



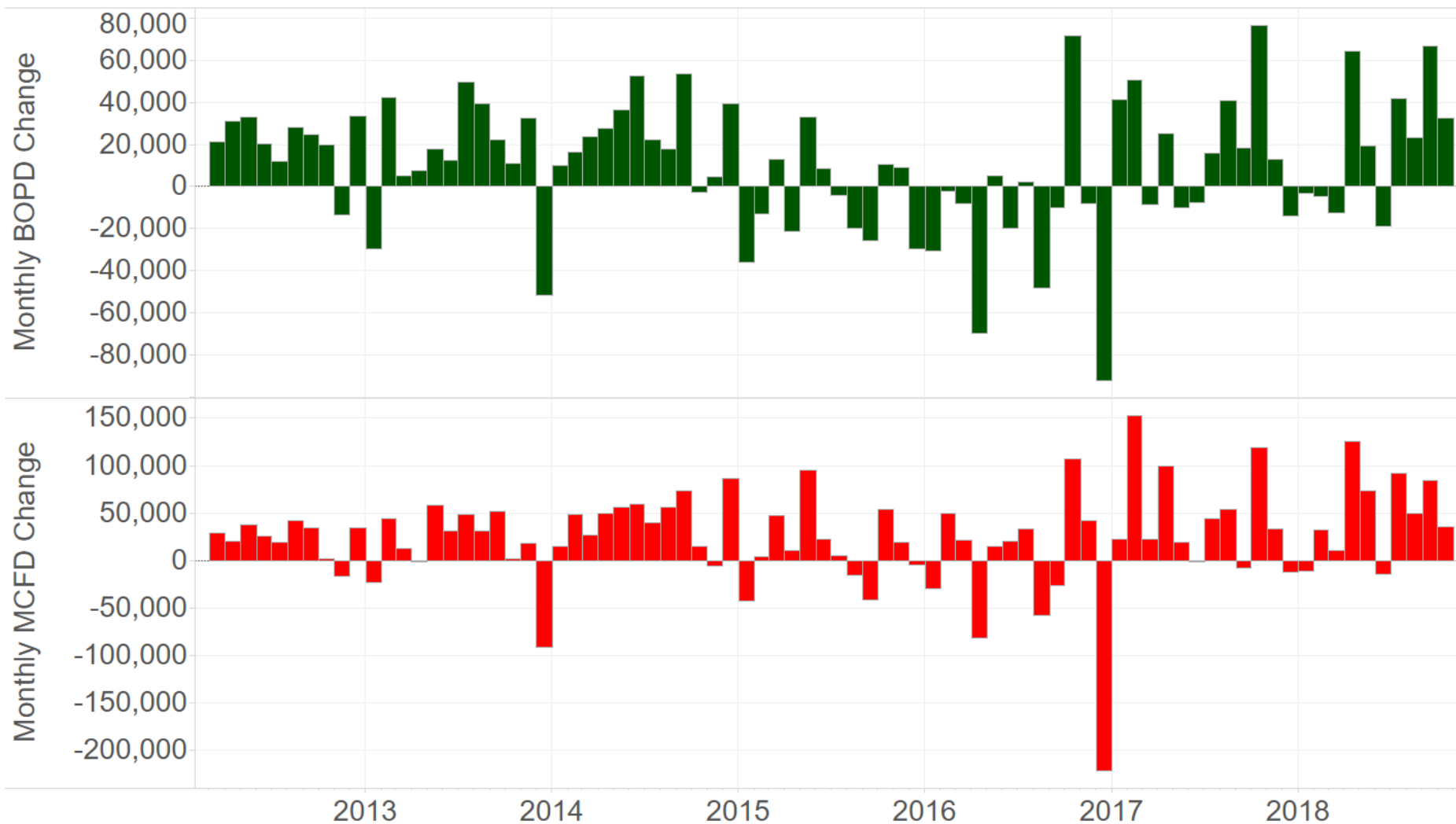
**December 2018 Monthly Update**  
**North Dakota Pipeline Authority**  
**Justin J. Kringstad**  
**December 14, 2018**

# US Williston Basin Oil Production - 2018

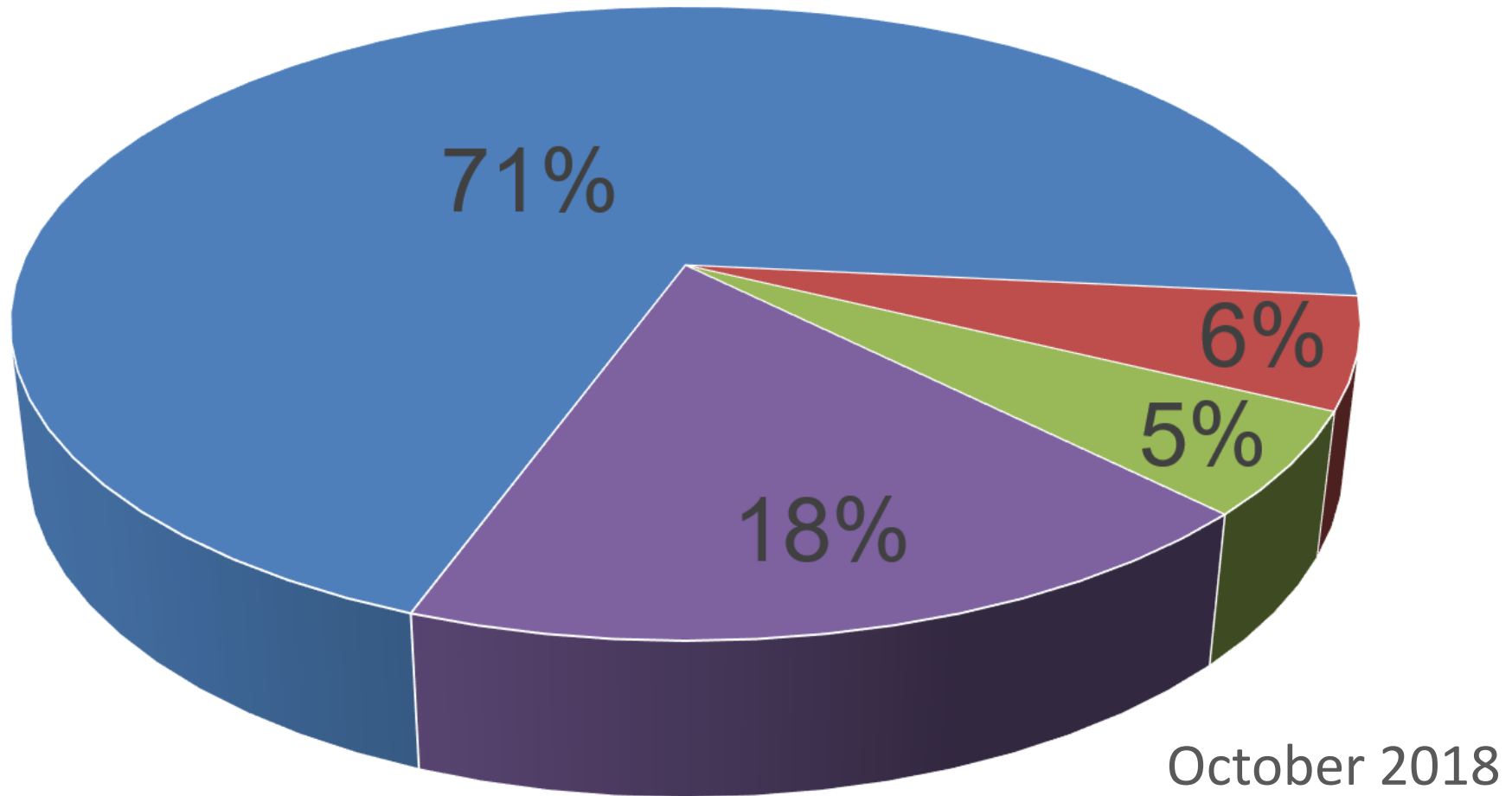
<b>MONTH</b>	<b>ND</b>	<b>Eastern MT*</b>	<b>SD</b>	<b>TOTAL</b>
January	1,177,679	50,110	3,555	1,231,343
February	1,175,307	50,861	3,628	1,229,795
March	1,162,354	49,837	3,502	1,215,693
April	1,227,238	52,426	3,515	1,283,179
May	1,248,202	53,717	3,471	1,305,390
June	1,227,436	53,987	3,443	1,284,866
July	1,269,297	53,194	3,377	1,325,868
August	1,292,533	55,599	3,471	1,351,603
September	1,359,282	54,516	3,475	1,417,273
October	1,391,877			
November				
December				



