

## **TAB 2 – Corridor Certificate Application Exhibits**

- Appendix 2.A ND Pipeline Authority  
Slides from ND Oil & Gas Research Council Presentation  
May 23, 2013 - pp. 1-24 only
- Appendix 2.B Lynn Helms, NDIC – Director’s Cut Presentation  
December 13, 2013



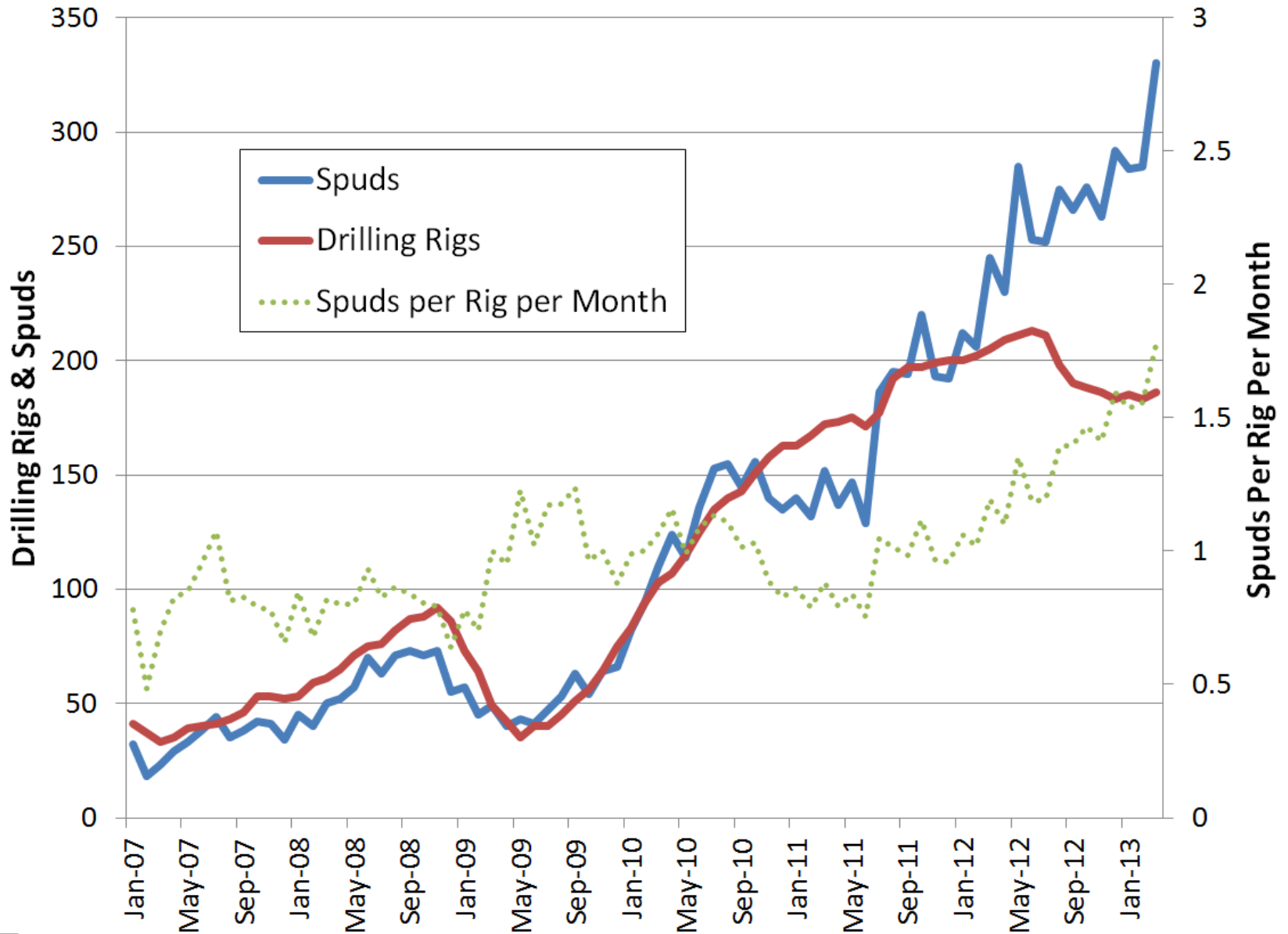
# **North Dakota Oil & Gas Research Council**

