



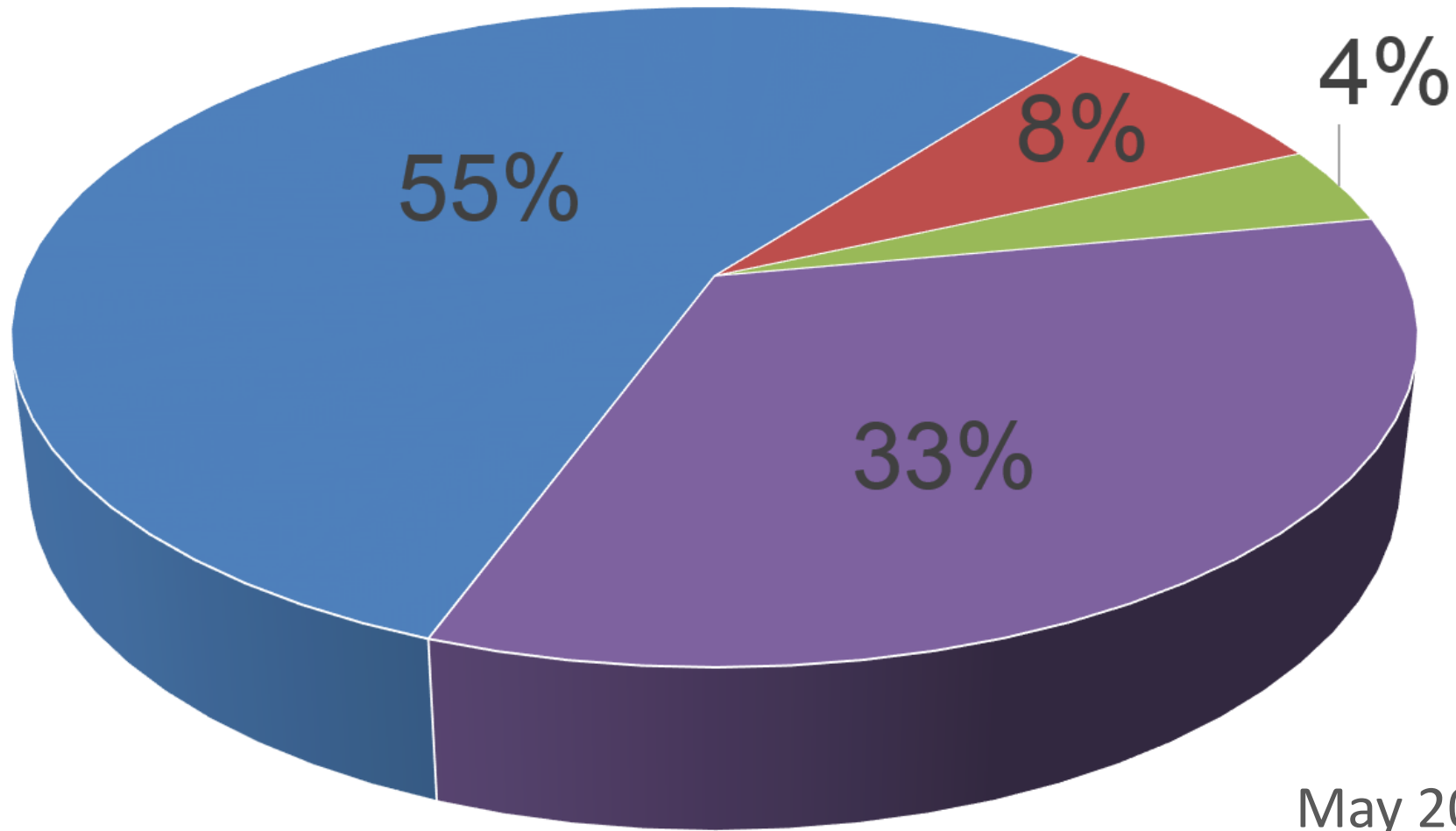
Oil & Gas Research Council
North Dakota Pipeline Authority
Justin J. Kringstad
July 25, 2016 - Bismarck, ND

US Williston Basin Oil Production - 2016

MONTH	ND	Eastern MT*	SD	TOTAL
January	1,122,498	61,949	4,148	1,188,595
February	1,119,830	61,383	4,052	1,185,265
March	1,111,421	60,168	3,963	1,175,552
April	1,041,981	58,152	3,846	1,103,979
May	1,047,364		3,971	
June				
July				
August				
September				
October				
November				
December				