# Monthly Production Change



# Estimated Williston Basin Oil Transportation



■ Pipeline Export

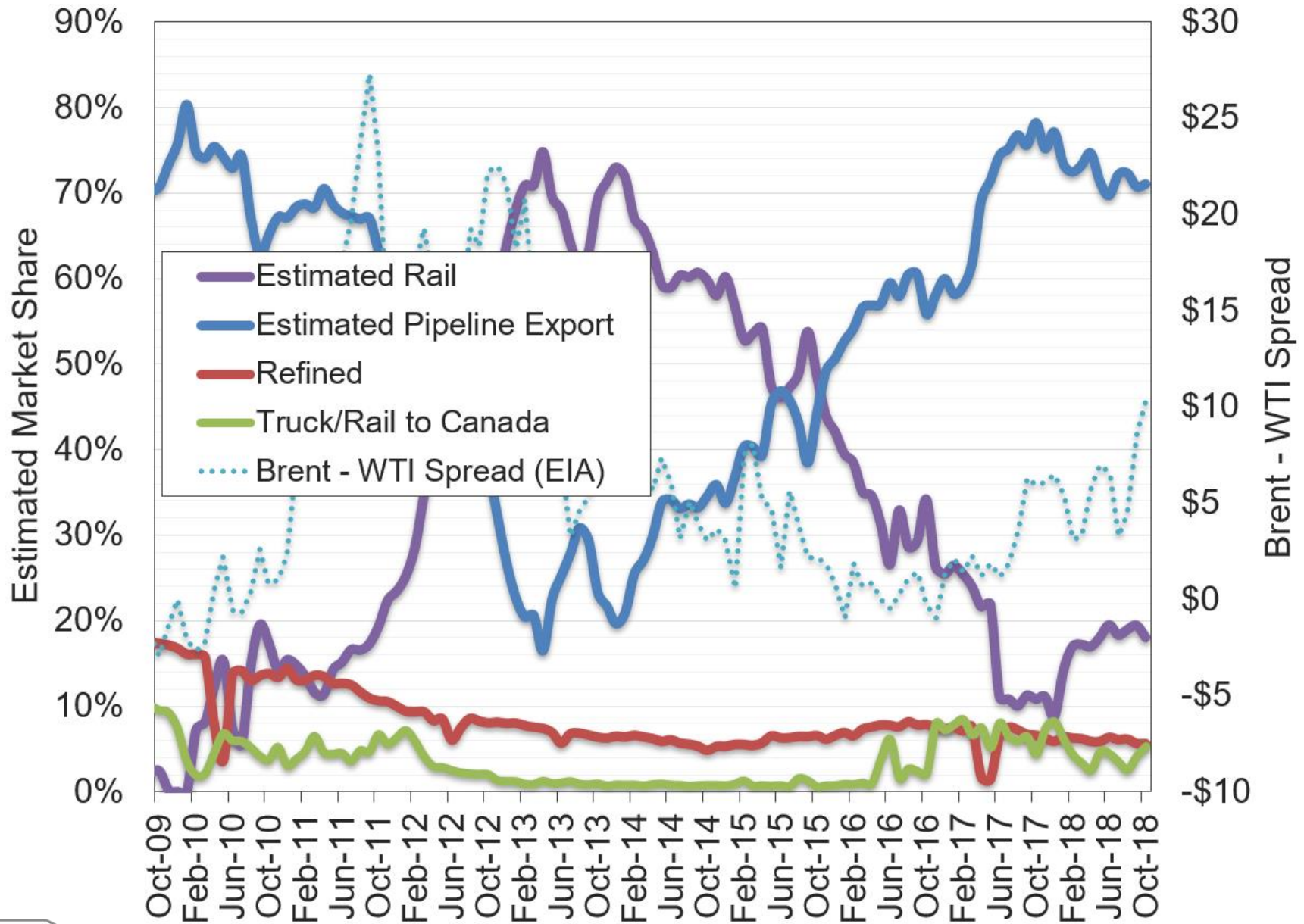
■ Truck/Rail to Canada

■ Refined

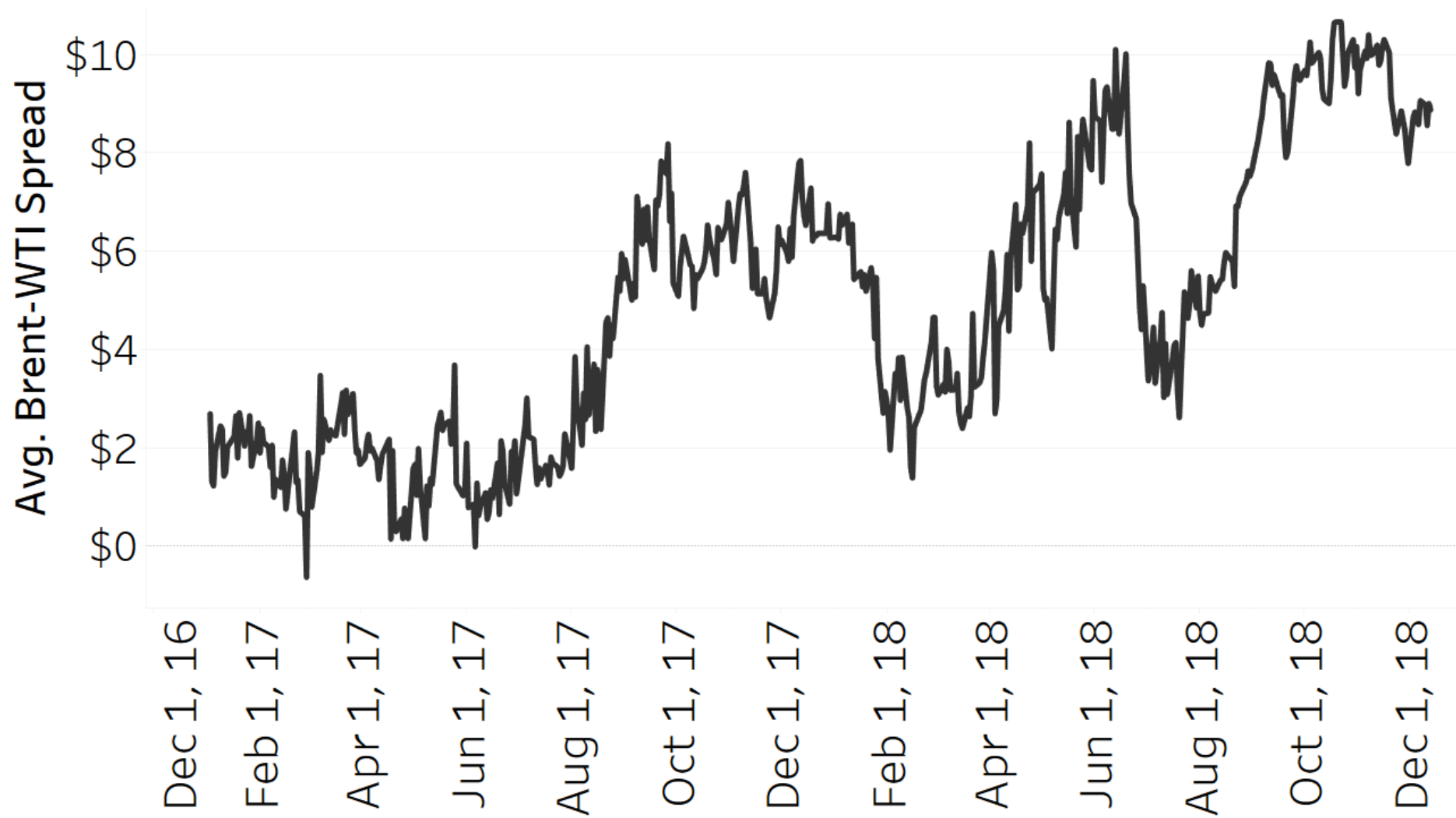
■ Estimated Rail



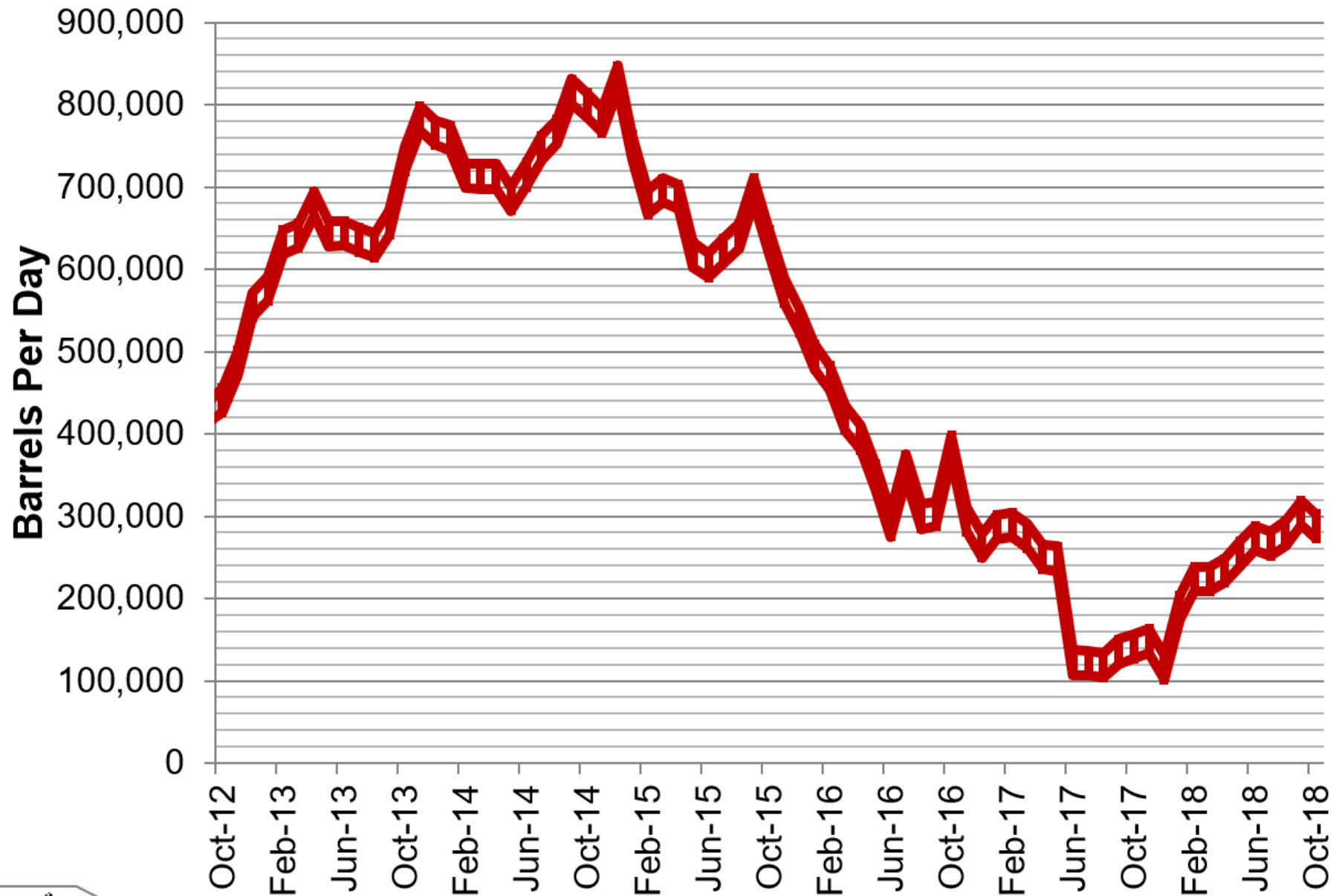
# Estimated Williston Basin Oil Transportation