**North Dakota Pipeline Authority**

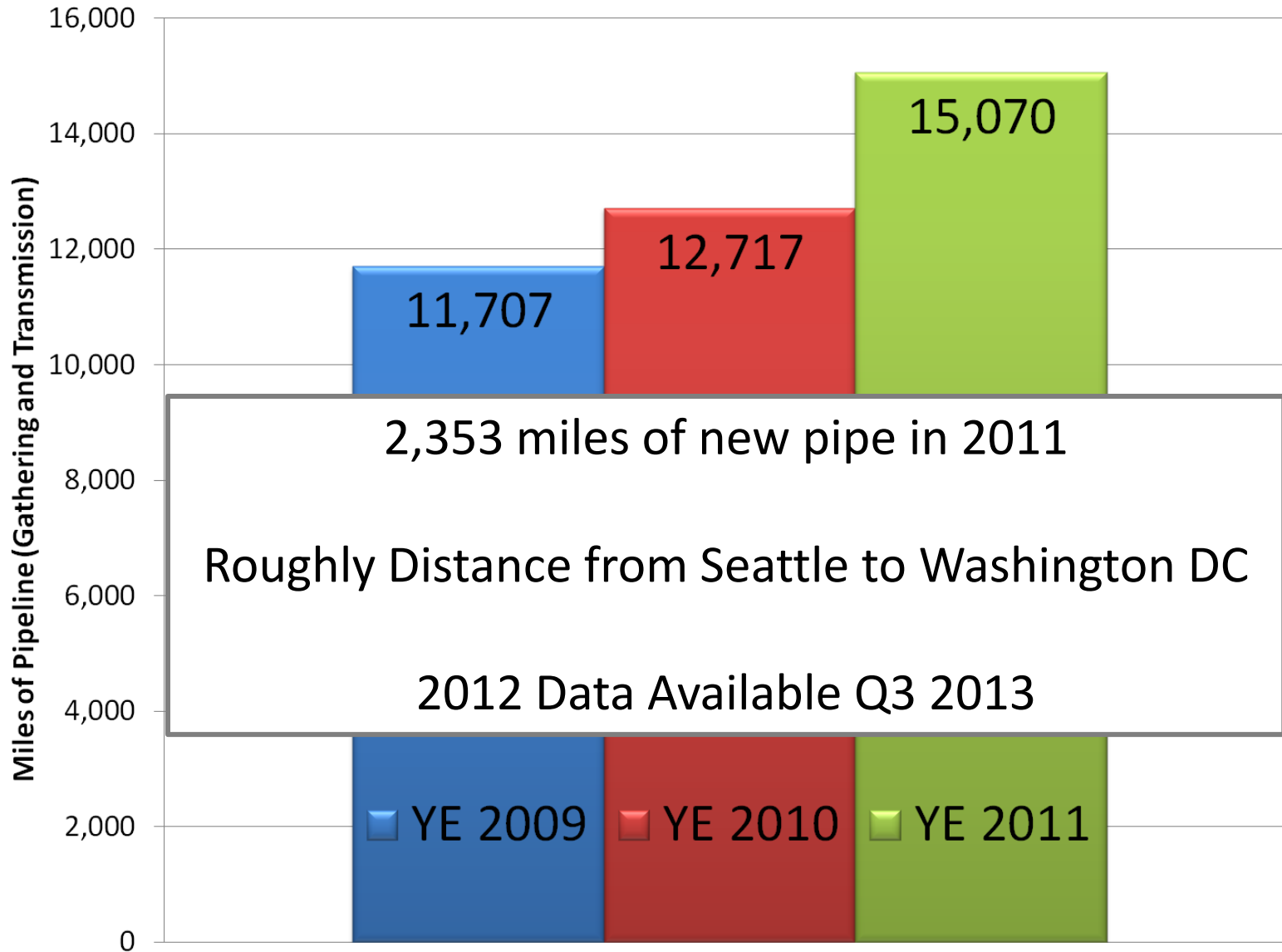
**Justin J. Kringstad**

**May 23, 2013 – Bismarck, ND**

# ND Drilling Stats



# North Dakota Pipeline Miles



# Crude Oil

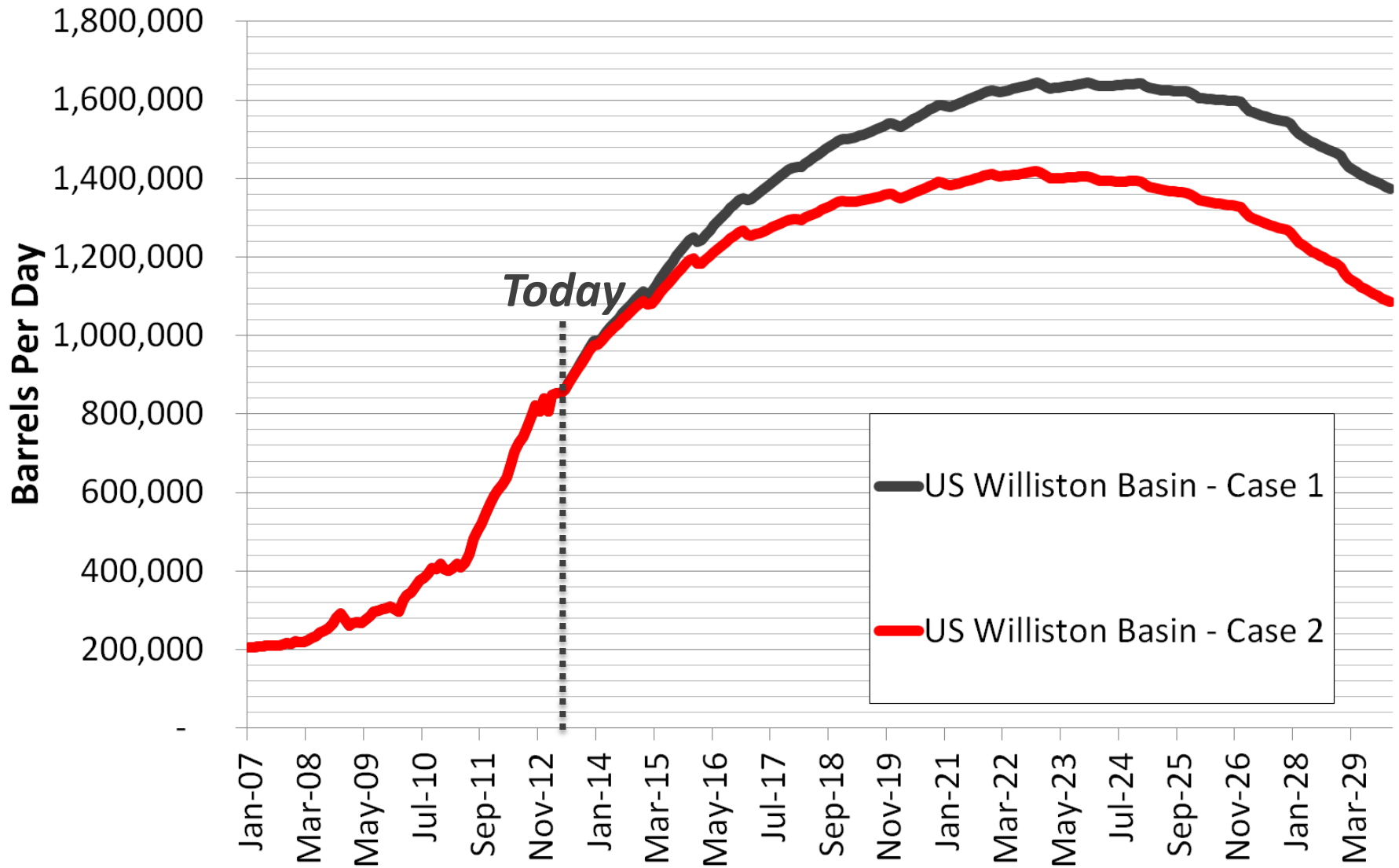
## ***Understanding production potential***

*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

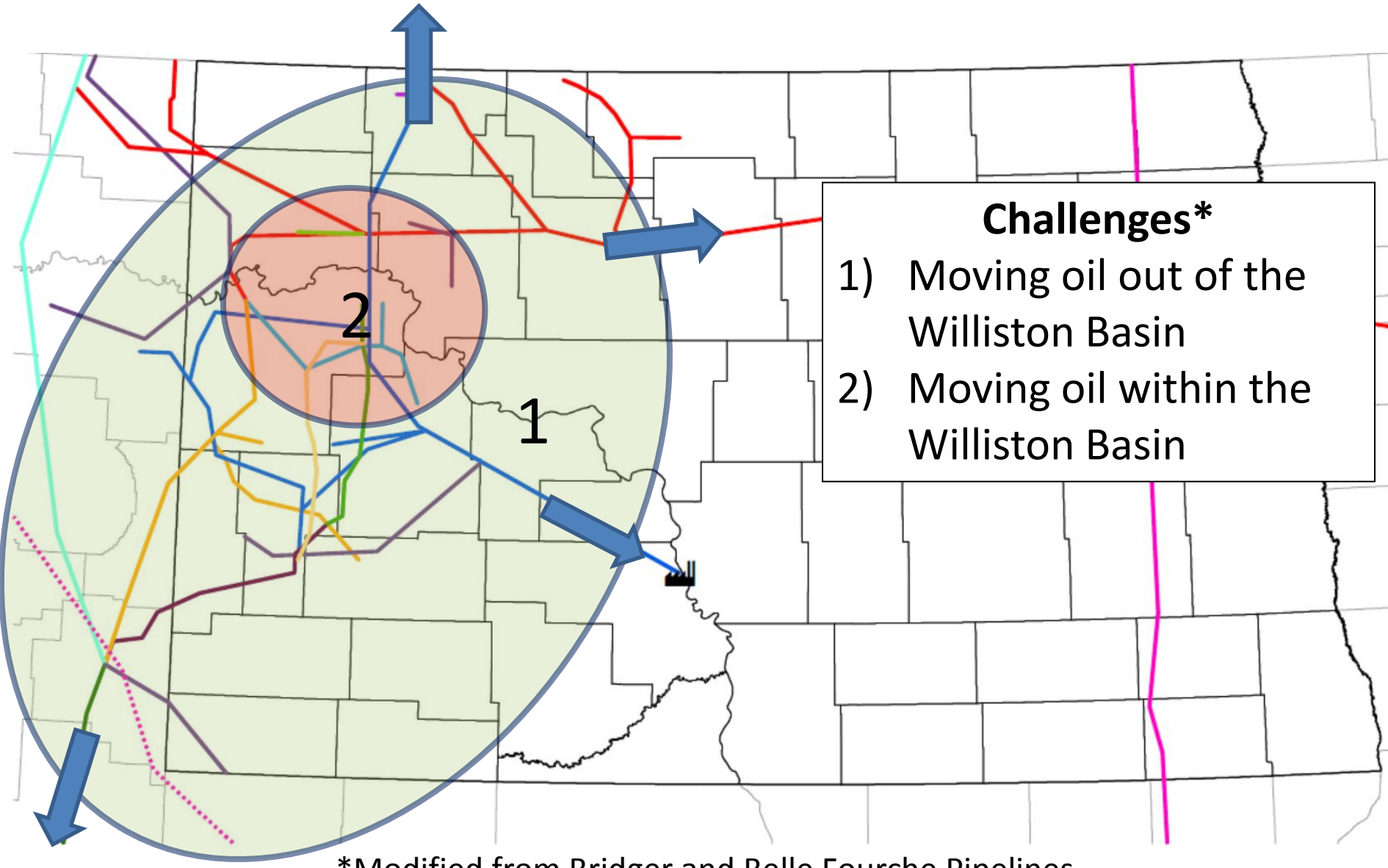
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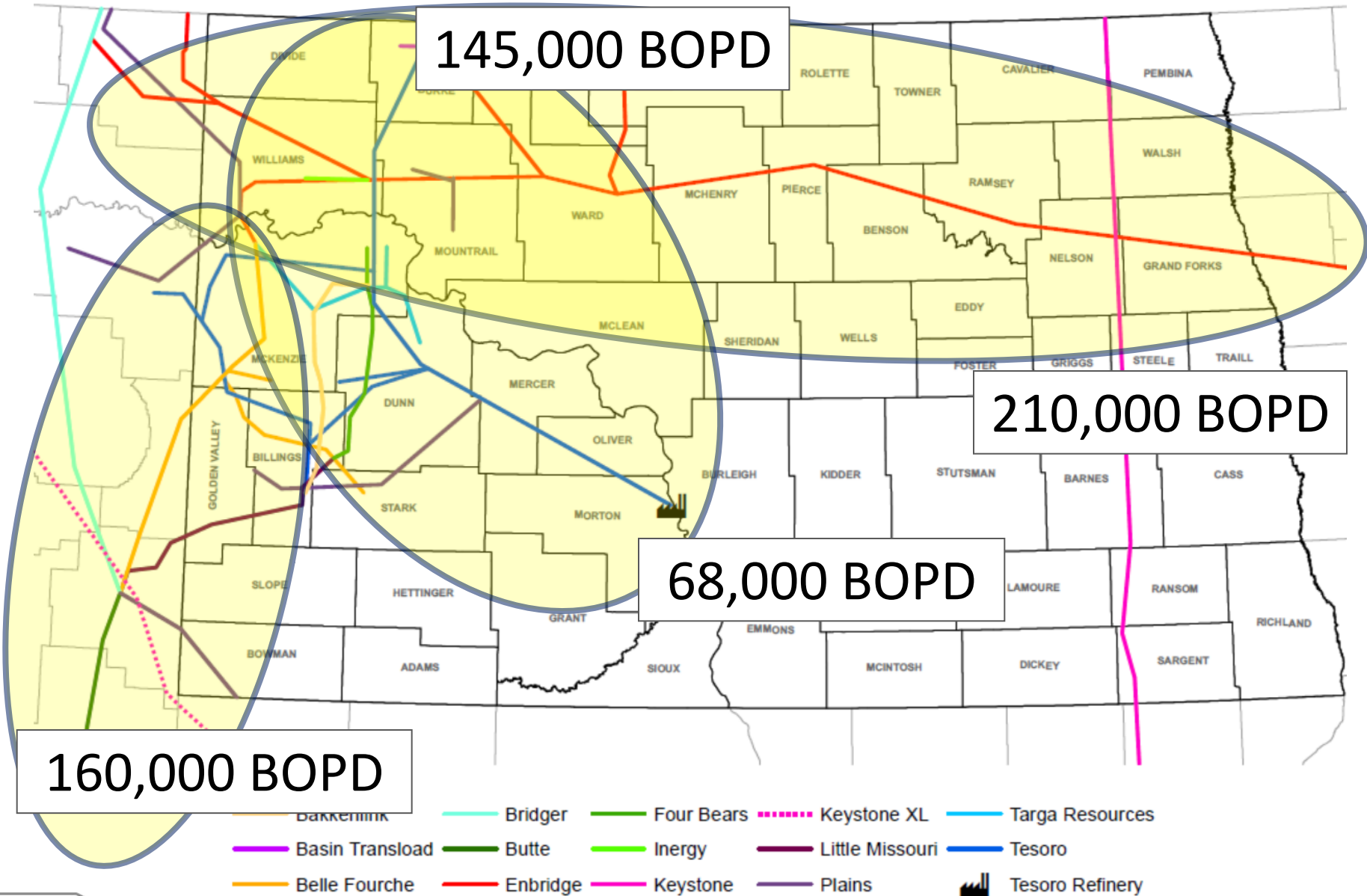
# North Dakota Crude Oil Pipelines



