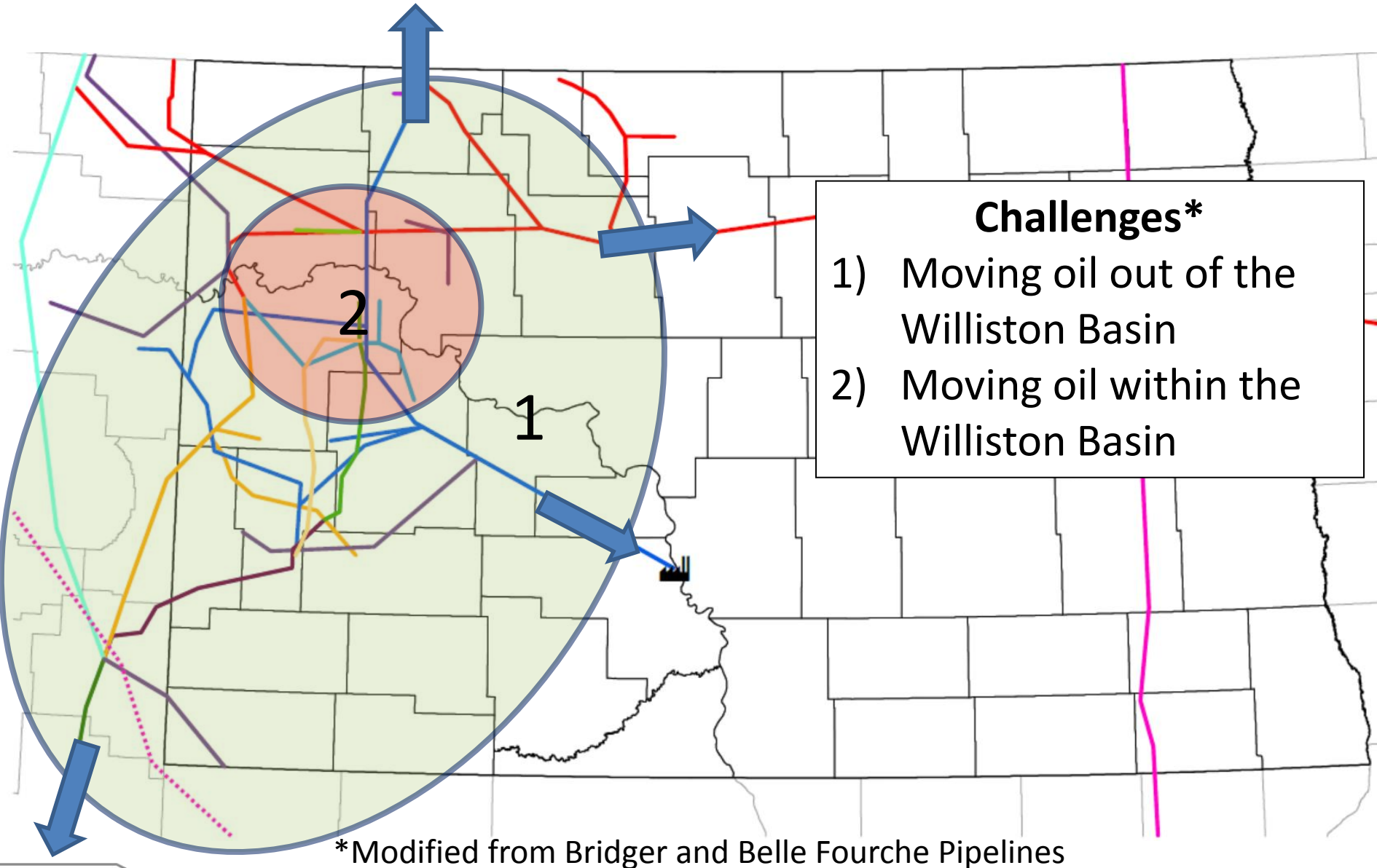
Proposed In-Service 2017/18



\$6.2 Billion – Light Oil Market Access

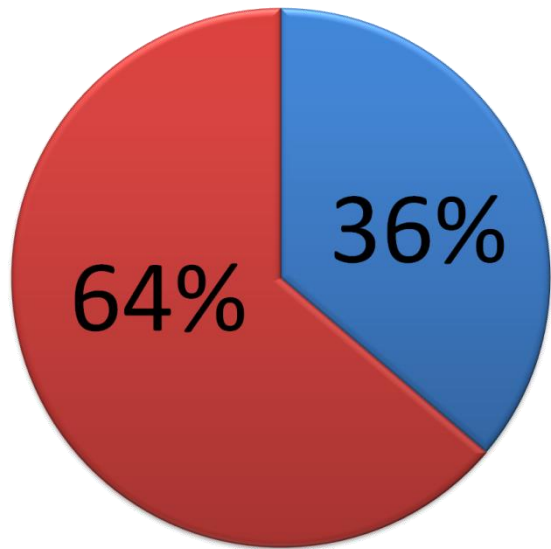


North Dakota Crude Oil Pipelines