# Brent – WTI Price Spread

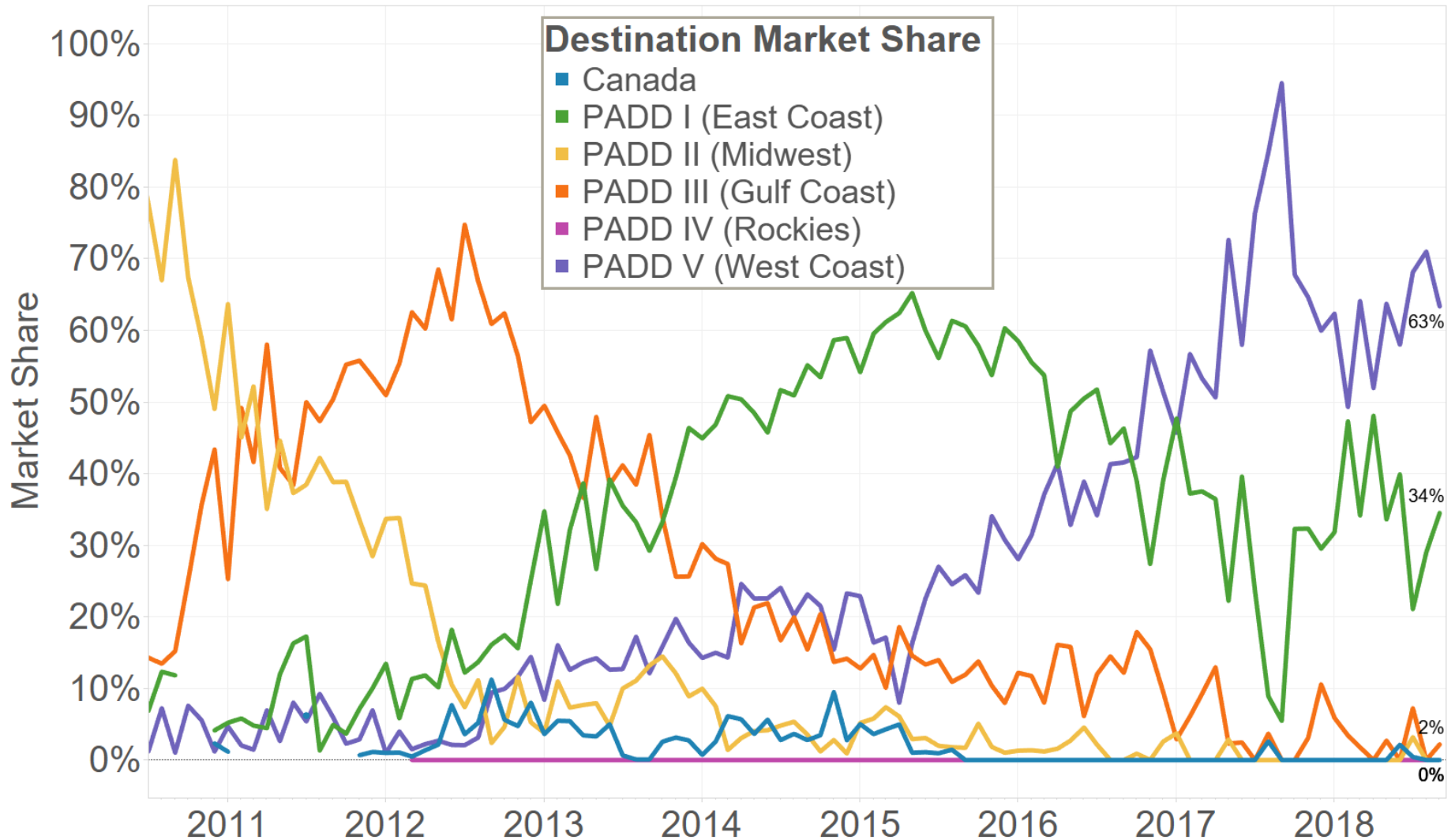


# Estimated ND Rail Export Volumes





# Rail Destinations Market Share (Sep. 2018)

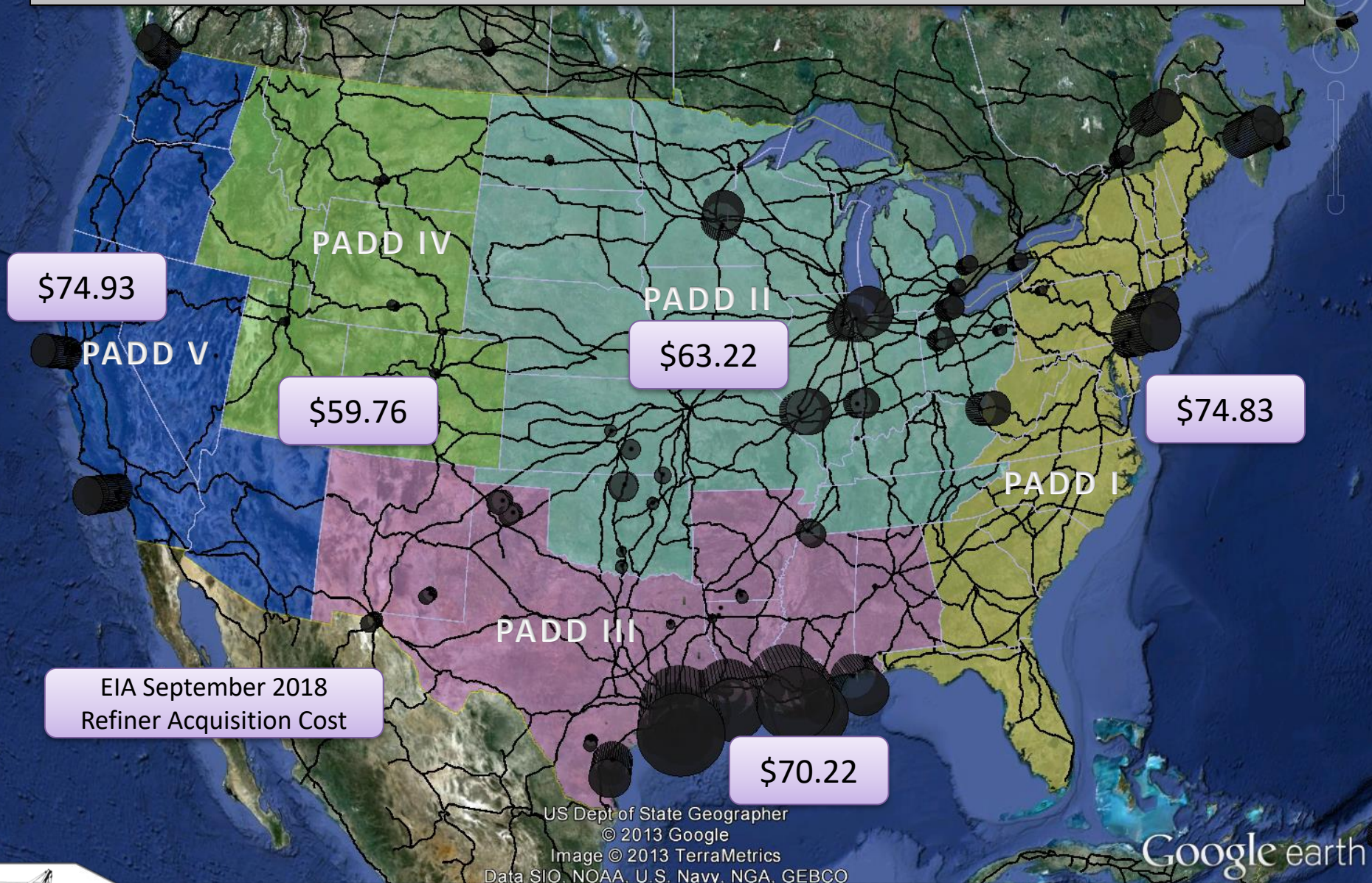


*Data for Rail Destination Market Share Provided by the US Energy Information Administration*