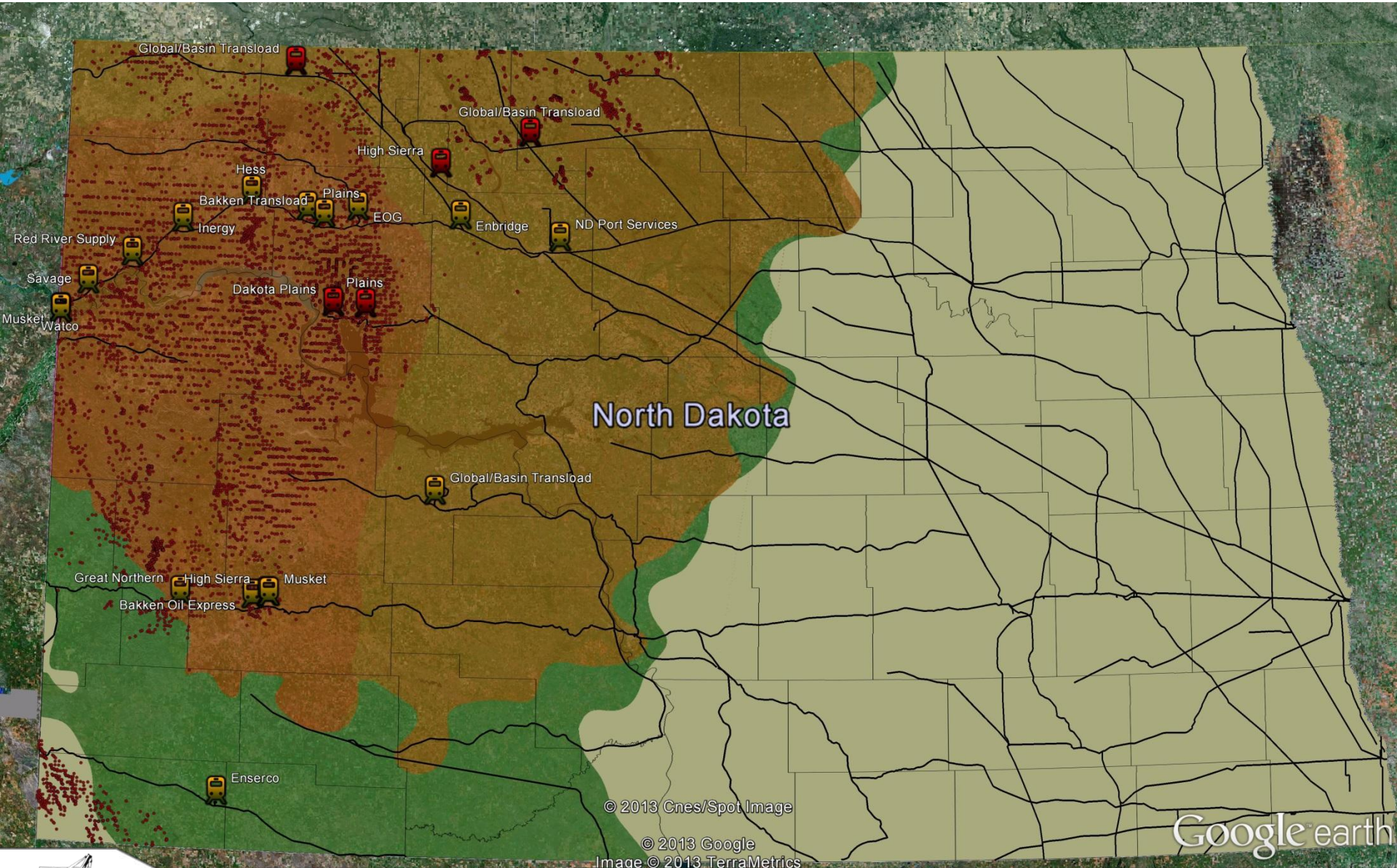
\*Modified from Bridger and Belle Fourche Pipelines