Estimated Williston Basin Oil Transportation



May 2016

■ Pipeline Export

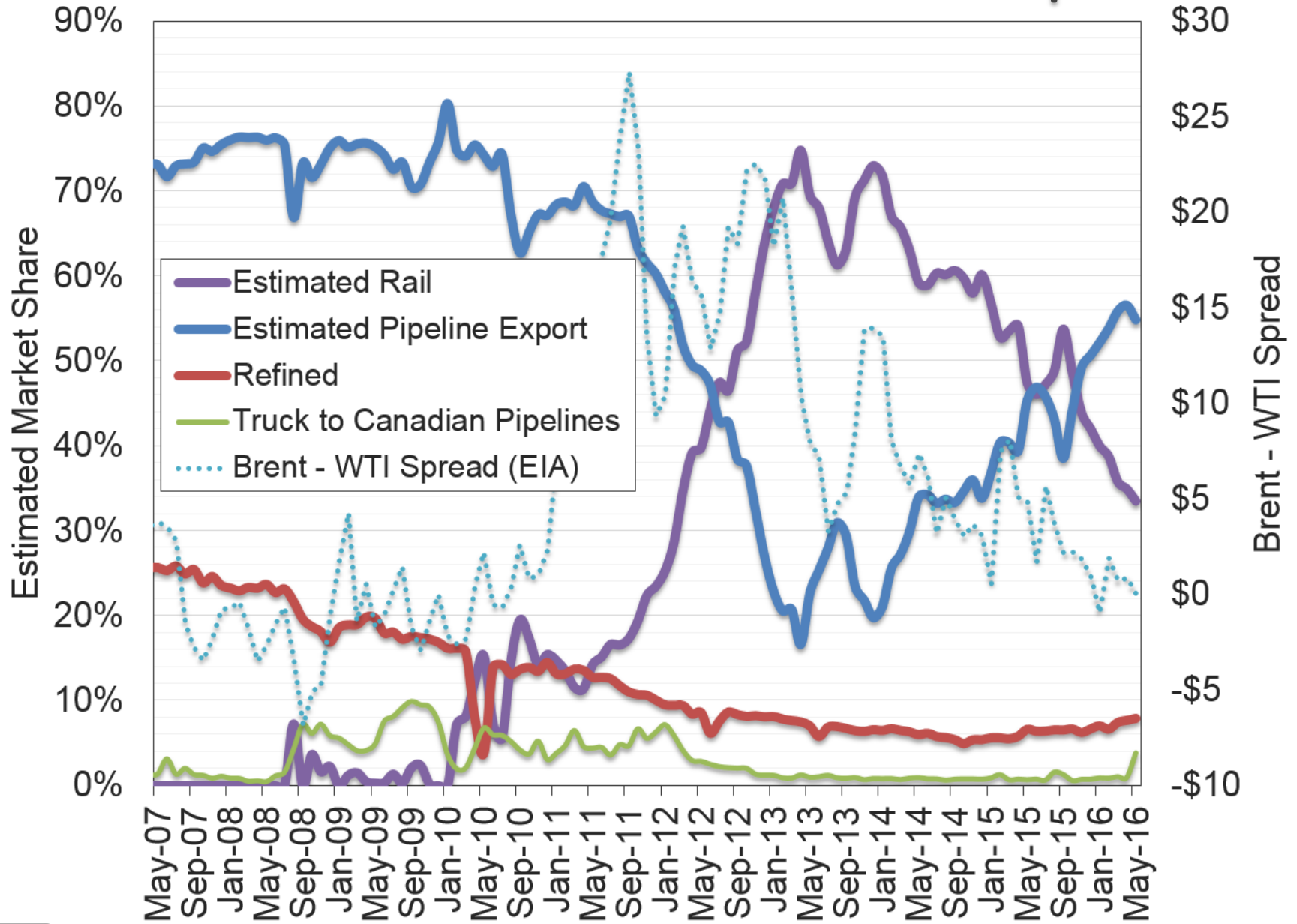
■ Refined

■ Truck to Canadian Pipelines

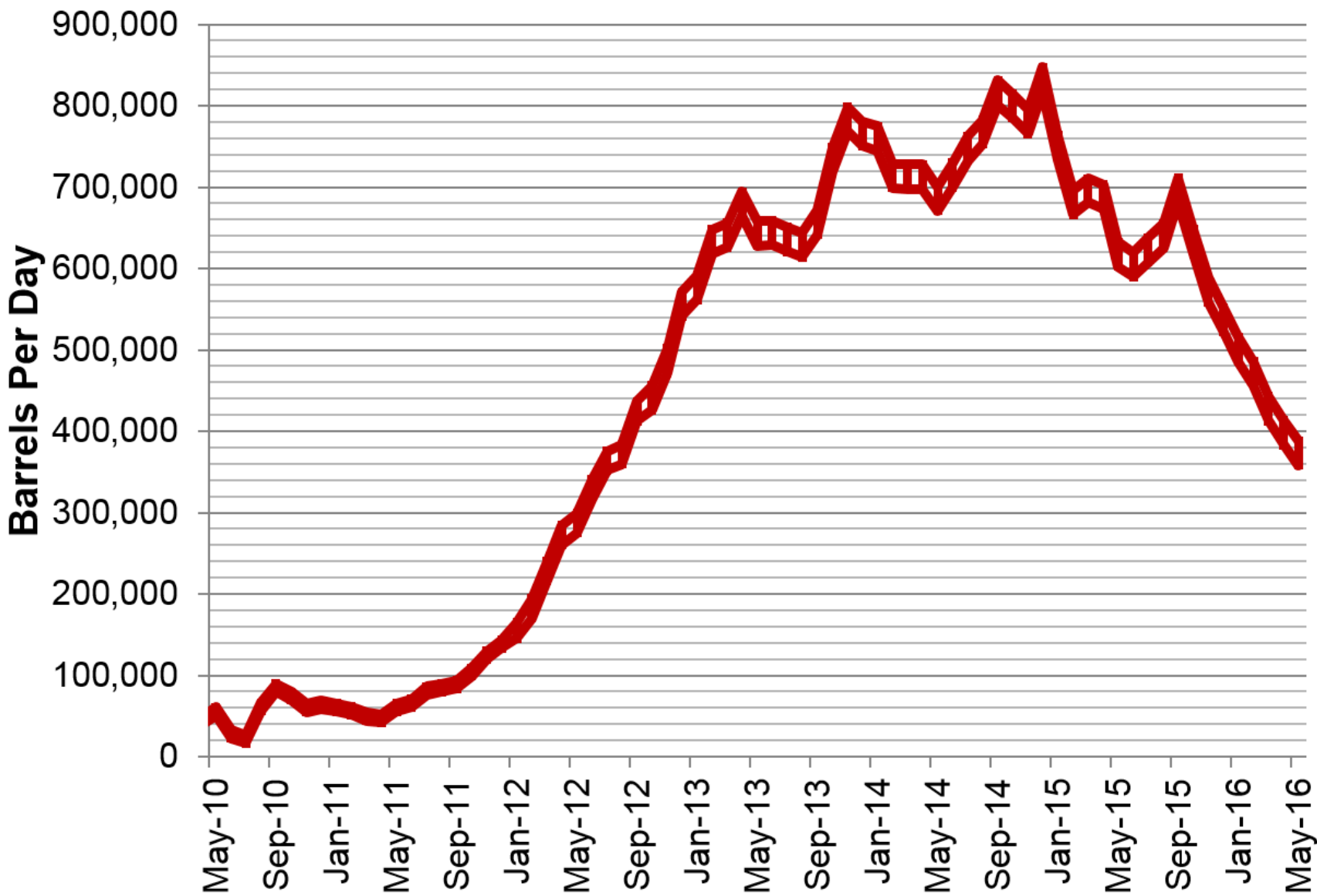
■ Estimated Rail



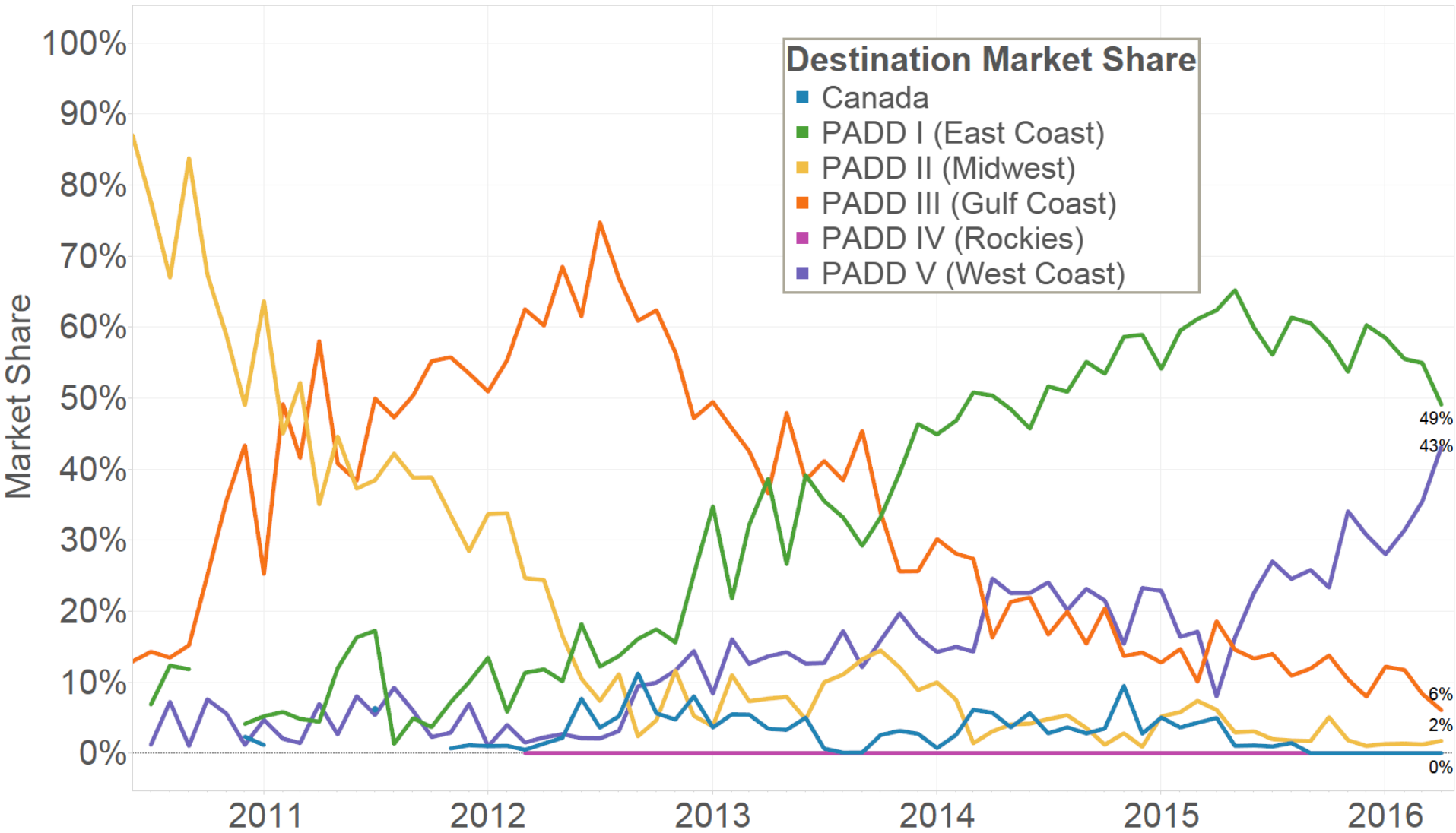
Estimated Williston Basin Oil Transportation