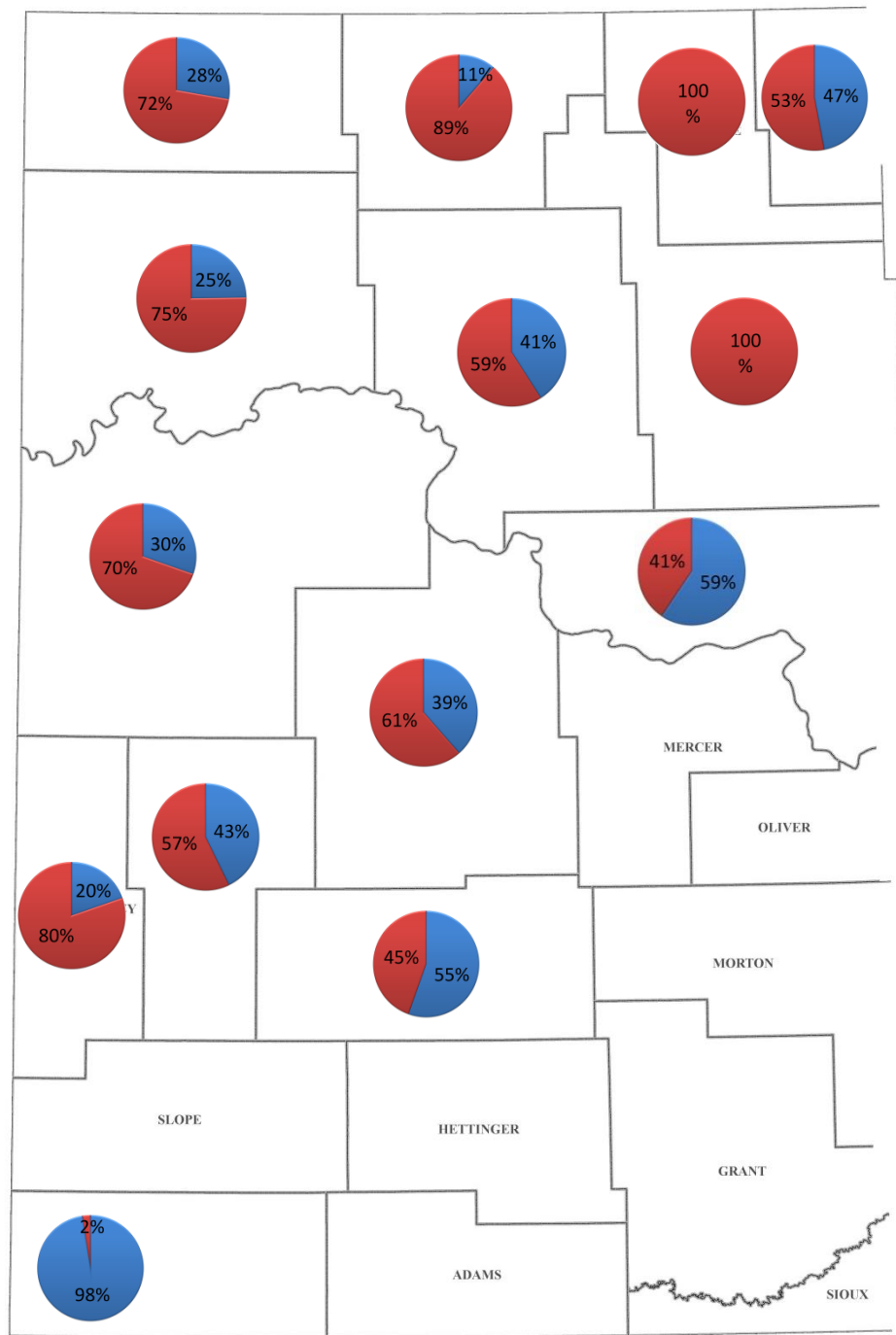
ND Crude Oil Gathering

Red – Trucked
Blue – Pipeline



All ND Production

Sep 2012 Estimates – Some data incomplete or unavailable