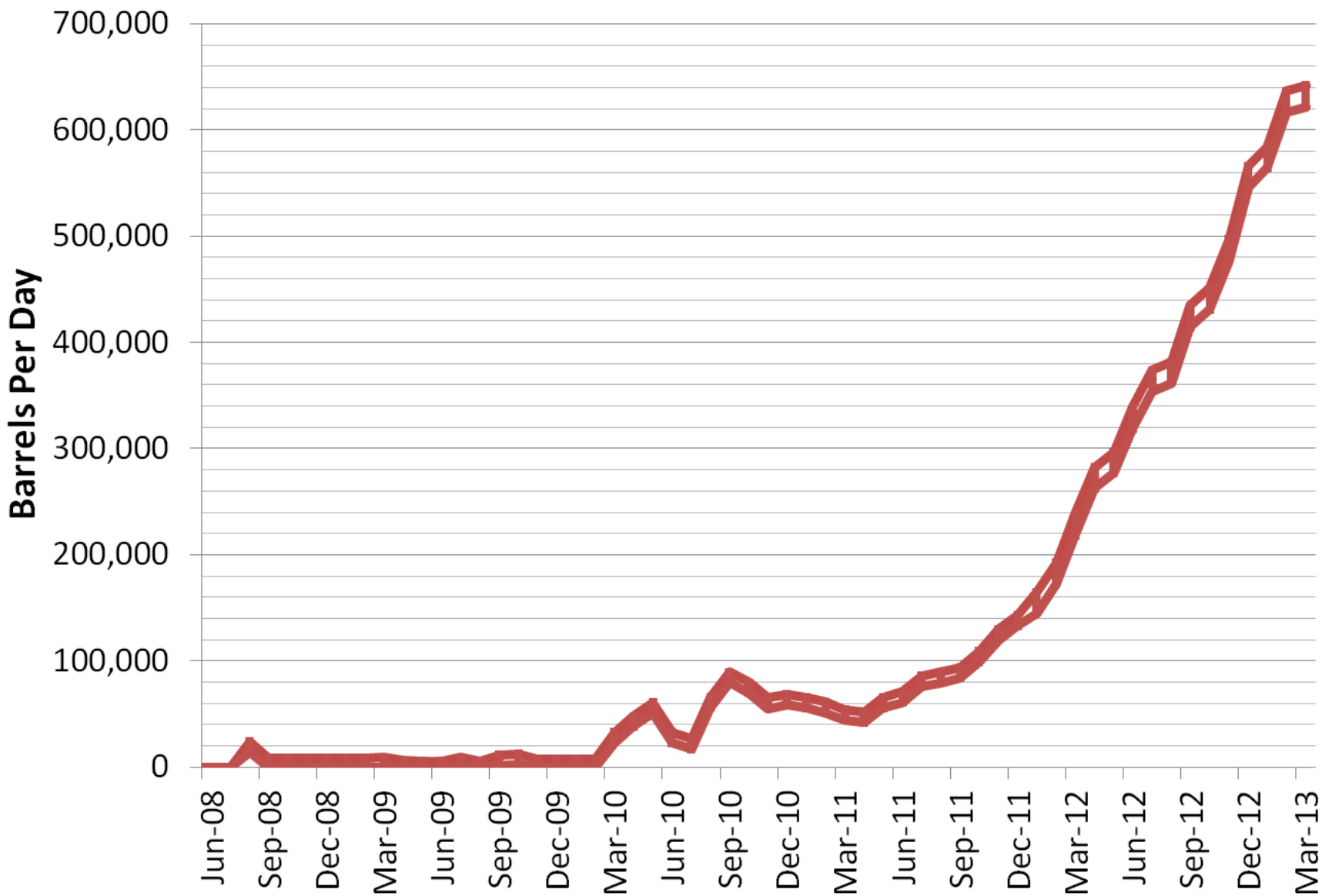
# North Dakota Crude Oil Pipelines



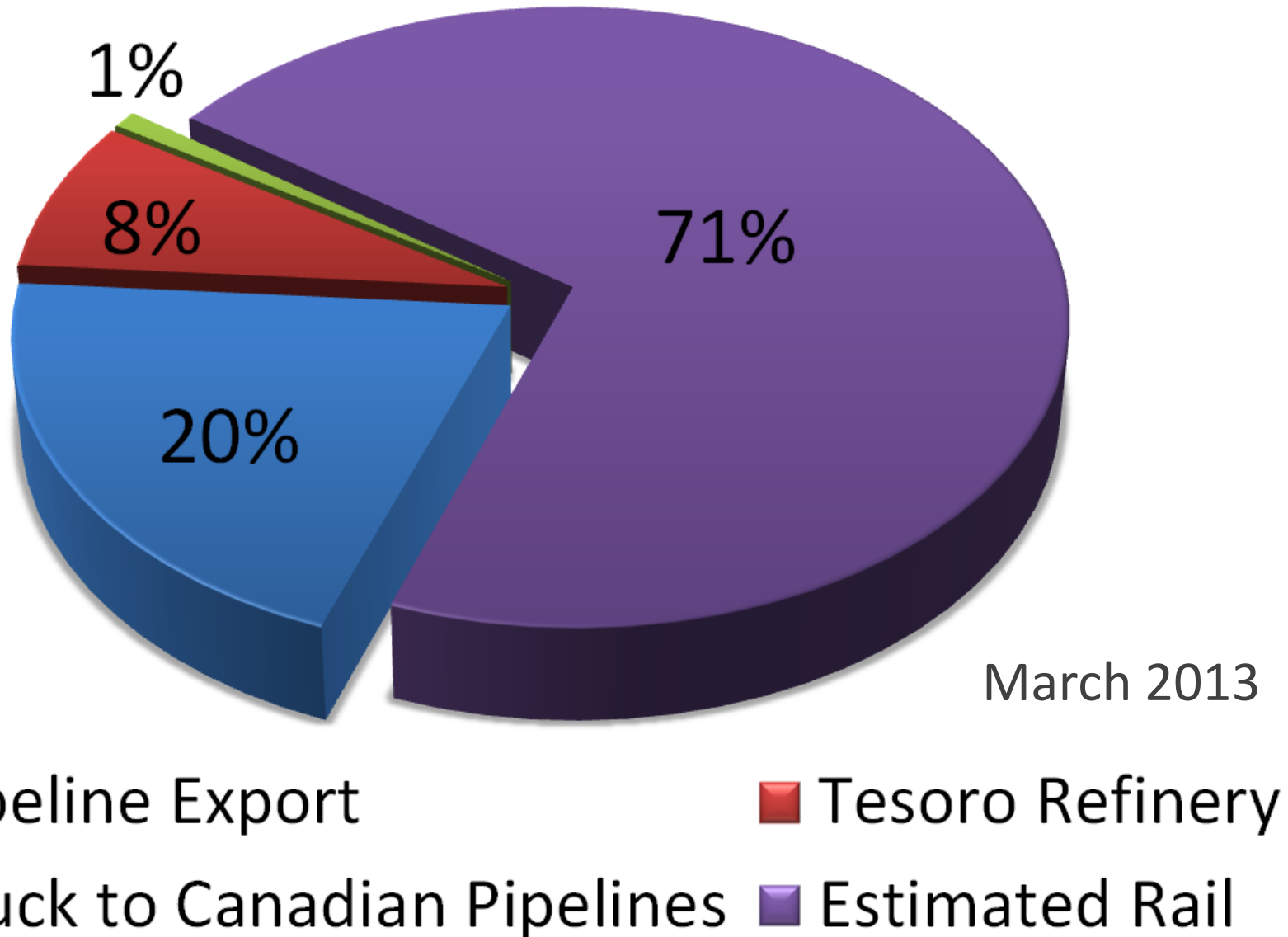
# Oil Loading Rail Facilities



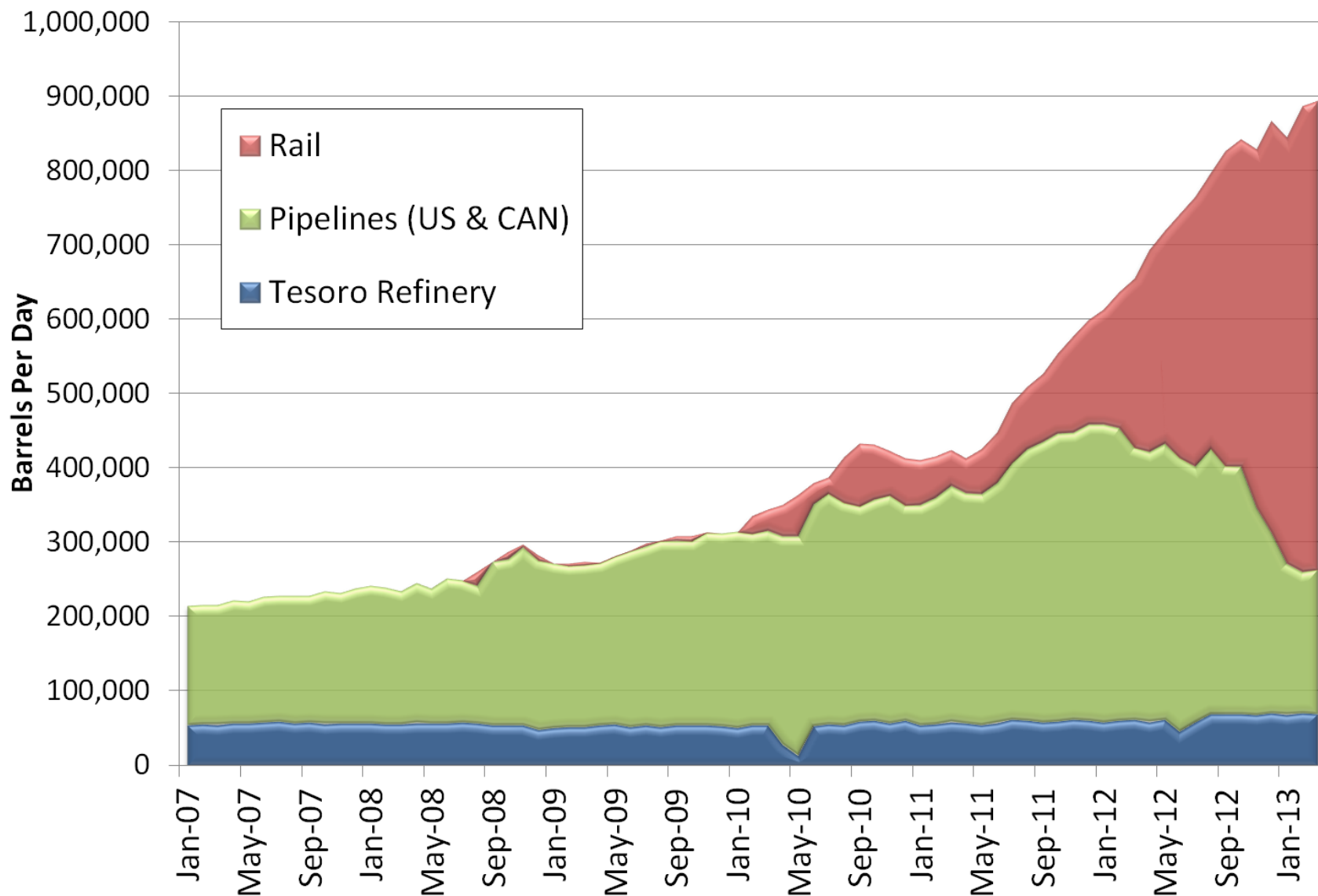
# Estimated ND Rail Export Volumes



# Estimated Williston Basin Oil Transportation



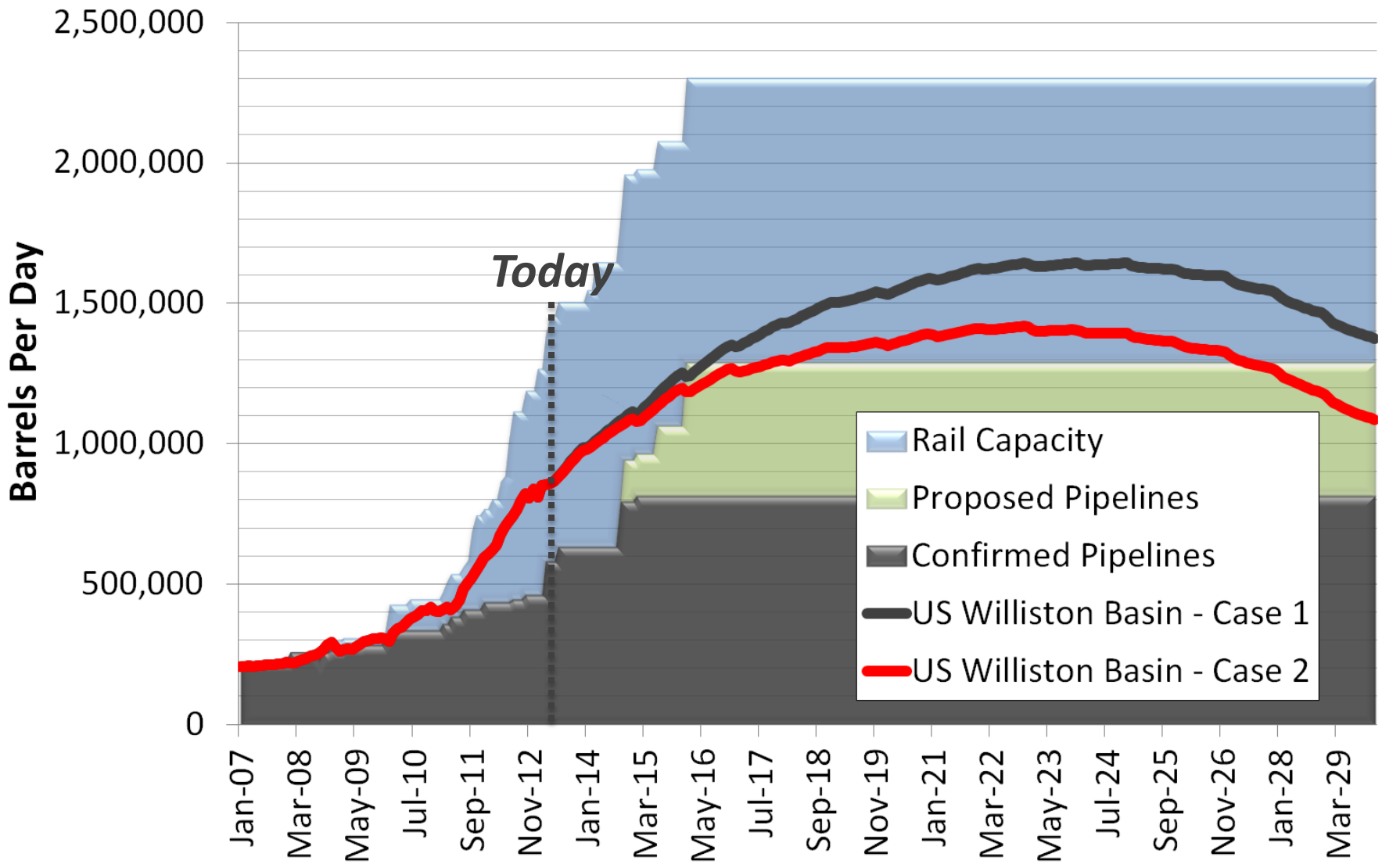