Estimated ND Rail Export Volumes



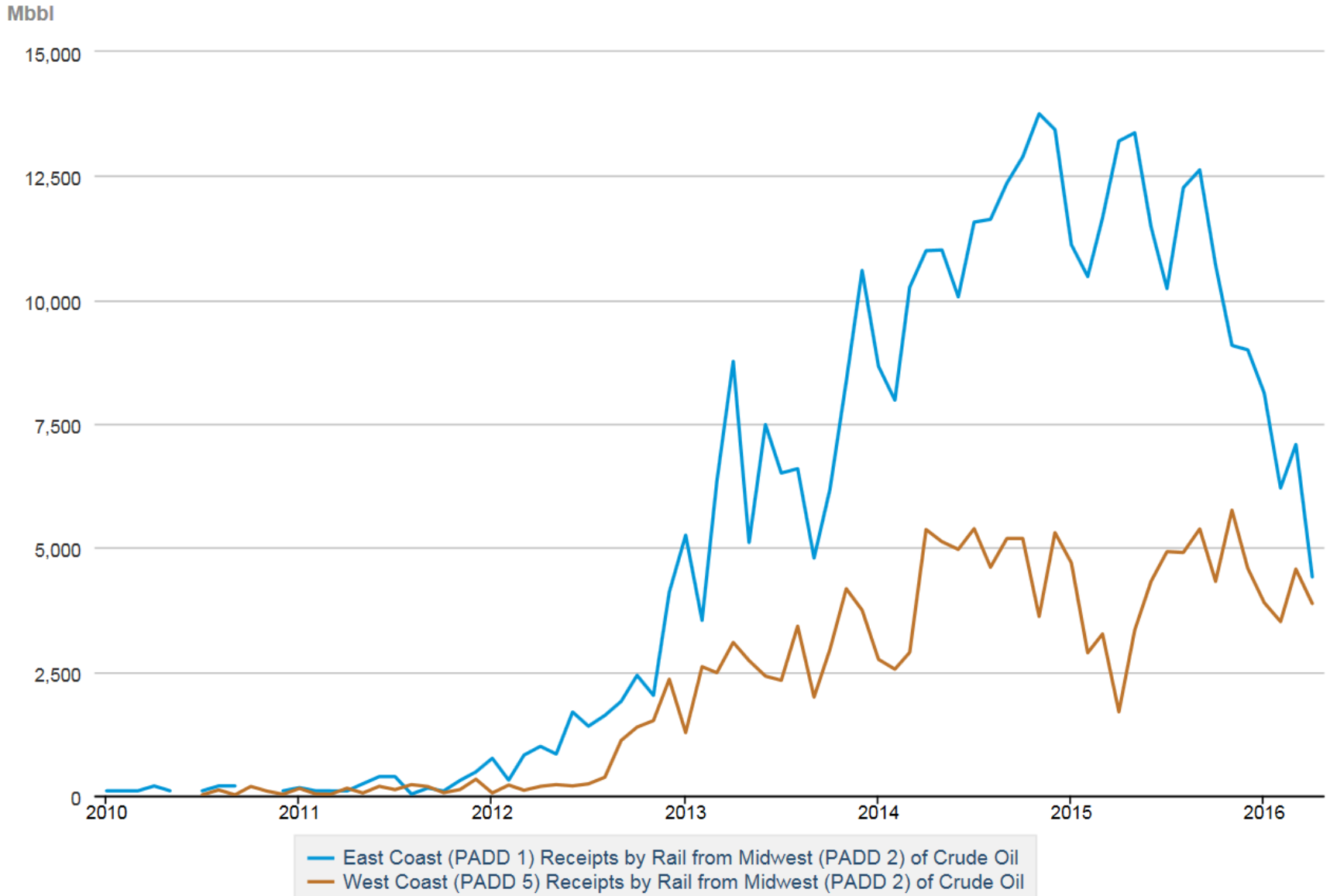
Rail Destinations Market Share (Apr 2016)