Crude Oil

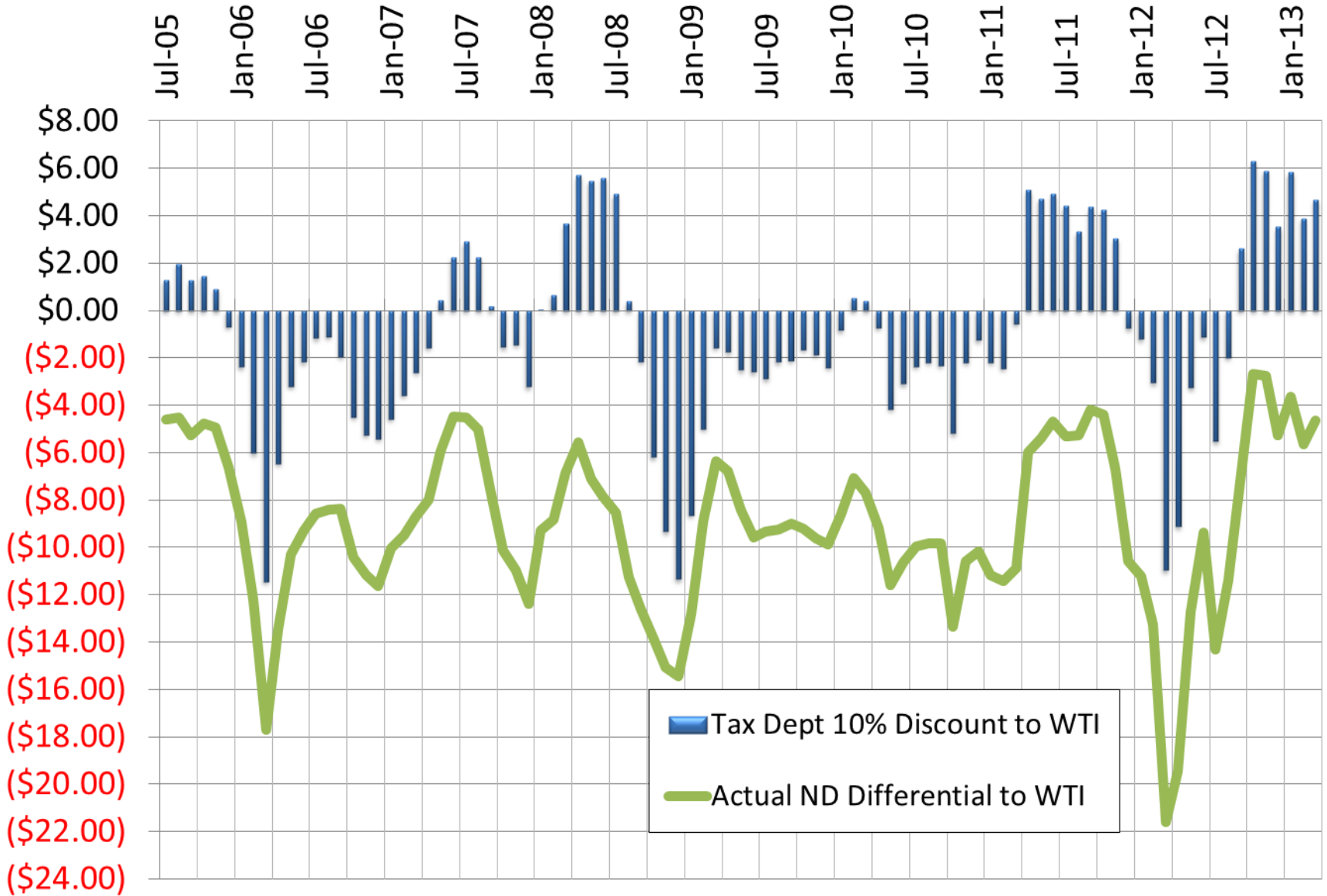
Understanding production potential

Understanding current transportation dynamics and potential transportation constraints