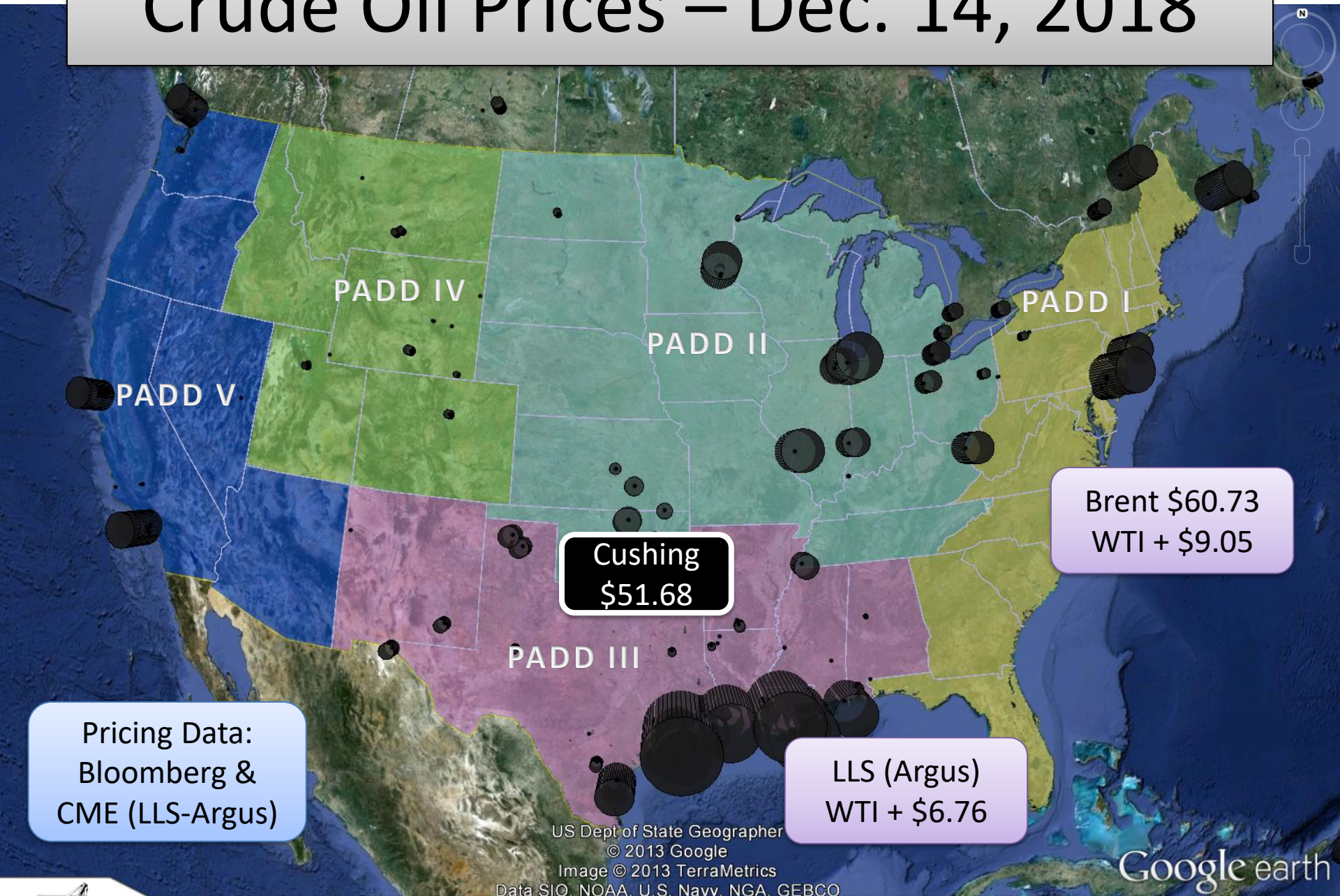


# Major Rail Lines and Refineries

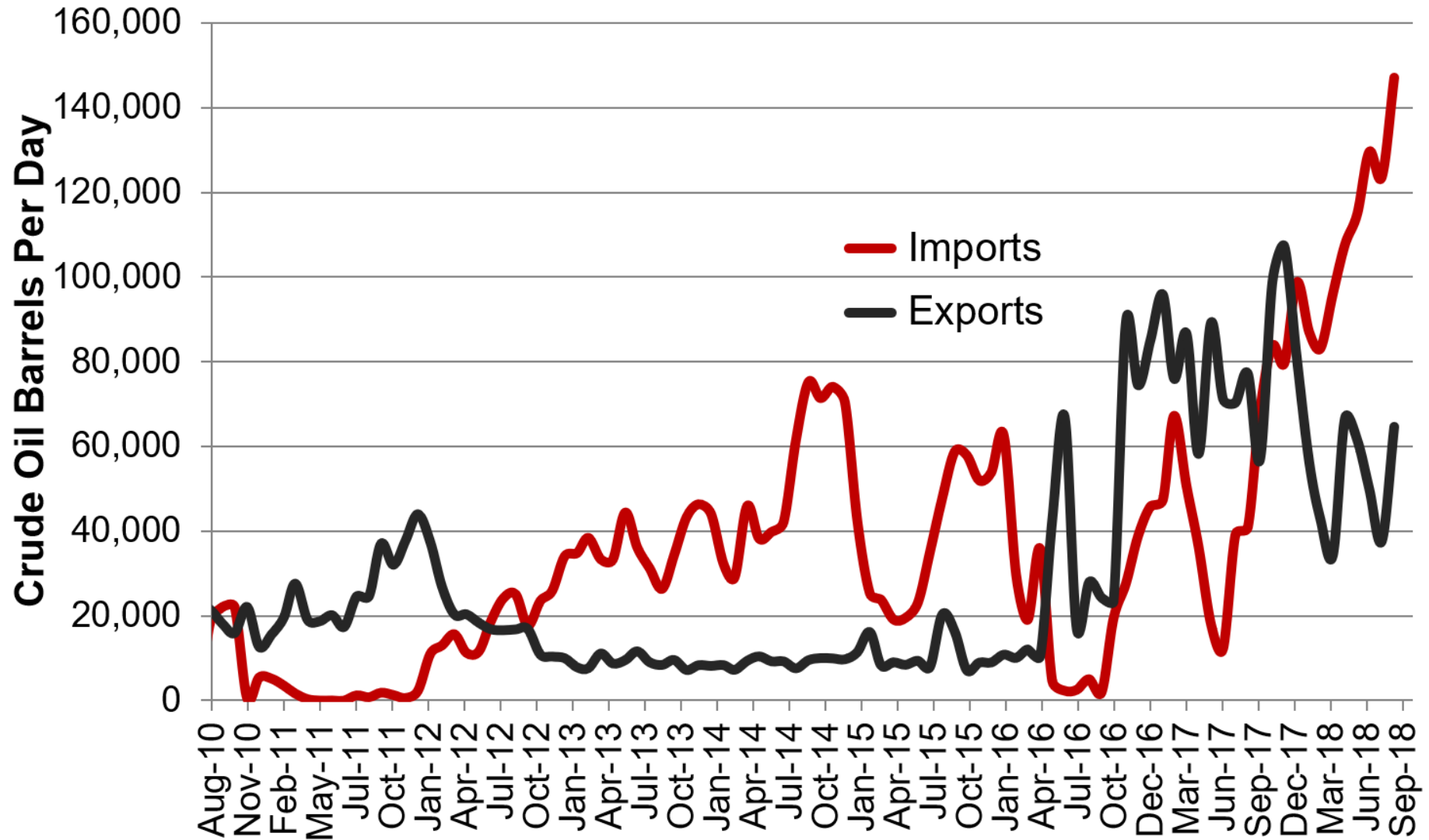




# Crude Oil Prices – Dec. 14, 2018



# Williston Basin Truck/Rail Imports and Exports with Canada

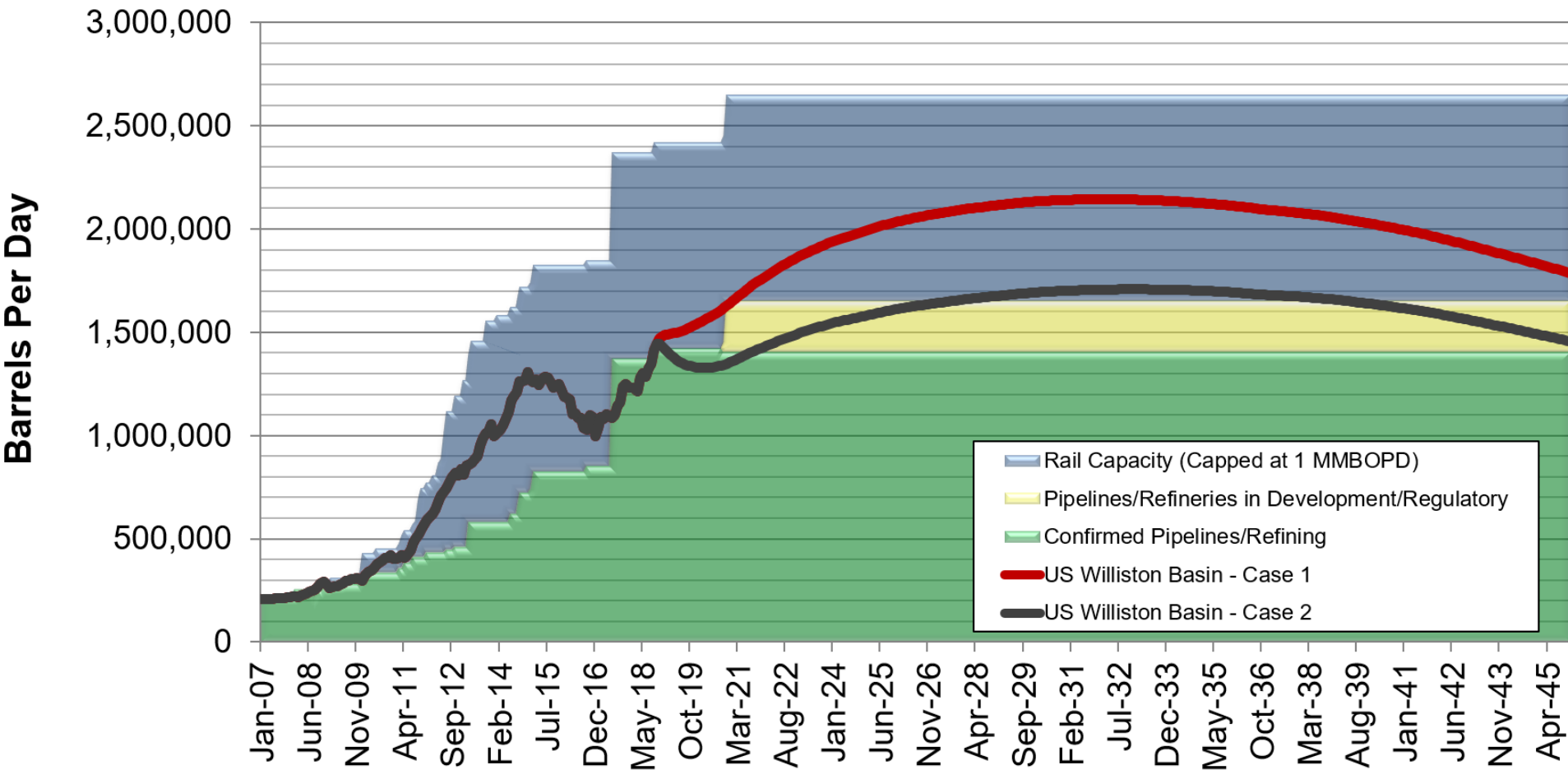


***Data for imports/exports chart is provided by the US International Trade Commission and represents traffic across US/Canada border in the Williston Basin area.***



# Williston Basin Oil Production & Export Capacity, BOPD

*Assumes Current Technology – Enhanced Oil Recovery Not Included*



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







CANADA'S OIL & NATURAL GAS PRODUCERS

For information contact: (403) 267-1141 / CAPP.ca

2017 CANADIAN CRUDE OIL PRODUCTION		
	000 m³/d	000 b/d
British Columbia	12	75
Alberta	534	3,363
Saskatchewan	77	486
Manitoba	6	39
Northwest Territories	0	0.3
Western Canada	630	3,963
Eastern Canada	36	224
Total Canada	665	4,187

COME BY CHANCE  
Slievepeak.....130



PIPELINE TOLLS FOR LIGHT OIL (US\$ per barrel)	
Edmonton to	
Burnaby (Trans Mountain)	1.95
Anacortes (Trans Mountain/Puget)	2.25
Sarnia (Enbridge)	4.80
Montréal (Enbridge)	6.10
Chicago (Enbridge)	4.15
Cushing (Enbridge)	5.35-6.70
Wood River (Enbridge/Mustang/Capwood)	5.50
U.S. Gulf Coast (Enbridge/Seaway)	6.45-9.55
Hardisty to	
Guernsey (Express/Platte)	3.30*
Wood River (Express/Platte)	5.05*
Wood River (Keystone)	4.50**-7.95
U.S. Gulf Coast (Enbridge/Seaway)	6.20*-8.65
U.S. Gulf Coast (Keystone/TC Gulf Coast)	9.70*-10.95

U.S. East Coast to Montréal (Portland/Montréal) 0.90

St. James to Wood River (Capline/Capwood) 1.35

PIPELINE TOLLS FOR HEAVY OIL (US\$ per barrel)	
Hardisty to:	
Chicago (Enbridge)	4.35
Cushing (Enbridge)	5.55*-6.90
Cushing (Keystone)	6.25**-10.10
Wood River (Enbridge/Mustang/Capwood)	6.15
Wood River (Keystone)	5.15**-9.05
Wood River (Express/Platte)	5.65*
U.S. Gulf Coast (Enbridge/Seaway)	7.30*-10.40
U.S. Gulf Coast (Keystone/TC Gulf Coast)	10.55*-12.45

Notes: 1) Assumed exchange rate = 0.79 US\$ / 1 C\$ (May 2018 average)  
2) Tolls rounded to nearest 5 cents  
3) Tolls in effect July 1, 2018

\* 15-year committed toll  
\*\* 20-year committed toll  
† First Open Season, 15-year, 50,000 b/d committed volumes  
‡ International Joint Toll

Crude Refining Capacities as at June 1, 2018  
(thousand barrels per day)

PADD Petroleum Administration for Defense District

Major Existing Crude Oil Pipelines Carrying Canadian Crude Oil

Selected Other Crude Oil Pipelines

VANCOUVER TO:  
Japan - 4,300 miles  
Taiwan - 5,600 miles  
S. Korea - 4,600 miles  
China - 5,100 miles