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



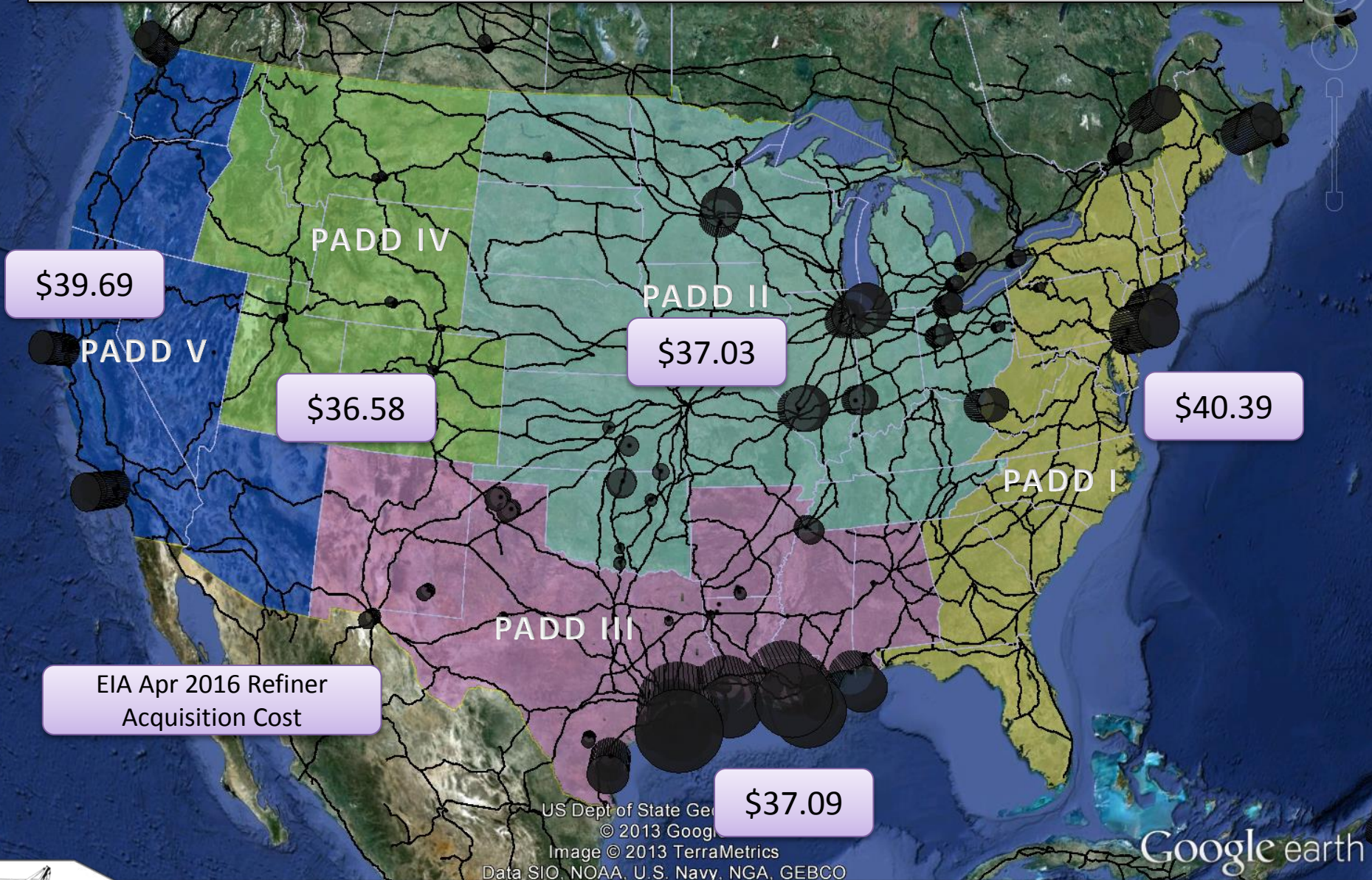
Movements of Crude Oil and Selected Products by Rail



Source: U.S. Energy Information Administration



Major Rail Lines and Refineries

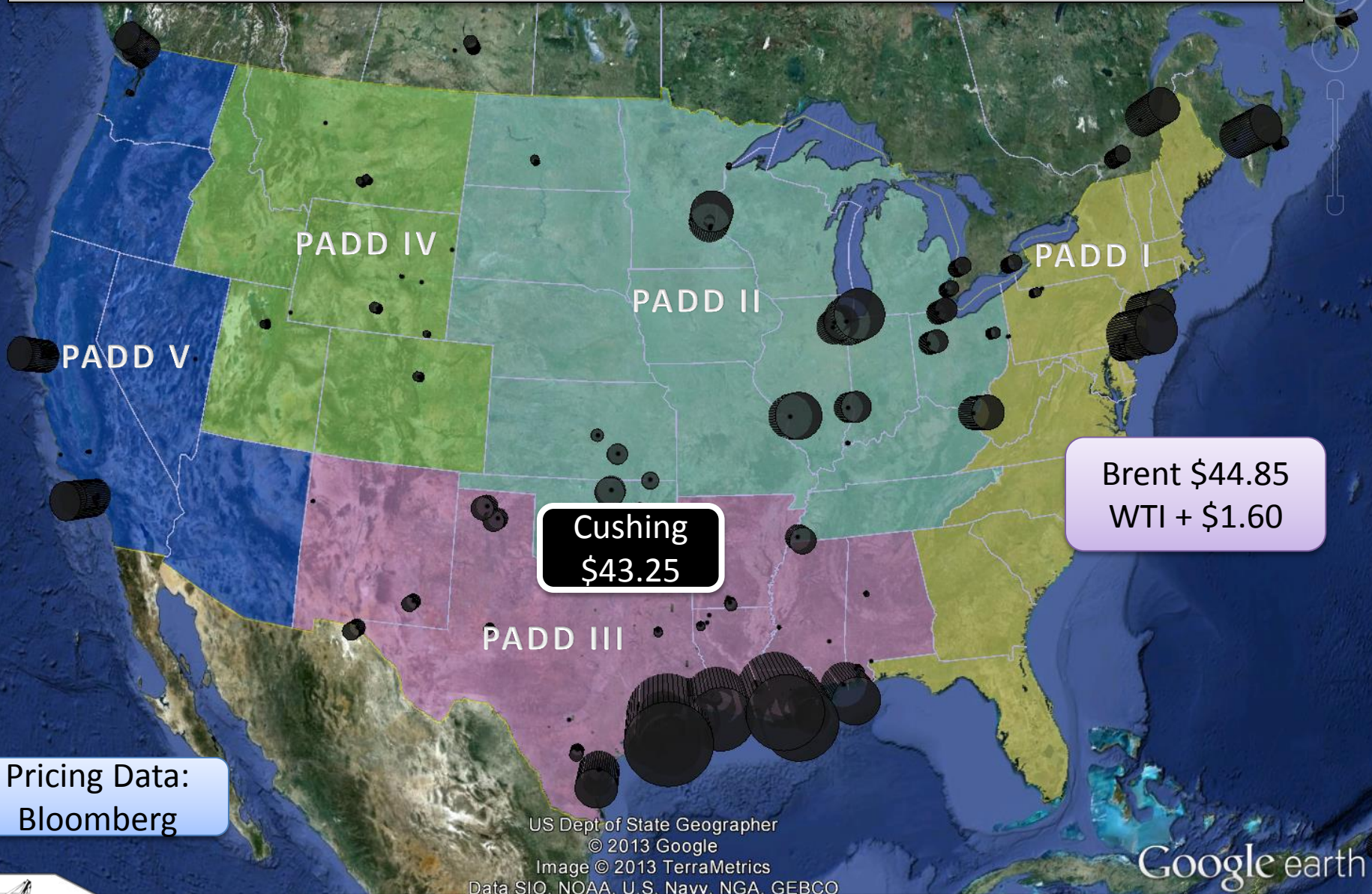


US Dept of State Geo
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Image © 2013 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