Understanding current and future market conditions



ND Oil Pricing



Crude Oil Prices – May 15, 2013

Clearbrook*

\$89.95

WTI - \$3.25

*Bloomberg

Brent \$102.36

WTI + \$9.16

Cushing

\$93.20

Brent \$102.36

WTI + \$9.16

Brent \$102.36

WTI + \$9.16

PADD IV

PADD II

PADD I

PADD V

PADD III

US Dept of State Geographer

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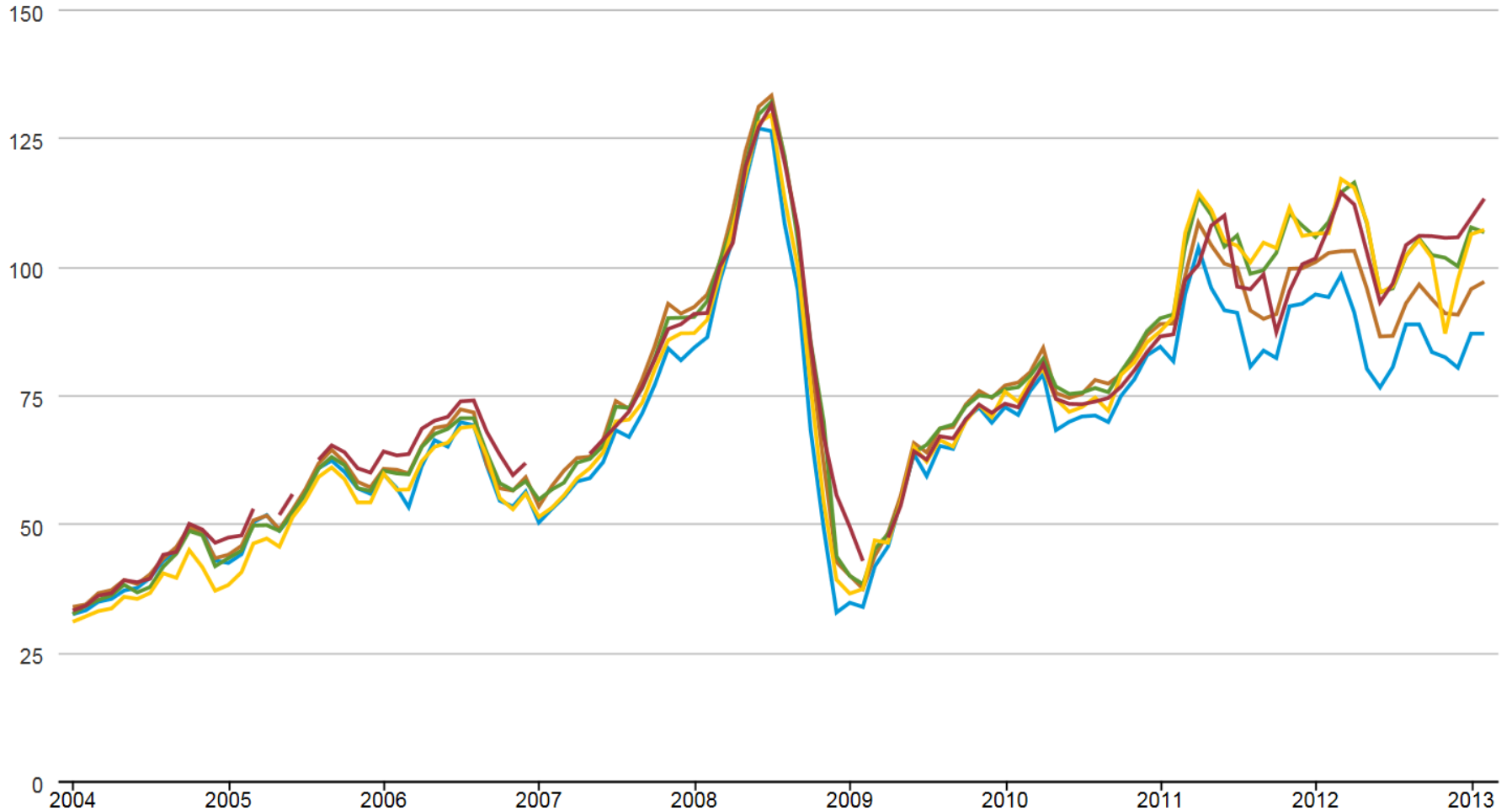
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