San Francisco - 800 miles  
Los Angeles - 1,100 miles

VANCOUVER  
Parkland Fuel (Burnaby).....55

PUGET SOUND  
BP (Cherry Point).....236  
Shell (Anacortes).....137  
Anderson (Bastrop).....120  
Phillips 66 (Ferndale).....105  
TrailStone (Tacoma).....42

SAN FRANCISCO  
Chevron (Richmond).....257  
Anderson (Martinez).....196  
Shell (Martinez).....145  
Valero (Berkeley).....145  
Phillips 66 (Rocky & Santa Maria).....120

BAKERSFIELD  
Kern Oil.....26  
San Joaquin.....14

LOS ANGELES  
Anderson (Sanon/Wilmington).....380  
Chevron (El Segundo).....260  
PBF (Torrance).....155  
Phillips 66 (Sanon/Wilmington).....139  
Valero (Wilmington).....85  
Dalek (3-Paramount, LA, Bakersfield).....idled

UPGRADERS.....BITUMEN CAPACITY  
Syncona (Fort McMurray).....465  
Suncor (Fort McMurray).....438  
Shell (Sudbury).....240  
CNRL (Hinton).....200

EDMONTON  
Imperial (Strathcona).....191  
Suncor.....142  
Shell.....100  
NW Refining (Sturgeon County).....79  
LLOYDMINSTER  
Husky asphalt plant.....29  
Husky Upgrader.....82

REGINA  
Co-op Refinery-Upgrader  
Complex.....130  
MOOSE JAW  
Moose Jaw asphalt plant.....19

GREAT FALLS  
Colmont.....25

BILLINGS  
OHS (Lewistown).....60  
ExxonMobil.....60  
Phillips 66.....60

WYOMING  
Steelair (Sindair).....85  
HollyFrontier (Cheyenne).....52  
Steelair (Casper).....25  
Pac Pacific (Newcastle).....18

SALT LAKE CITY  
Anderson.....83  
Chevron.....63  
HollyFrontier.....45  
Big West Oil.....35

DENVER  
Suncor (Commerce City).....96

OKLAHOMA  
Phillips 66 (Ponca City).....203  
HollyFrontier (Tulsa).....125  
Valero (Ardmore).....96  
OVR Refining (Wynnewood).....70

BORGER/MCKEE  
HollyFrontier.....196  
WRB (Borger).....146

NEW MEXICO/TEXAS  
Anderson (El Paso).....135  
HollyFrontier (El Paso).....100  
Dalek (Big Spring).....73  
Anderson (Gallop).....25

SAN ANTONIO  
THREE RIVERS  
Valero.....89  
CORPUS CHRISTI  
FRT.....300  
Valero.....275  
OTGO.....157

HOUSTON/TEXAS CITY  
Marathon (Seabrook).....571  
ExxonMobil (Baytown).....601  
Shell (Dow Park).....312  
Lynx/Basell.....268  
Valero (Q).....180-225  
Petrobras (Pasadena).....110

PORT ARTHUR/BEAUMONT  
Motors.....578  
ExxonMobil.....396  
Valero.....249  
Total.....225

LAKE CHARLES  
CITGO.....425  
Phillips 66.....335  
Calcasieu.....75

MISSISSIPPI RIVER  
Marathon (Garyville).....556  
ExxonMobil (Baton Rouge).....503  
Phillips 66 (Bella Chasse).....247  
Shell (Norco).....229  
Shell (Convent).....223  
Valero (Norco).....215  
PBF (Chalmette).....189  
Valero (Morgan).....175  
Dalek (Vivian Springs).....74  
Placid (Port Allen).....60