Crude Oil Prices – July 25, 2016



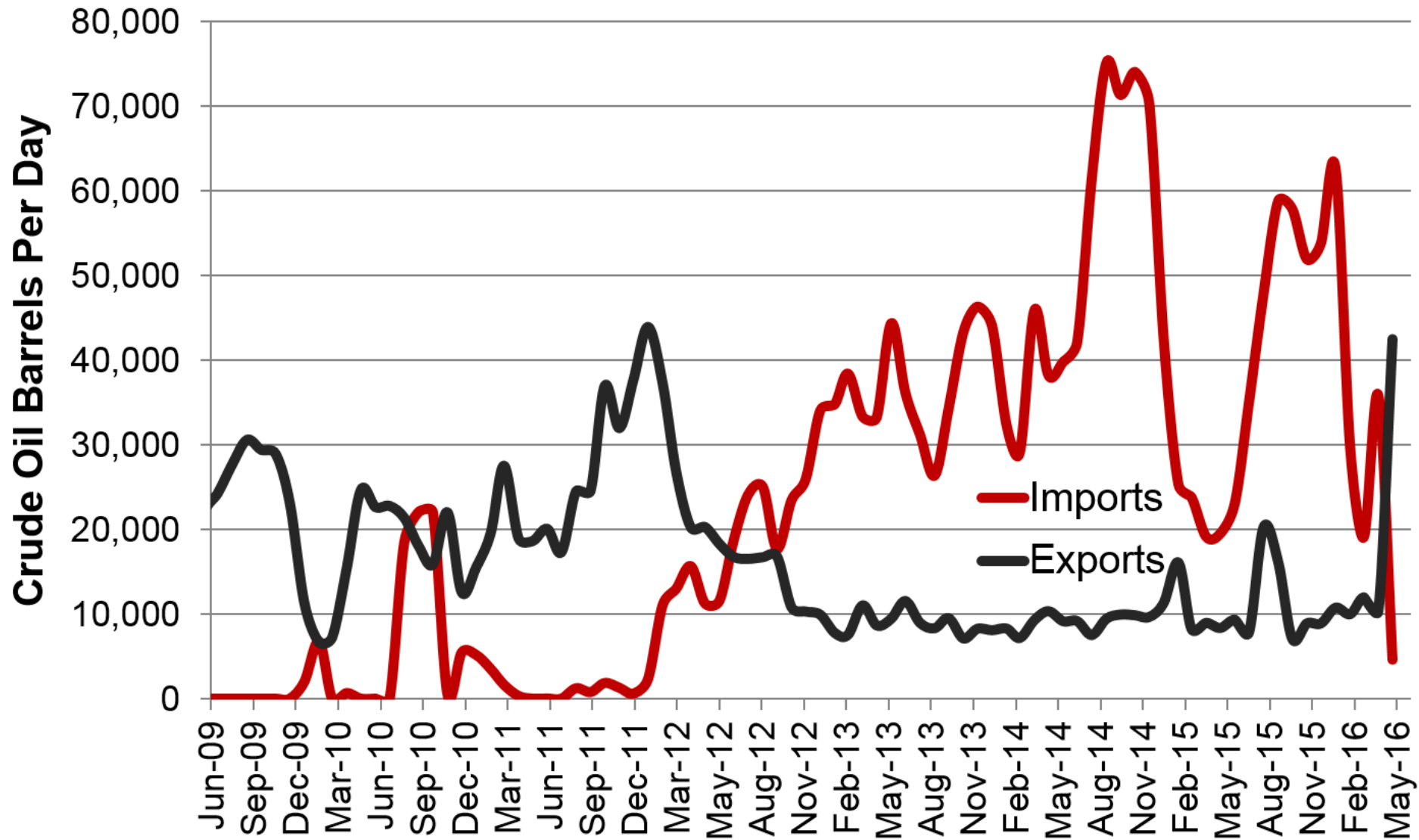
Pricing Data:
Bloomberg

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

Google earth



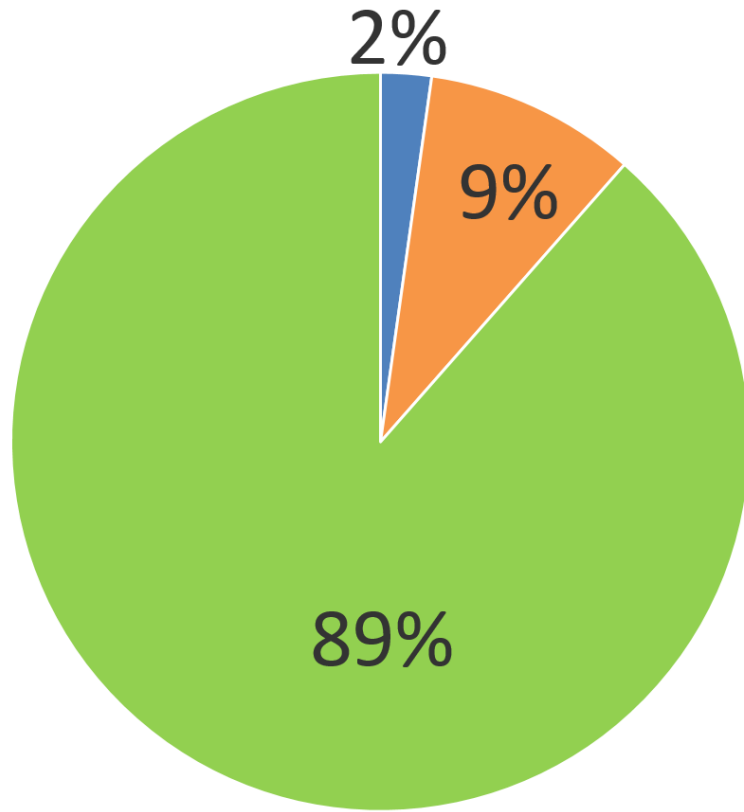
Williston Basin Truck Imports and Exports with Canada



Data for truck imports/exports chart is provided by the US International Trade Commission



Solving the Flaring Challenge



Statewide

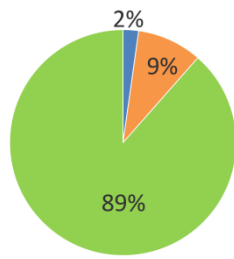
GREEN – % of gas captured and sold
Blue – % flared from zero sales wells
Orange – % flared from wells with at least one mcf sold.