# US Williston Basin Oil Transport\*



*\*Some data based on estimates or assumptions*



# Williston Basin Oil Production & Export Capacity, BOPD



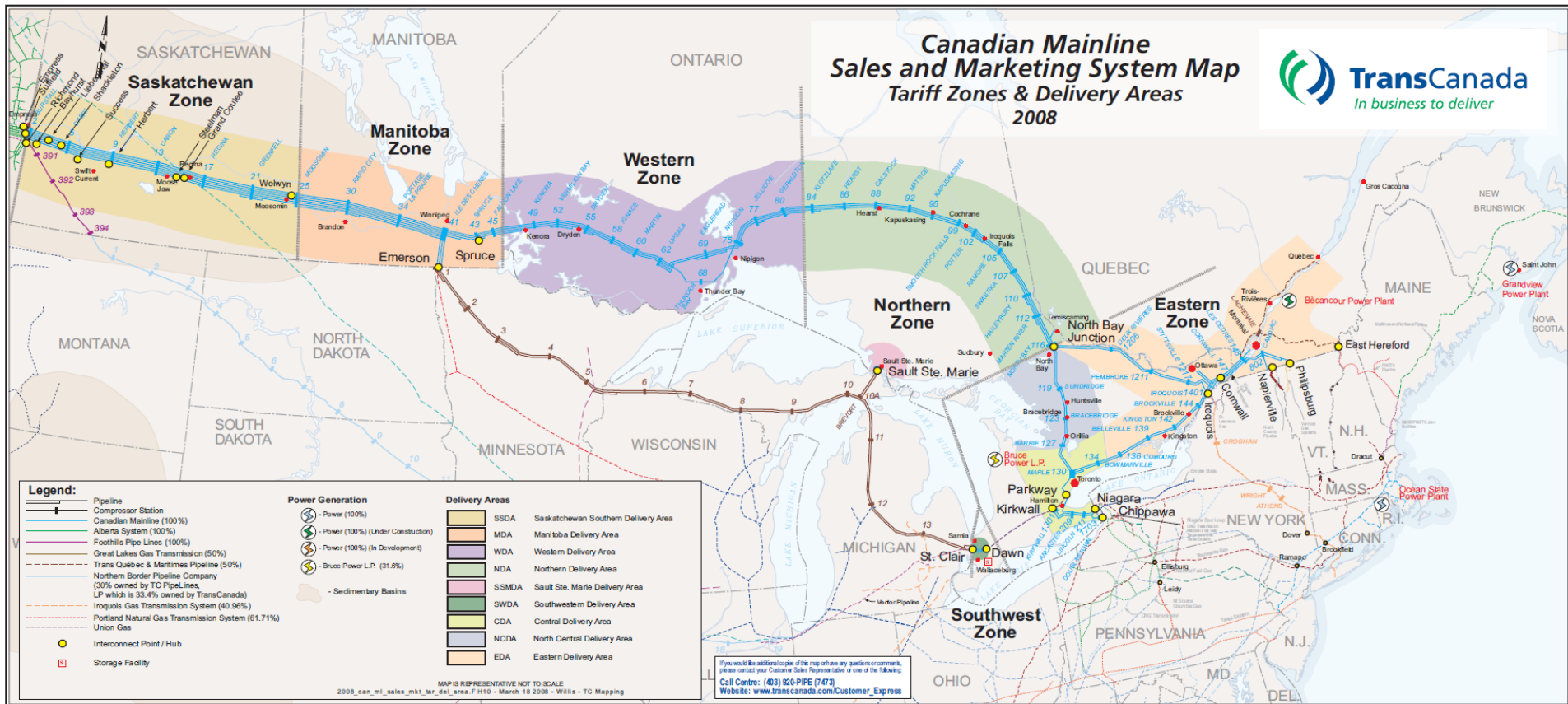
Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.