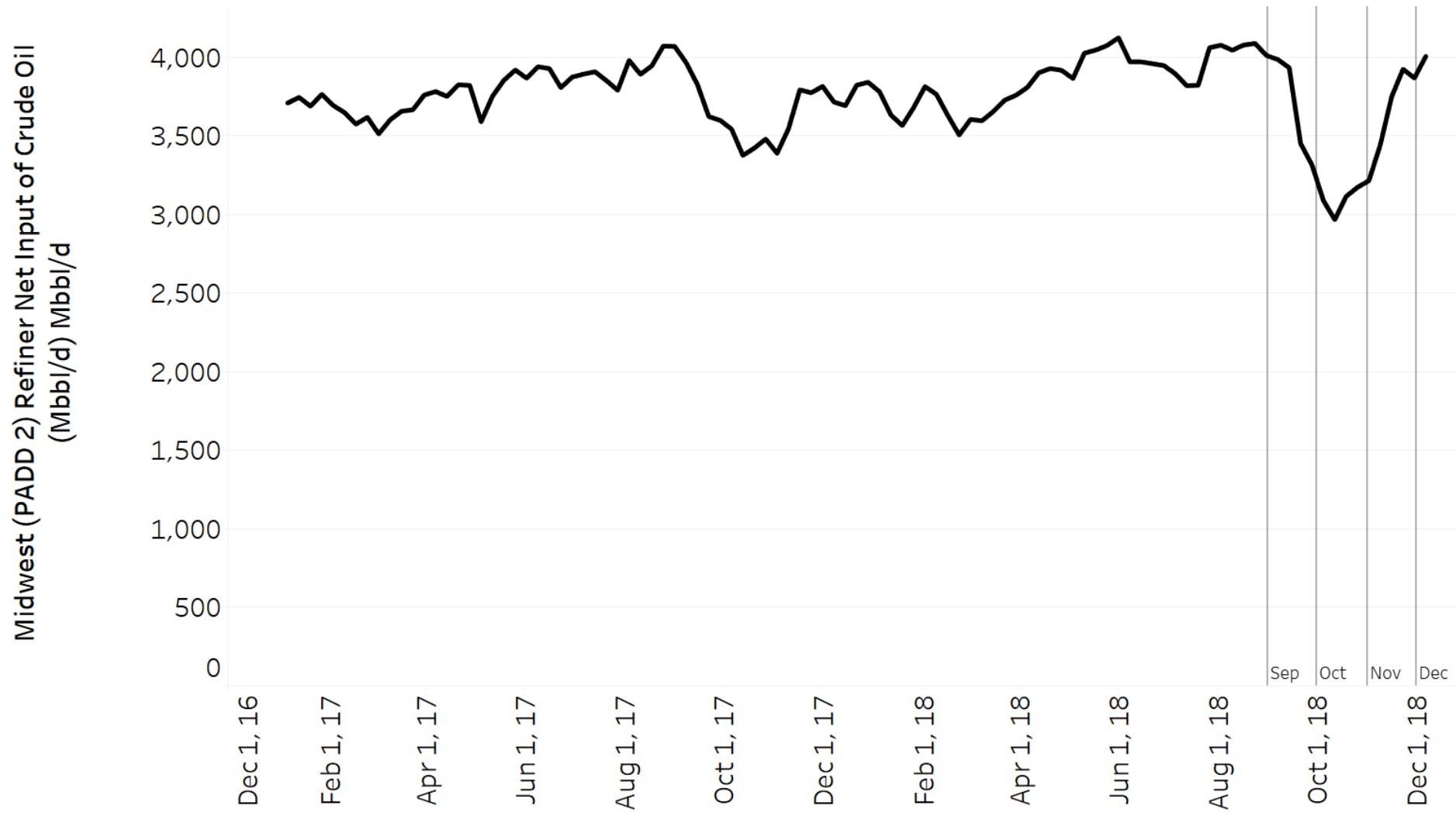
WOOD RIVER  
WRB.....314  
ROBINSON  
Marathon.....245  
MT VERNON  
Countrymark.....30

MEMPHIS  
Valero.....180  
EL DORADO  
Dalek.....80

ALABAMA  
Shell (Gardland).....85  
Hunt (Tuscaloosa).....40

Disclaimer: This map is provided as a courtesy and for general informational purposes only. While care was taken in the creation of this map, the map may not be sufficiently accurate for any particular purpose. CAPP does not accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, accompanying this product. However, notification of any errors would be appreciated.