Refiner Acquisition Cost of Crude

\$/bbl

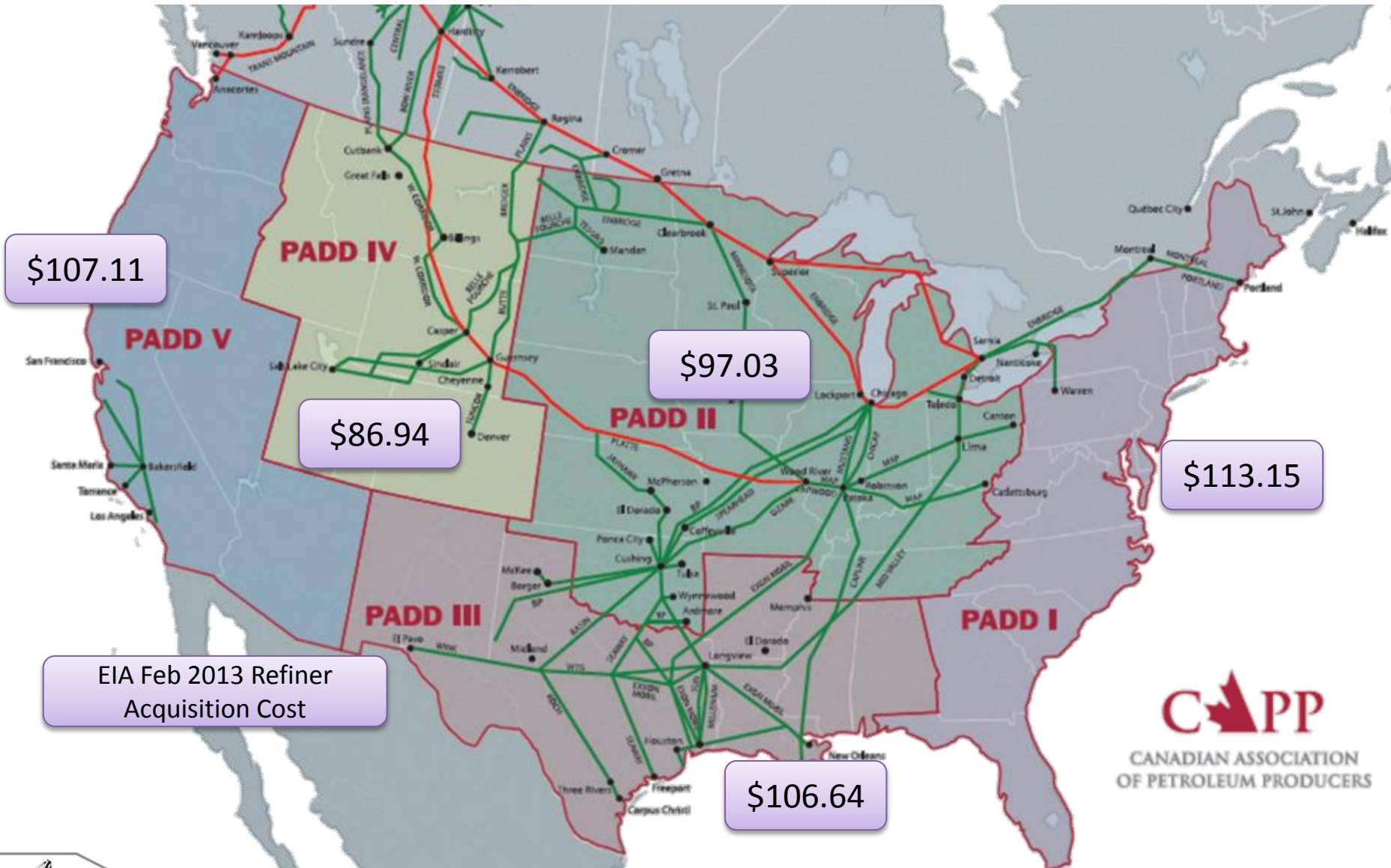


- Rocky Mountain (PADD 4) Crude Oil Domestic Acquisition Cost by Refiners
- Midwest (PADD 2) Crude Oil Domestic Acquisition Cost by Refiners
- Gulf Coast (PADD 3) Crude Oil Domestic Acquisition Cost by Refiners
- West Coast (PADD 5) Crude Oil Domestic Acquisition Cost by Refiners
- East Coast (PADD 1) Crude Oil Domestic Acquisition Cost by Refiners