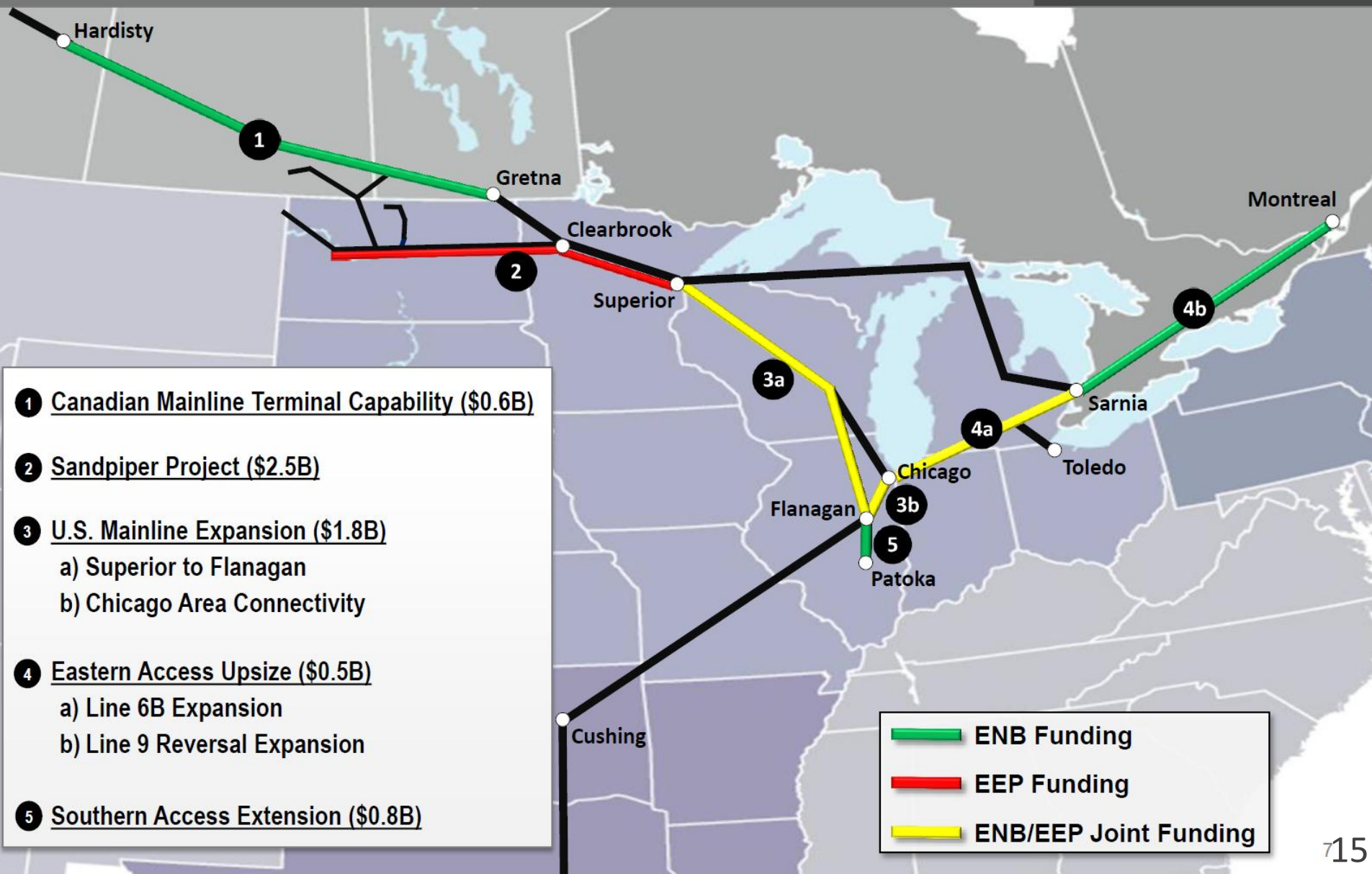
# TransCanada Open Season

April 15-June 17 Up to 850 mbpd

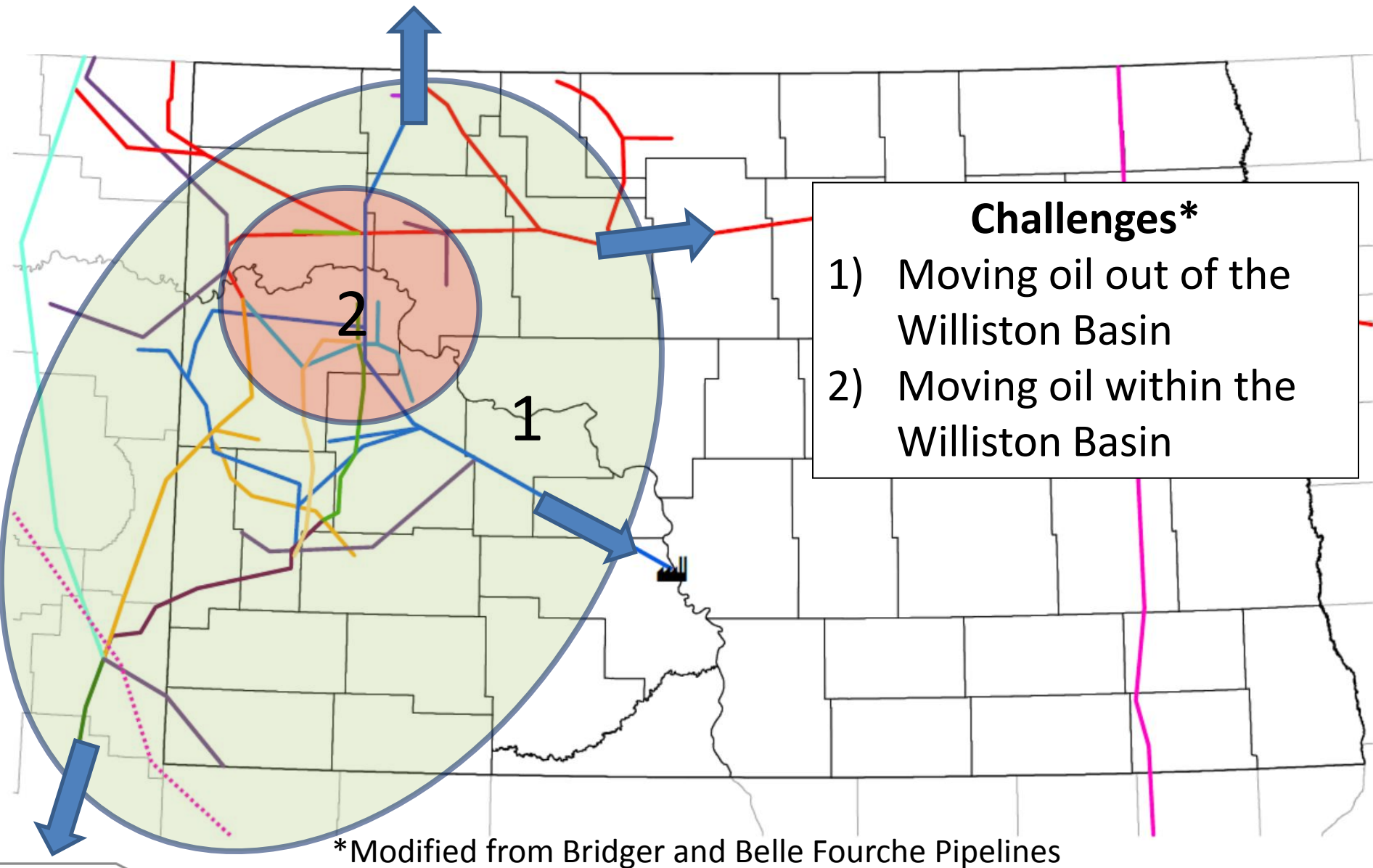
Proposed In-Service 2017/18



# \$6.2 Billion – Light Oil Market Access

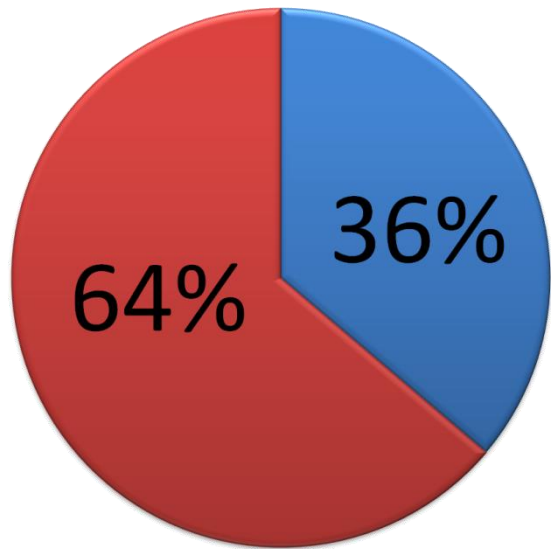


# North Dakota Crude Oil Pipelines



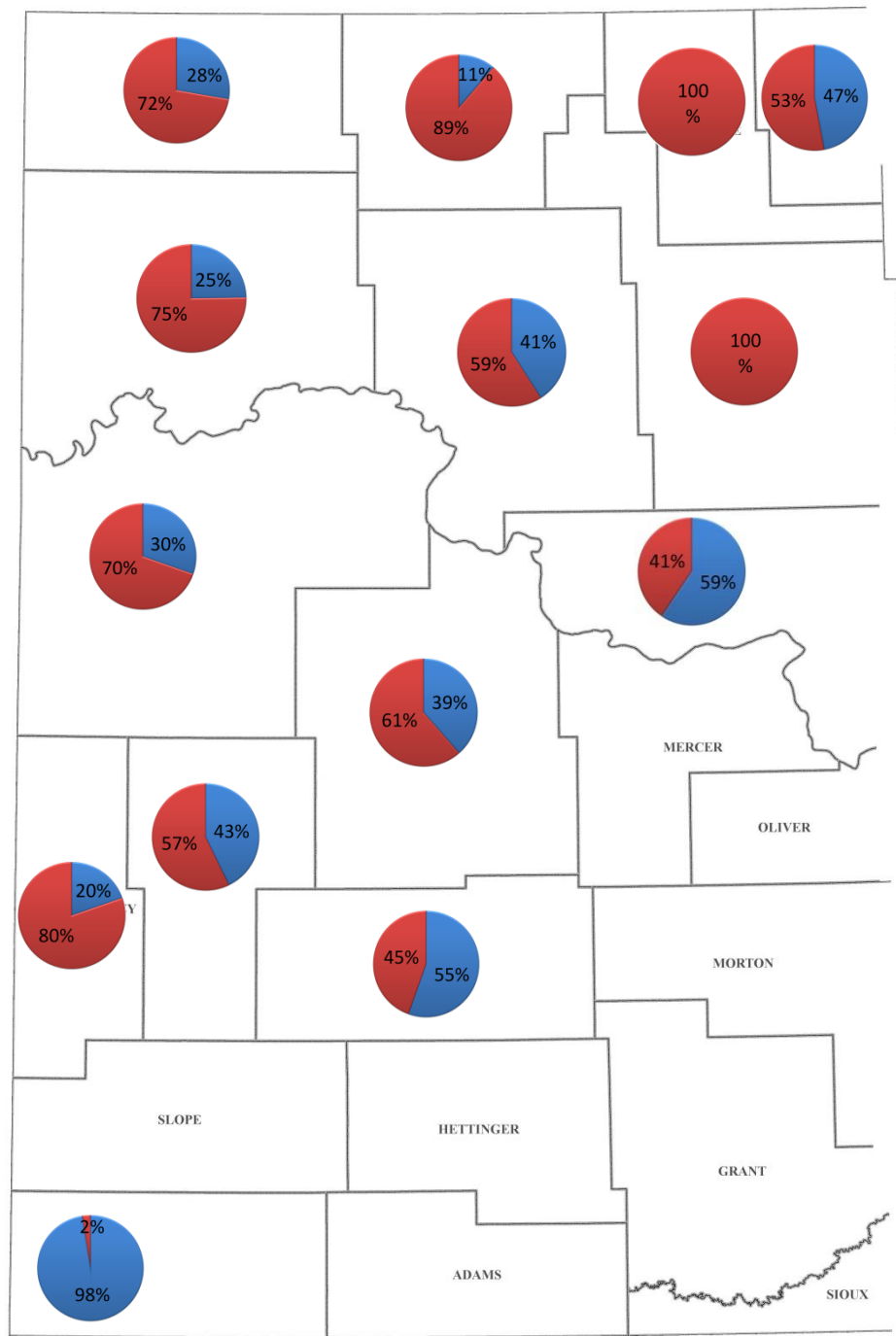
# ND Crude Oil Gathering

**Red** – Trucked  
**Blue** – Pipeline



All ND Production

Sep 2012 Estimates – Some data incomplete or unavailable



# Crude Oil

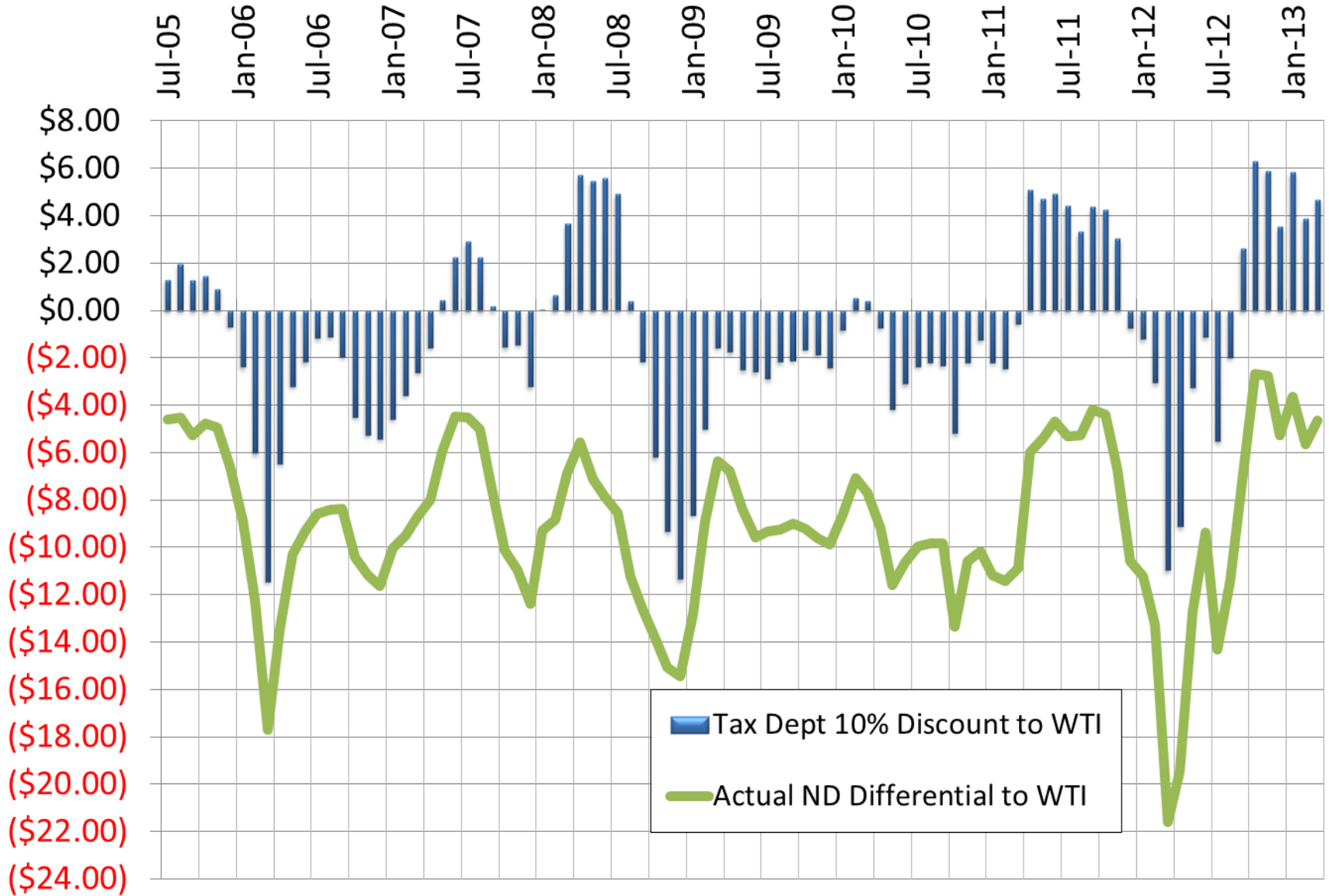
*Understanding production potential*

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# 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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Image © 2013 TerraMetrics