Simple Terms

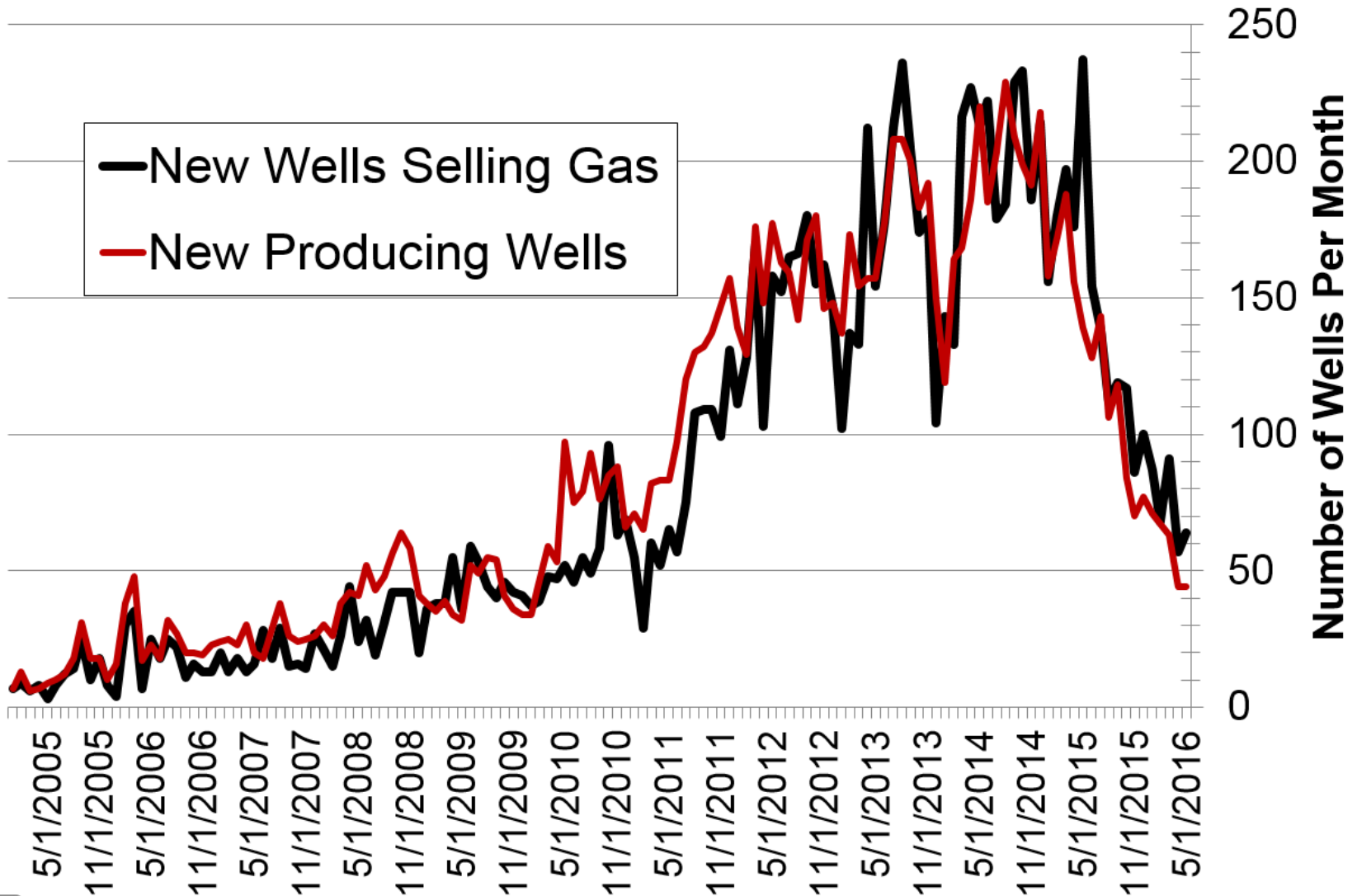
Blue – Lack of pipelines
Orange – Challenges on existing infrastructure