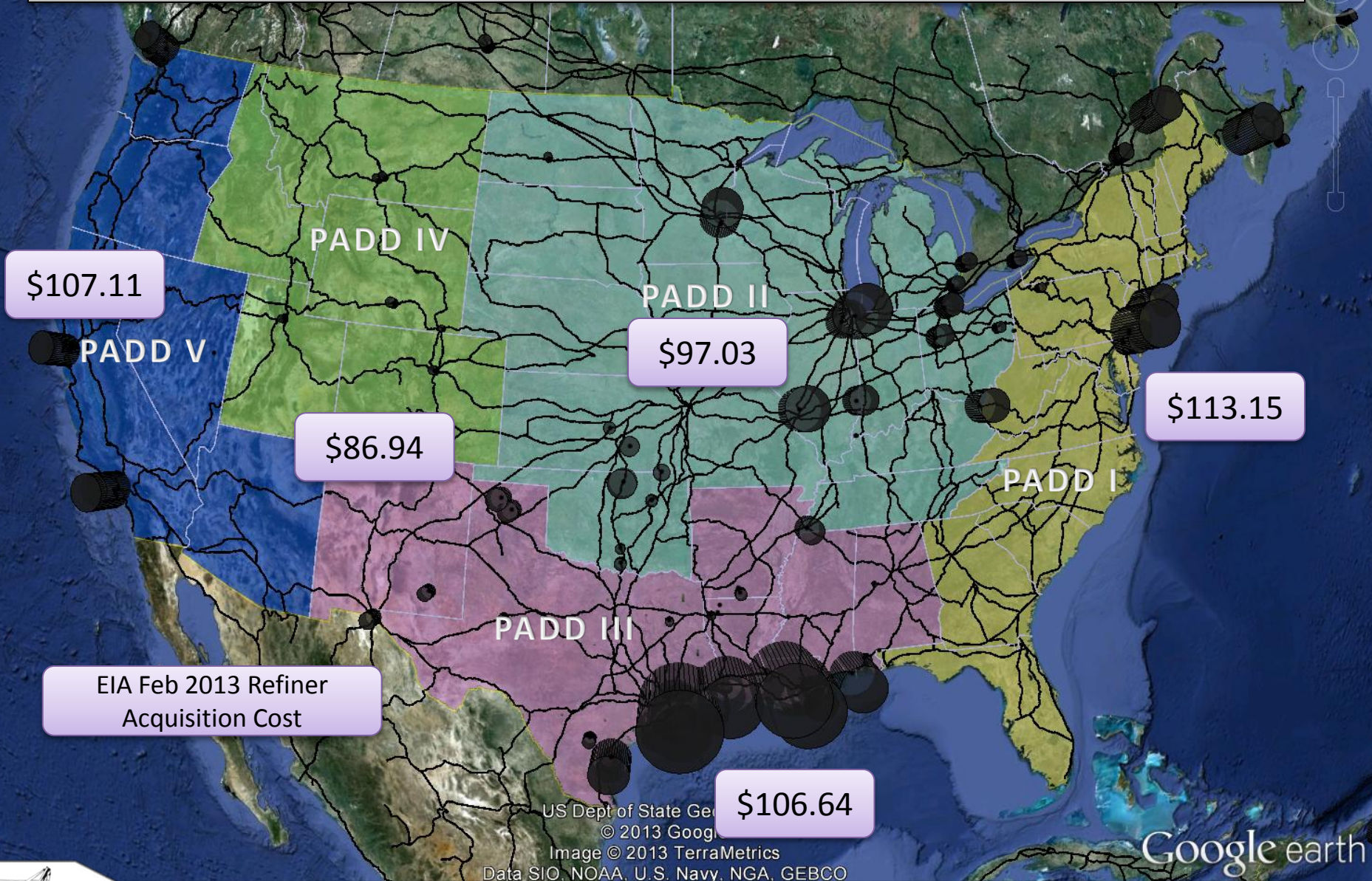
Source: U.S. Energy Information Administration