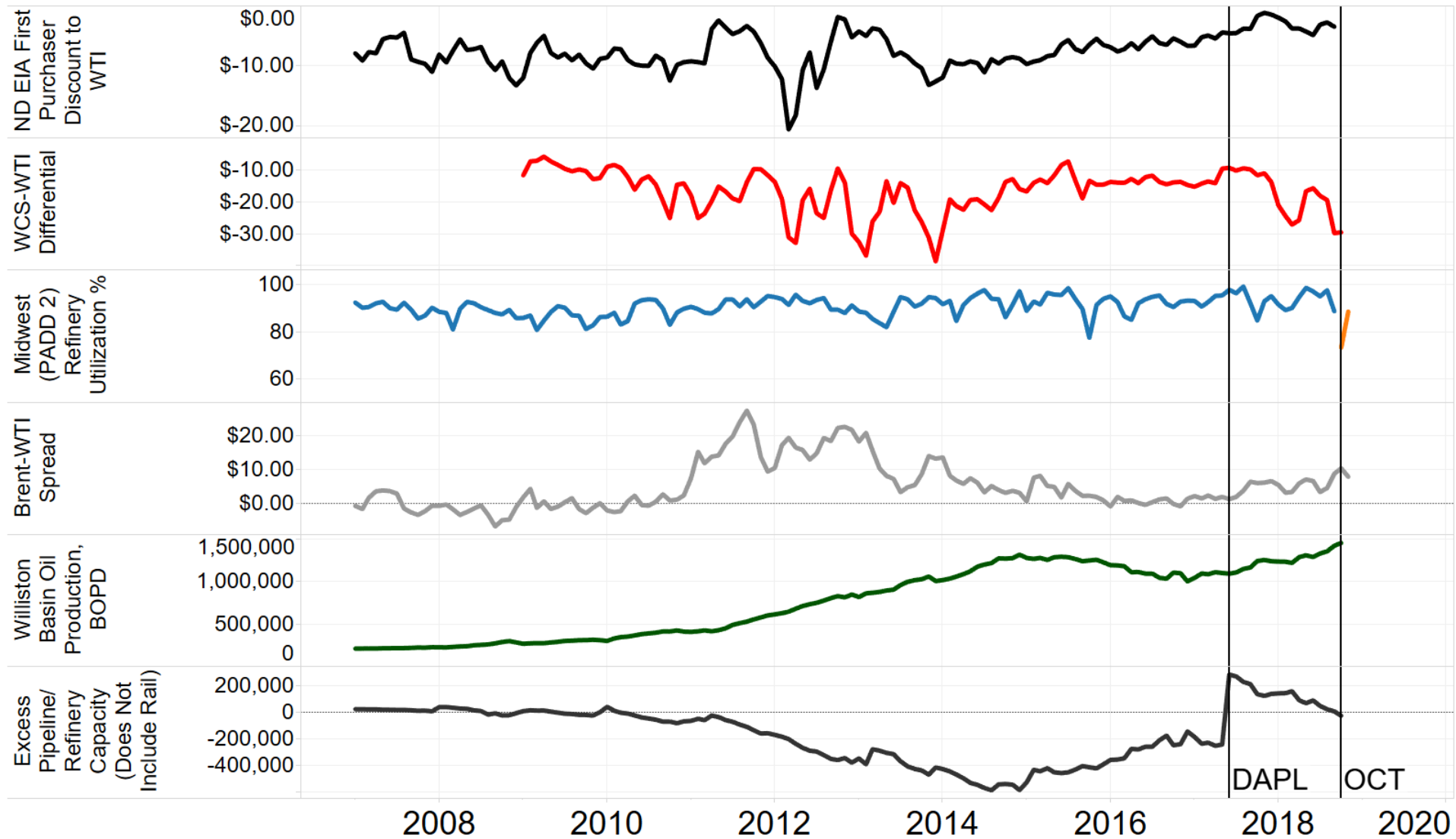
# PADD II Refinery Inputs



Data Source: EIA



# North Dakota Oil Pricing

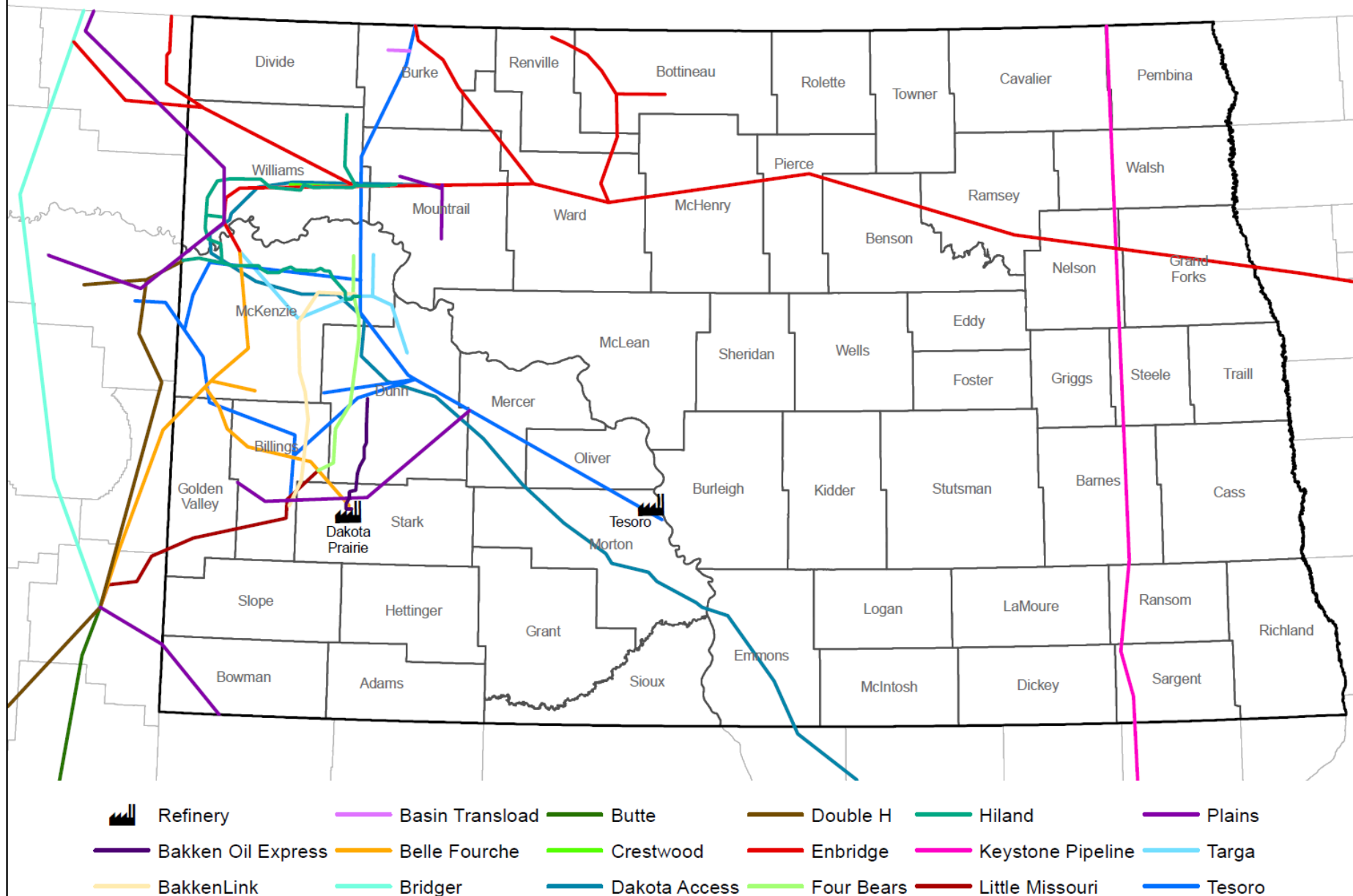


Data Source: NDPA & EIA



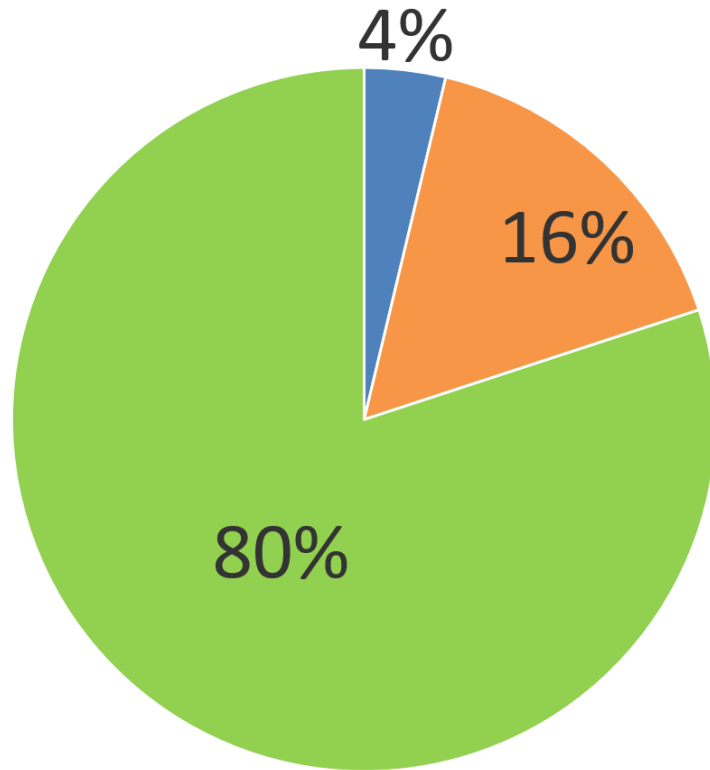


# North Dakota Crude Oil Pipelines



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# Solving the Flaring Challenge



Statewide

**GREEN** – % of gas captured and sold  
**Blue** – % flared from zero sales wells  
**Orange** – % flared from wells with at least one mcf sold.

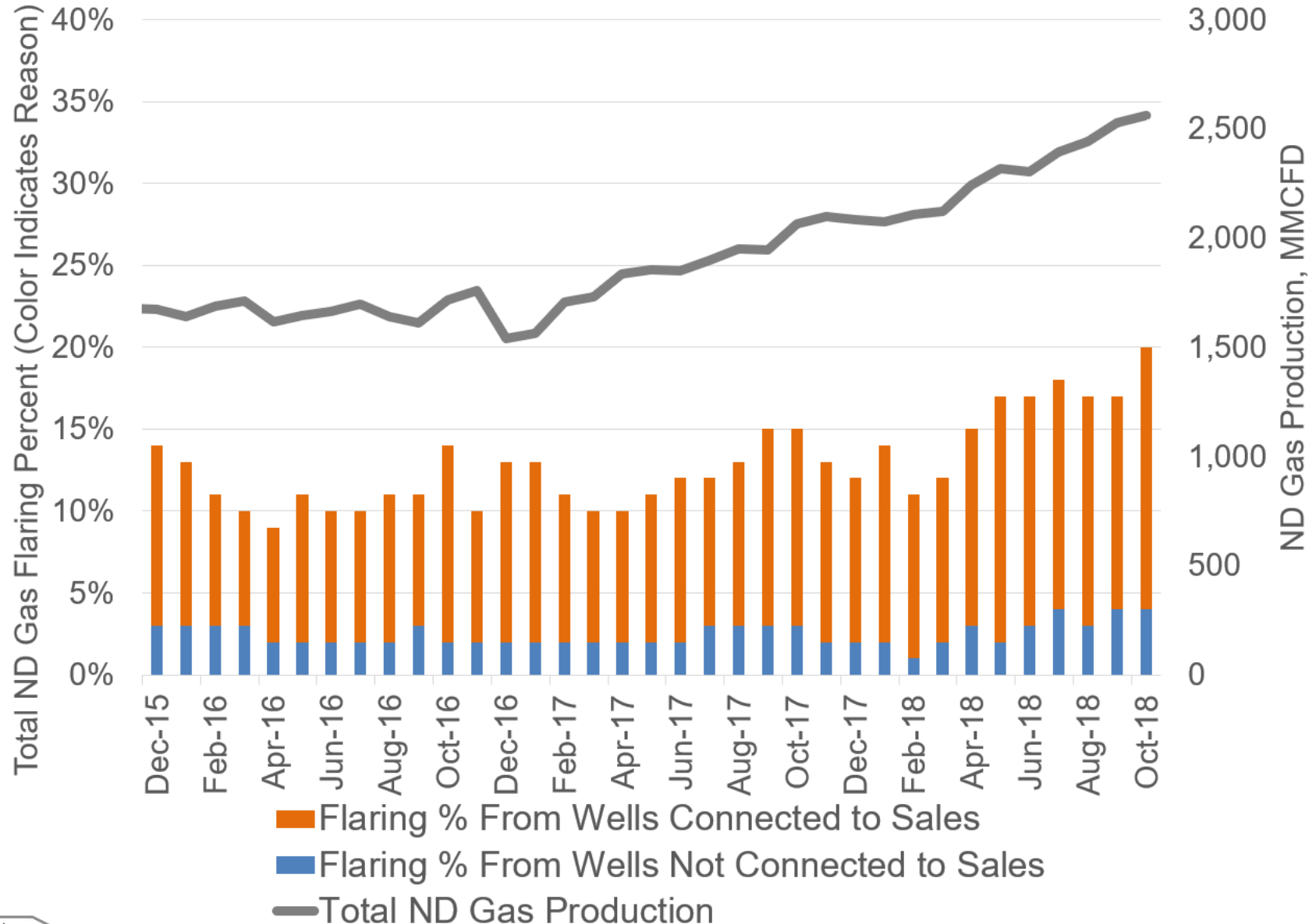
## Simple Terms

**Blue** – Lack of pipelines  
**Orange** – Challenges on existing infrastructure

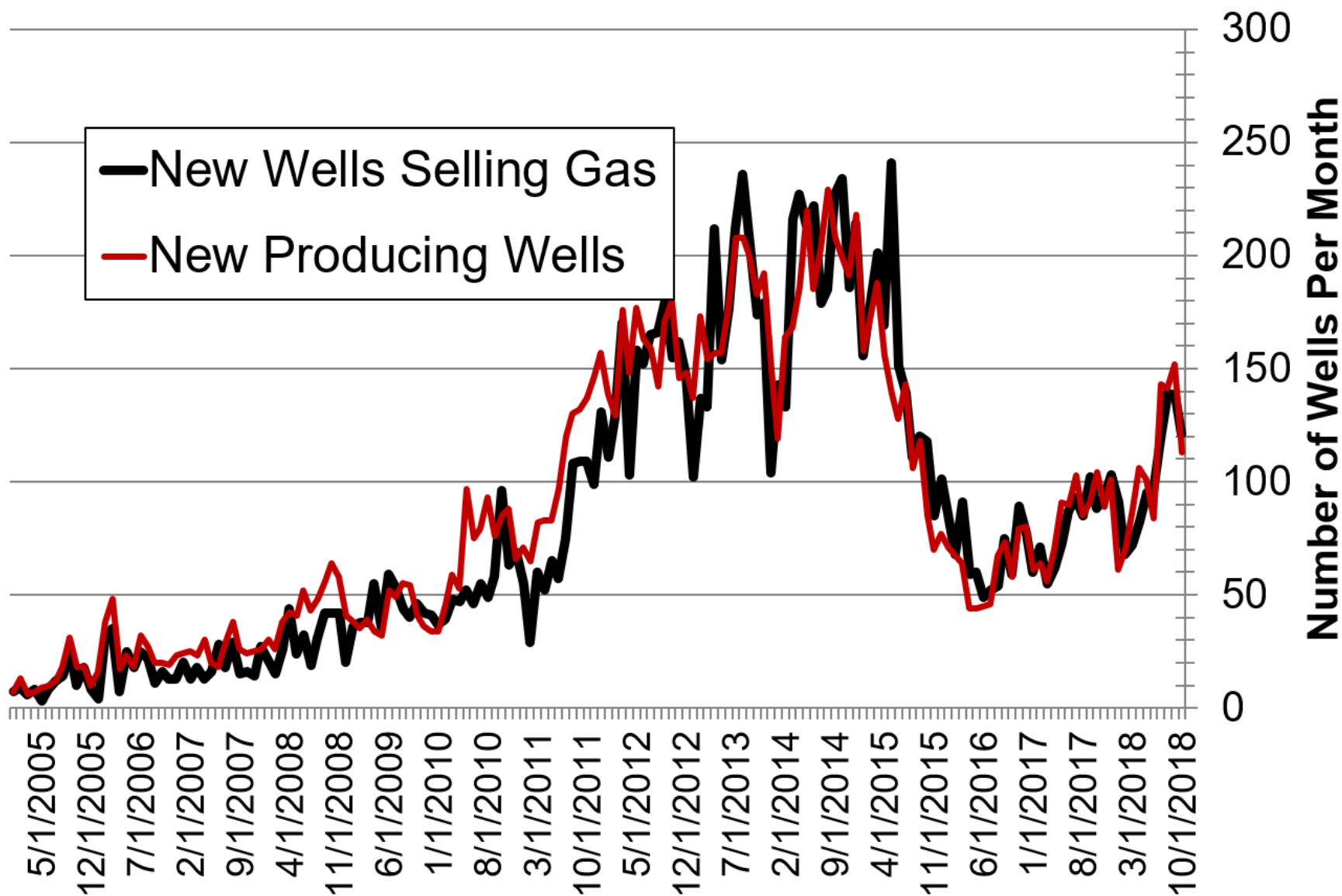
October 2018 Data – Non-Confidential Wells