May 2016 Data – Non-Confidential Wells

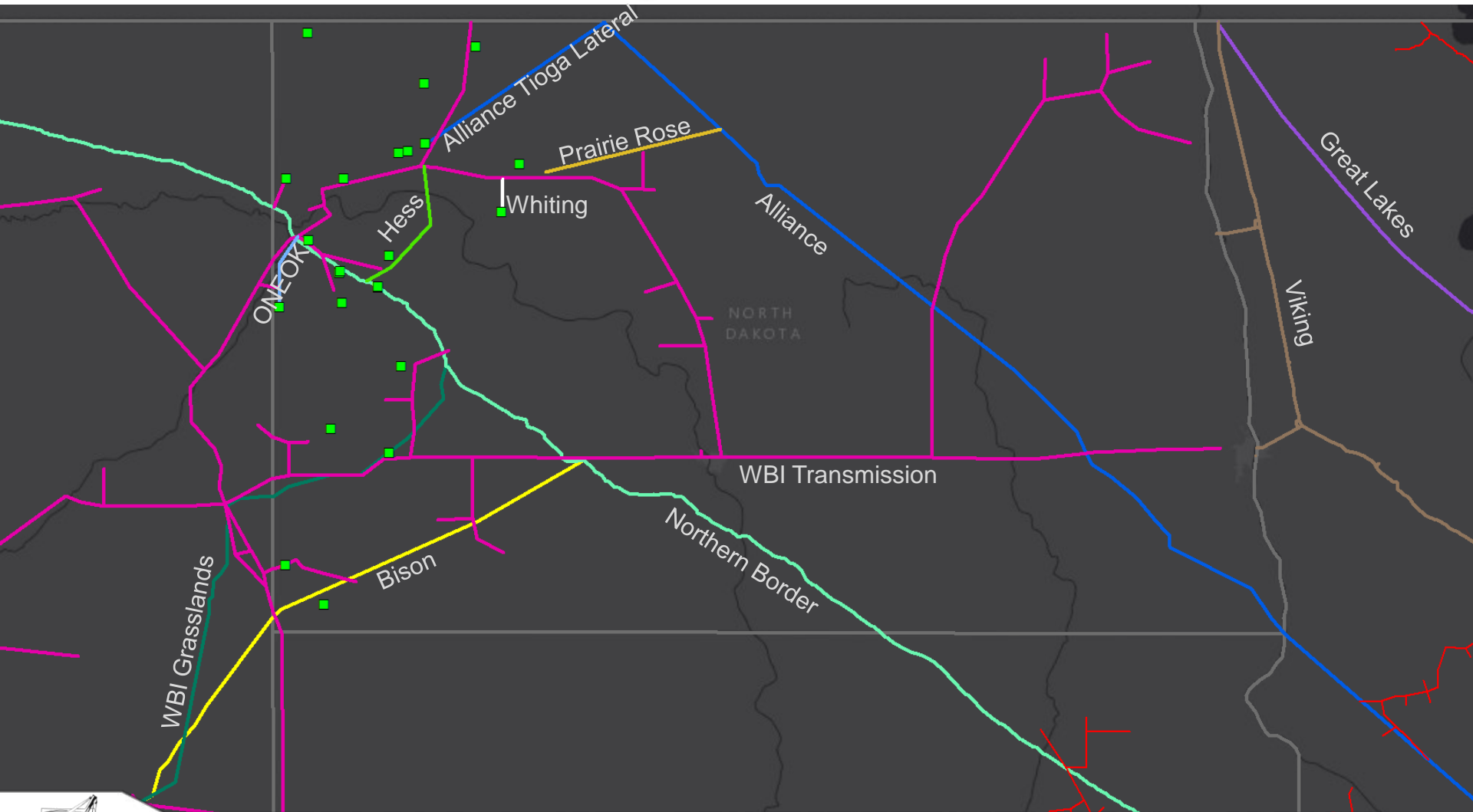




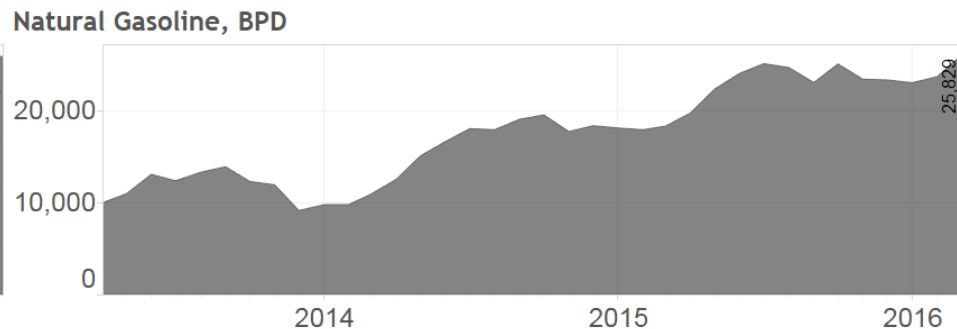
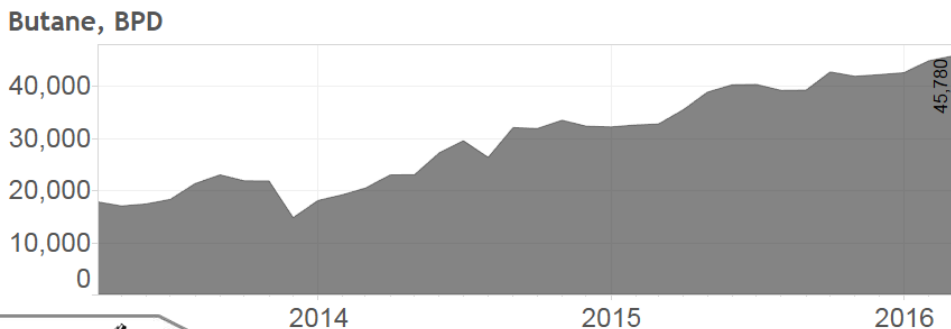
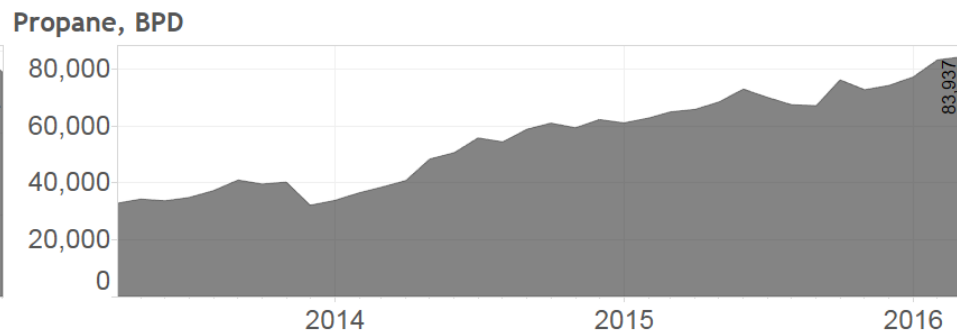
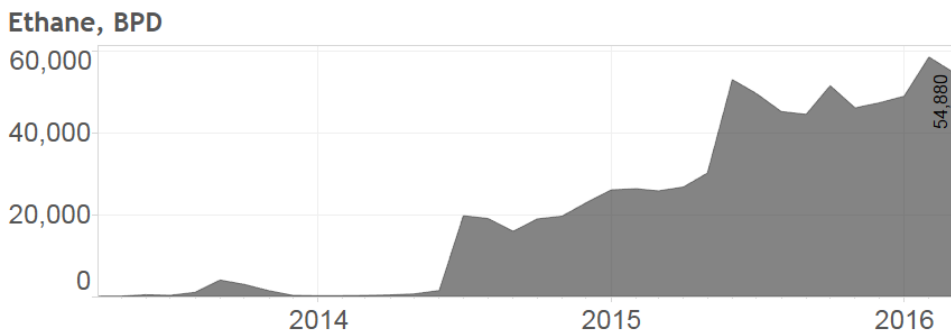
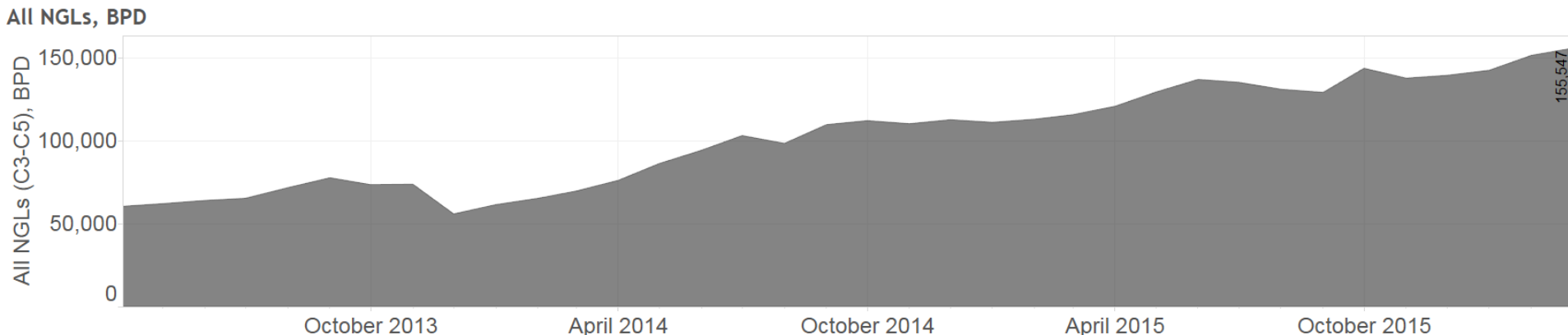
Capturing the 2% Faster Well Connections



Major Gas Pipeline and Processing Infrastructure



Gas Plant Natural Gas Liquids (March 2016)



A Detailed Look at North Dakota's Drilled but Uncompleted Wells



Objective

Identify production potential and estimate price levels required to complete wells on NC & NCW status (Not Completed & Not Completed Waiver) in North Dakota.

Method

Analyze past Bakken-Three Forks well performance adjacent to non-confidential NC/NCW wells and estimate breakeven pricing for the various producing regions of North Dakota.