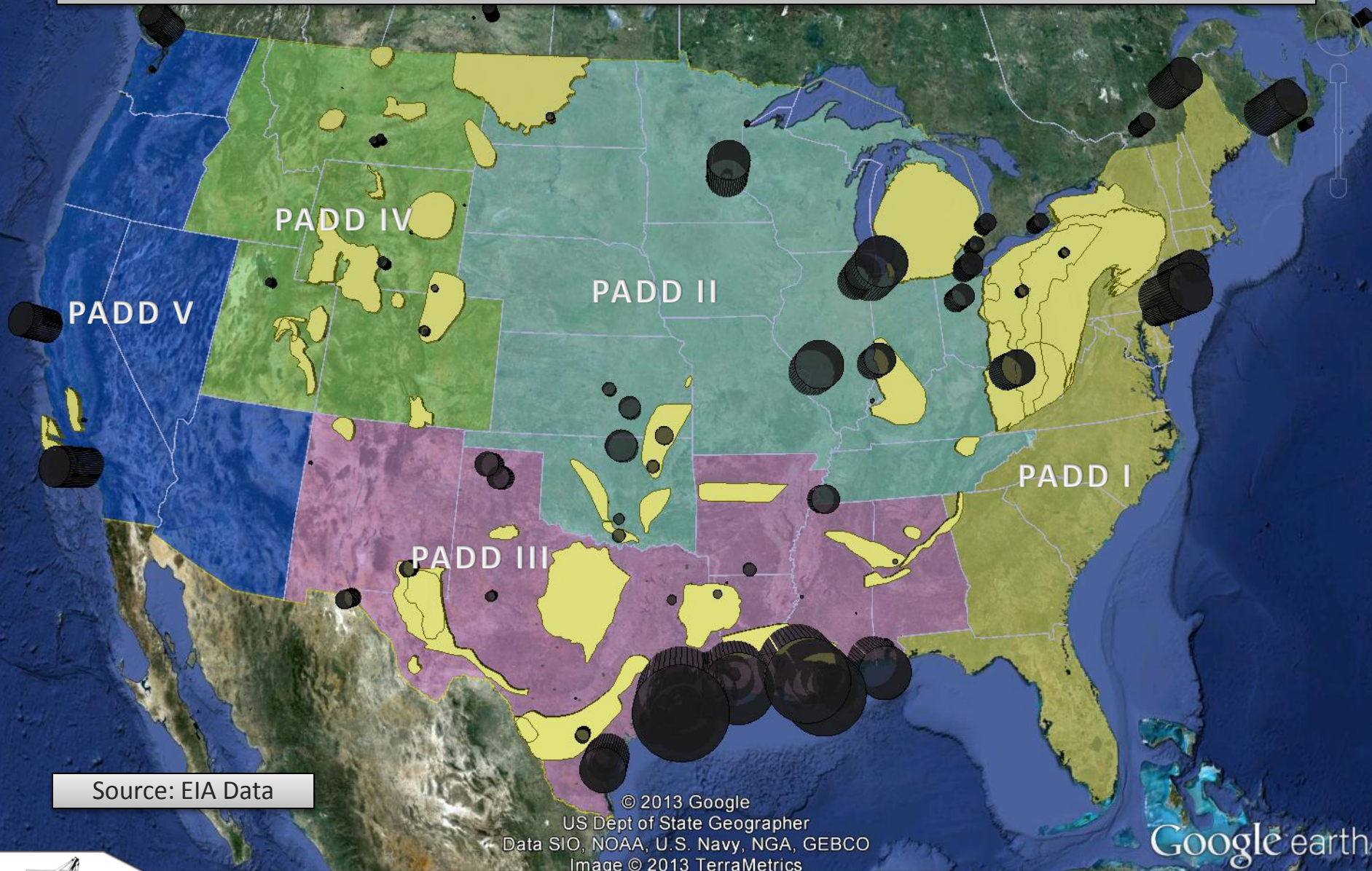
Major Pipelines and Refining Centers



Major Rail Lines and Refineries



US Shale Plays and Refineries



Source: EIA Data

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US Dept of State Geographer
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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