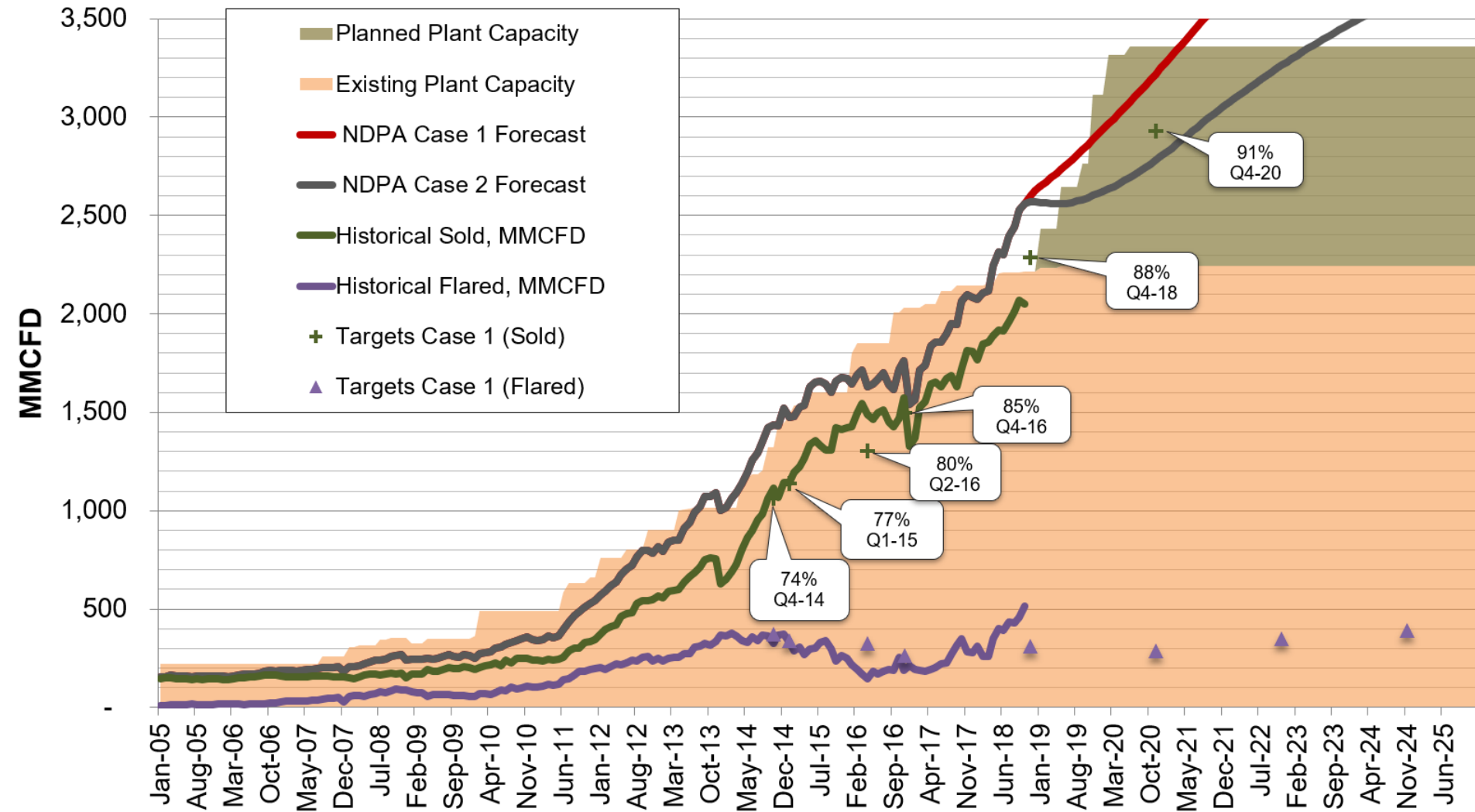
# Solving the Flaring Challenge



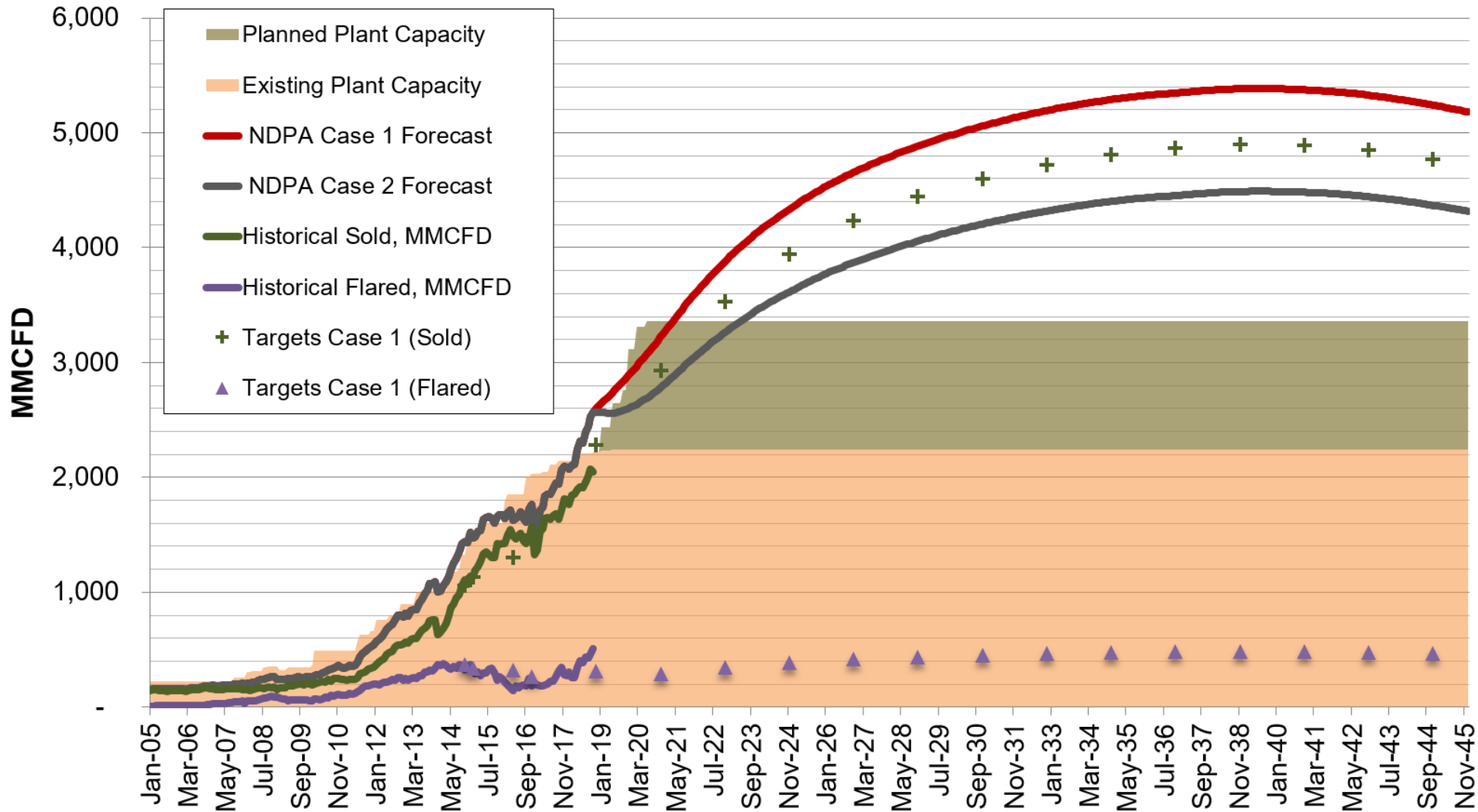
# Solving the Flaring Challenge



# Solving the Flaring Challenge



# Solving the Flaring Challenge



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[www.northdakotapipelines.com](http://www.northdakotapipelines.com)



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