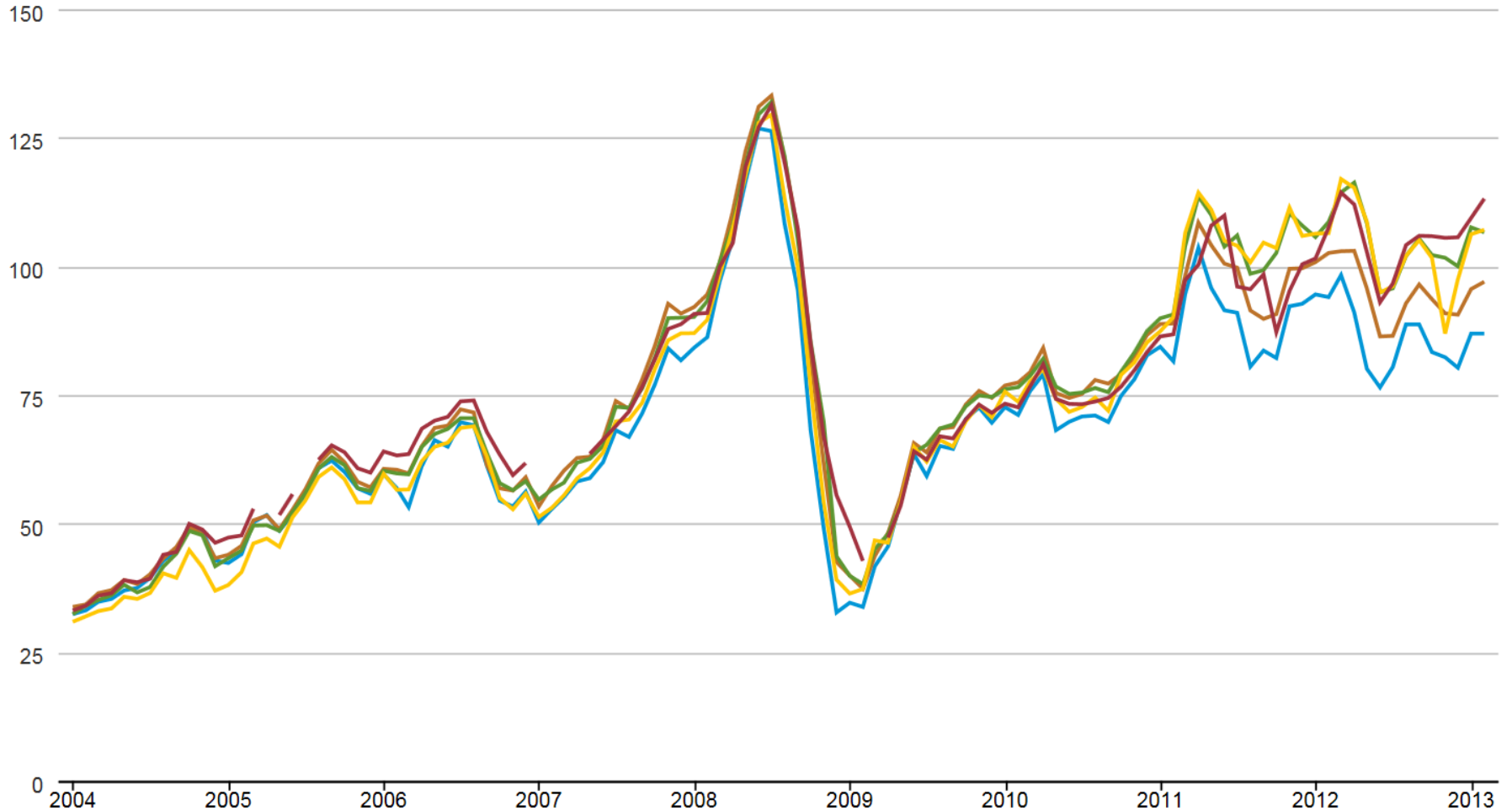
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Refiner Acquisition Cost of Crude

\$/bbl

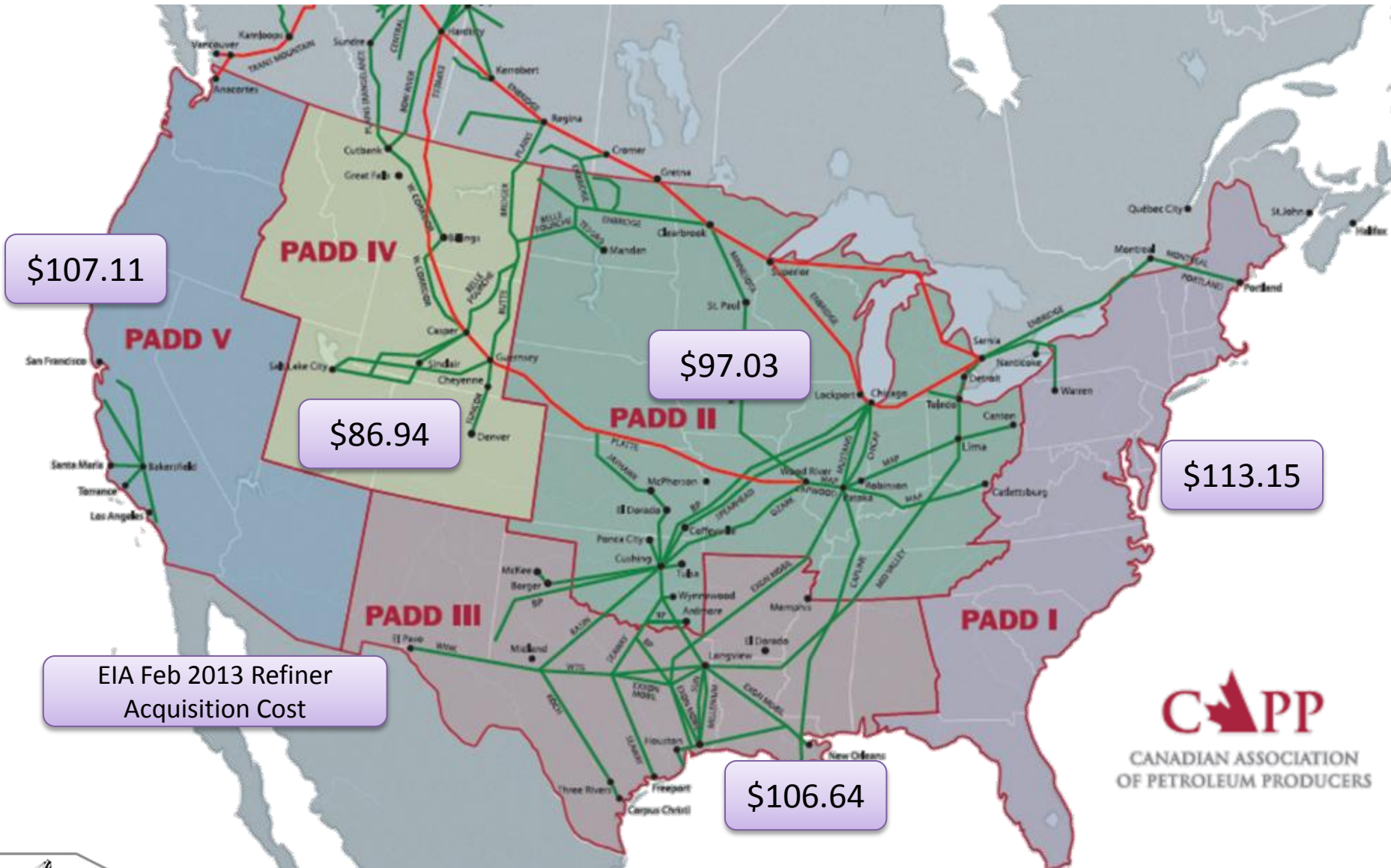


- Rocky Mountain (PADD 4) Crude Oil Domestic Acquisition Cost by Refiners
- Midwest (PADD 2) Crude Oil Domestic Acquisition Cost by Refiners
- Gulf Coast (PADD 3) Crude Oil Domestic Acquisition Cost by Refiners
- West Coast (PADD 5) Crude Oil Domestic Acquisition Cost by Refiners
- East Coast (PADD 1)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

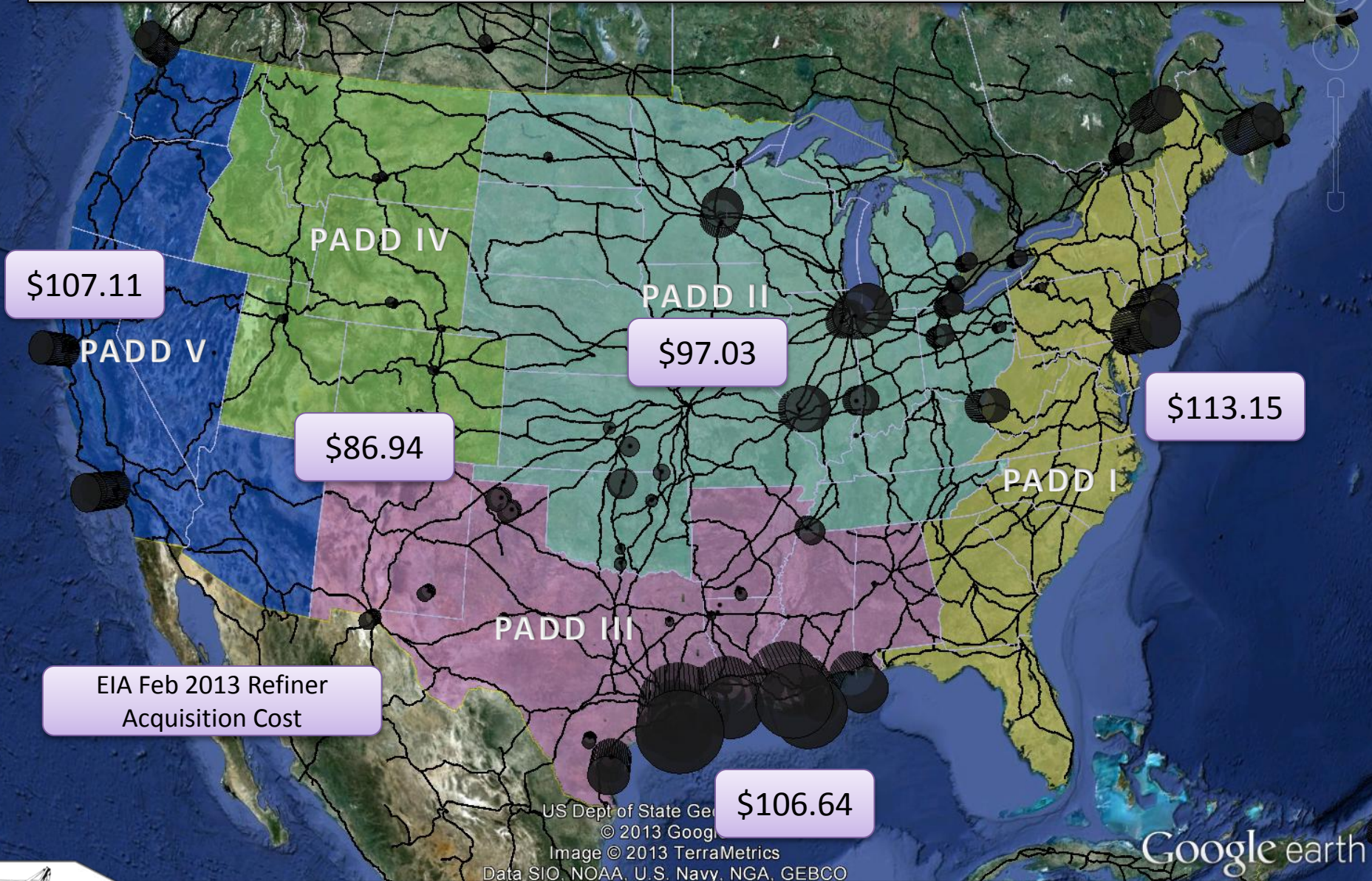
Source: U.S. Energy Information Administration



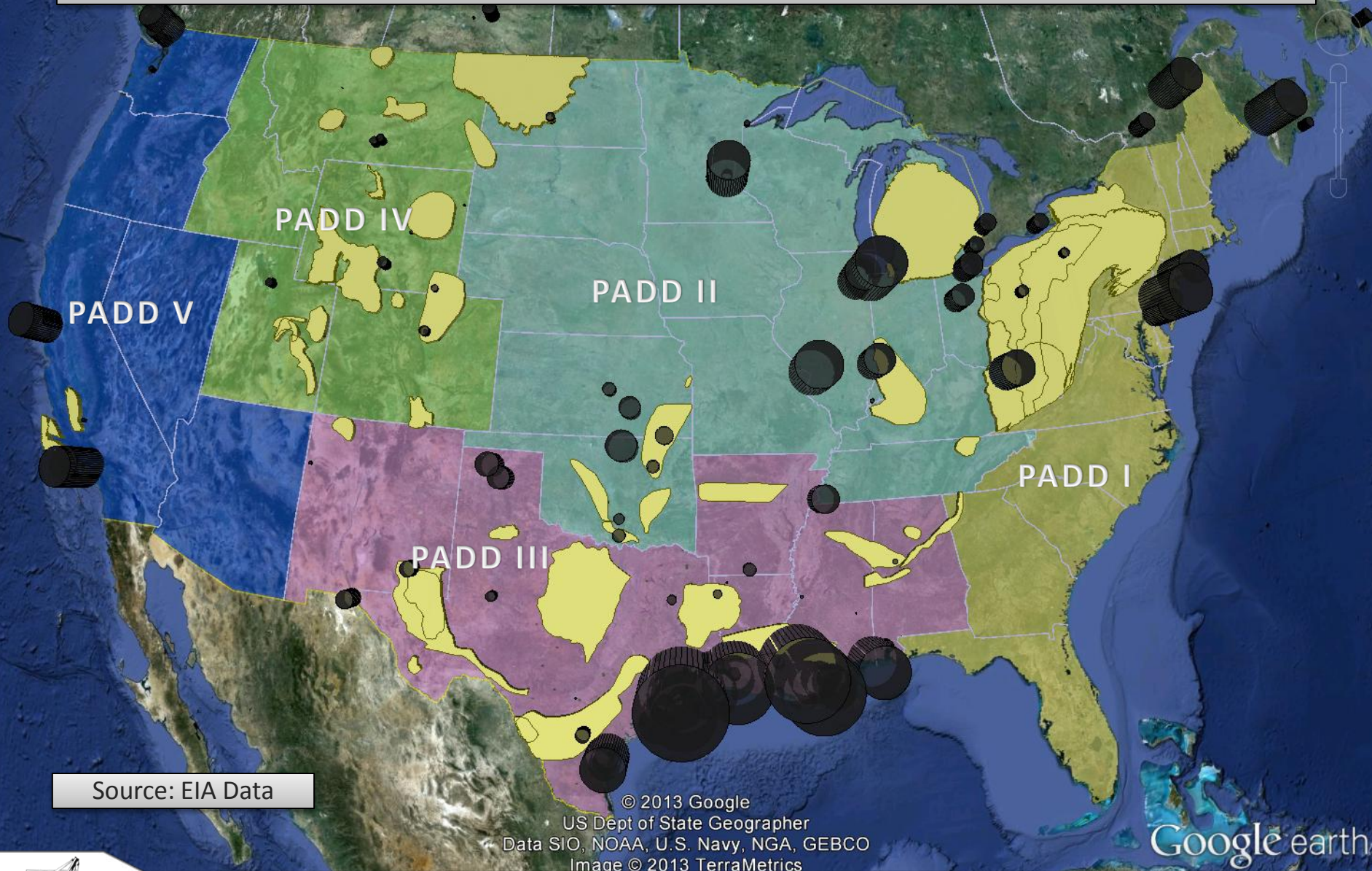
# Major Pipelines and Refining Centers



# Major Rail Lines and Refineries



# US Shale Plays and Refineries



Source: EIA Data

© 2013 Google  
US Dept of State Geographer  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image © 2013 TerraMetrics

Google earth



# Director's Cut

Lynn Helms  
NDIC Department of Mineral Resources

Sep Oil 27,988,858 barrels = 932,962 barrels/day  
Oct Oil 29,190,760 barrels = 941,637 barrels/day (preliminary)(NEW all-time high)  
876,480 barrels per day or 93% from Bakken and Three forks  
65,102 barrels per day or 7% from legacy conventional pools

Sep Gas 31,972,079 MCF = 1,065,736 MCF/day  
Oct Gas 33,178,369 MCF = 1,070,270 MCF/day (preliminary)(NEW all-time high)

Sep Producing Wells = 9,701  
Oct Producing Wells = 9,900 (preliminary)(NEW all-time high)  
5,939 or 60% are now unconventional Bakken – Three forks wells  
3,963 wells or 40% produce from legacy conventional pools

Sep Permitting: 287 drilling and 2 seismic  
Oct Permitting: 267 drilling and 5 seismic  
Nov Permitting: 232 drilling and 1 seismic (all time high was 370 in 10/2012)

Sep Sweet Crude Price = \$92.96/barrel  
Oct Sweet Crude Price = \$85.16/barrel  
Nov Sweet Crude Price = \$71.42/barrel  
Today Sweet Crude Price = \$73.00/barrel (all-time high was \$136.29 7/3/2008)

Sep rig count 183  
Oct rig count 183  
Nov rig count 184  
Today's rig count is 189 (all-time high was 218 on 5/29/2012)  
Operators have indicated plans to add 10-15 rigs by mid-year 2014

## Comments:

The drilling rig count was unchanged from Sep to Oct and the number of well completions dropped only slightly from 225 to 202, resulting in only a 1% increase in oil production. All McKenzie County roads were shut down for 3-4 days due to rain. McKenzie County has 1/3 of the drilling rigs and 29% of state production. This means production likely would have been 10,000-15,000 barrels per day higher without that weather event. Days from spud to initial production increased from 100 to 114. The uncertainty surrounding federal policies on taxation and hydraulic fracturing regulation continues to make investors nervous.

More than 95% of drilling still targets the Bakken and Three Forks formations.

We estimate that at the end of Oct there were about 460 wells waiting on completion services, a decrease of 40.

Crude oil take away capacity is expected to be adequate as long as rail deliveries to coastal refineries keep growing.

Rig count in the Williston basin is increasing slowly. Utilization rate for rigs capable of +20,000 feet remains about 90%, and for shallow well rigs (drill to 7,000 feet or less) about 60%.

Drilling permit activity was down in October and November as operators begin winter operations. The goal is to maintain a sufficient permit inventory to accommodate multi-well pads through the end of load restrictions in 2014 as well as the time required to deal with federal hydraulic fracturing rules if required.

The number of rigs actively drilling on federal surface in the Dakota Prairie Grasslands remains at 0.

Activity on the Fort Berthold Reservation is as follows

20 drilling rigs (9 on fee lands and 11 on trust lands)

309,707 barrels of oil per day (121,986 from trust lands & 187,721 from fee lands)

1,076 active wells (781 on trust lands & 295 on fee lands)

127 wells waiting on completion

317 approved drilling permits (284 on trust lands & 33 on fee lands)

2,314 additional potential future wells (1,473 on trust lands & 841 on fee lands)

Seismic activity is steady with 5 surveys active/recording, 0 remediating, 1 suspended, and 3 permitted. There are now 4 buried arrays in North Dakota for monitoring and optimizing hydraulic fracturing.

North Dakota leasing activity is very low, consisting mostly of renewals and top leases in the Bakken - Three Forks area.

US natural gas storage is now 3% below the five-year average indicating gradually increasing prices in the foreseeable future. North Dakota shallow gas exploration may be economic at future gas prices.

The price of natural gas delivered to Northern Border at Watford City is up \$0.60 to \$3.67/MCF. This results in a current oil to gas price ratio of 19:1. The percentage of gas flared is down 1% to 28%. The historical high was 36% in 09/2011.

Draft BLM regulations for hydraulic fracturing on federal lands were published last year. BLM received over 177,000 comments and withdrew the rule. A new proposed rule was published in the federal register on 5/24/2013 and the comment period ended 8/23/2013.

This time BLM received 1.2 million comments. Thanks to all who provided comments in support of a “states first” policy.

Draft EPA Guidance for permitting hydraulic fracturing using diesel fuel was also published last year. EPA received over 97,000 comments and is reported to have sent the final guidance document to OMB in 9/2013.