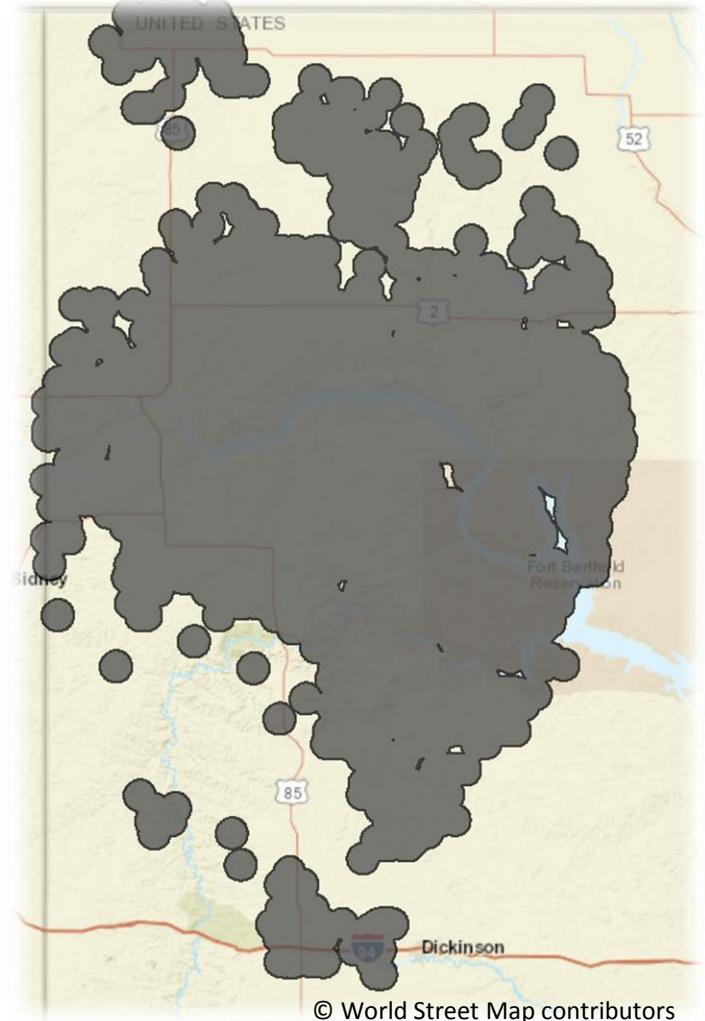
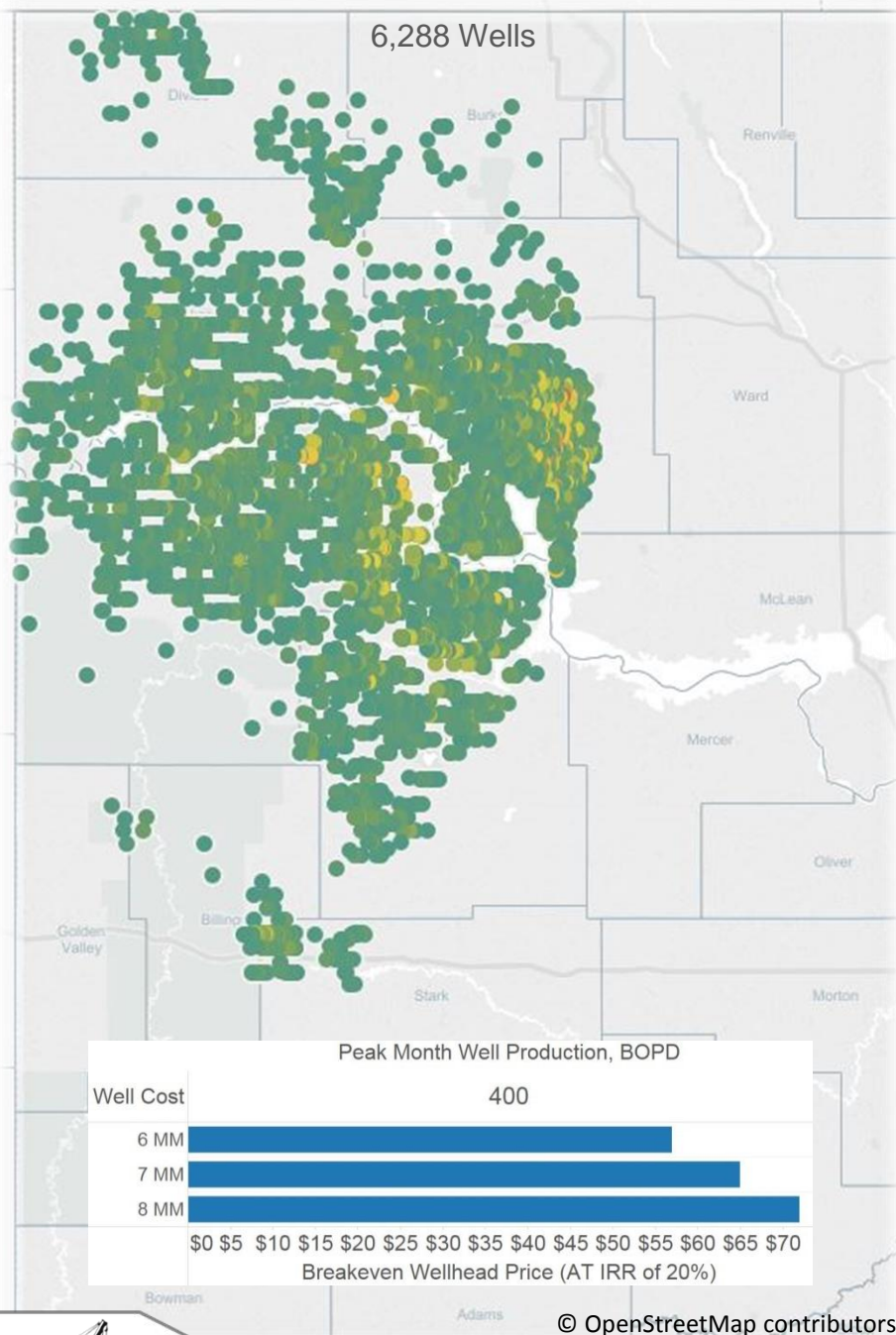
Disclaimer

The goal of this work is not to imply individual company actions or intentions. All view expressed are strictly that of Justin J. Kringstad.

Neither the State of North Dakota, nor any agency, officer, or employee of the State of North Dakota warrants the accuracy or reliability of this product and shall not be held responsible for any losses related to its use.



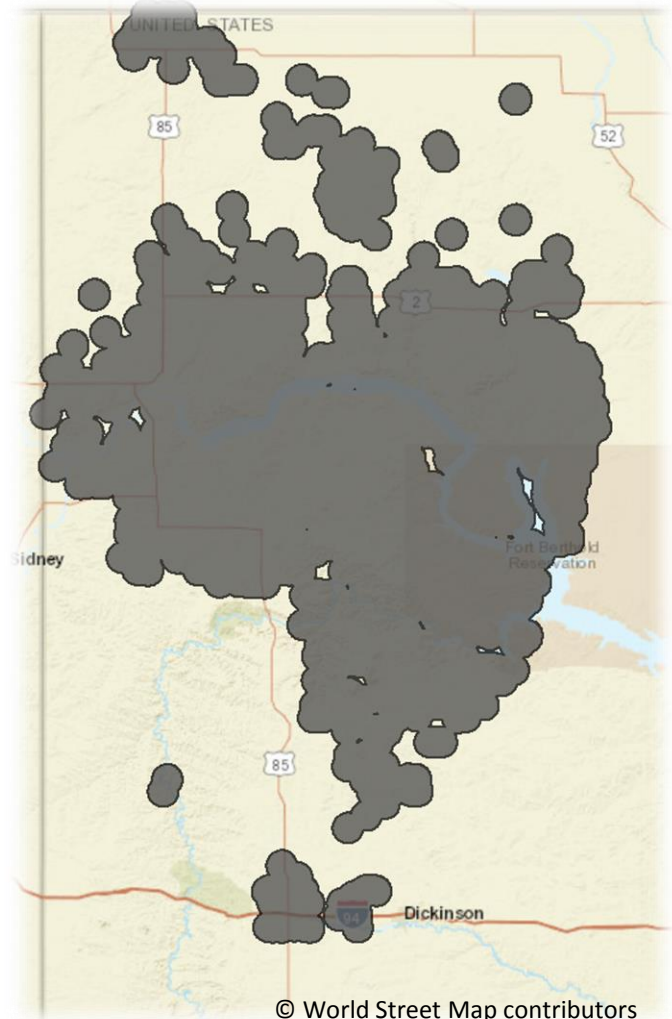
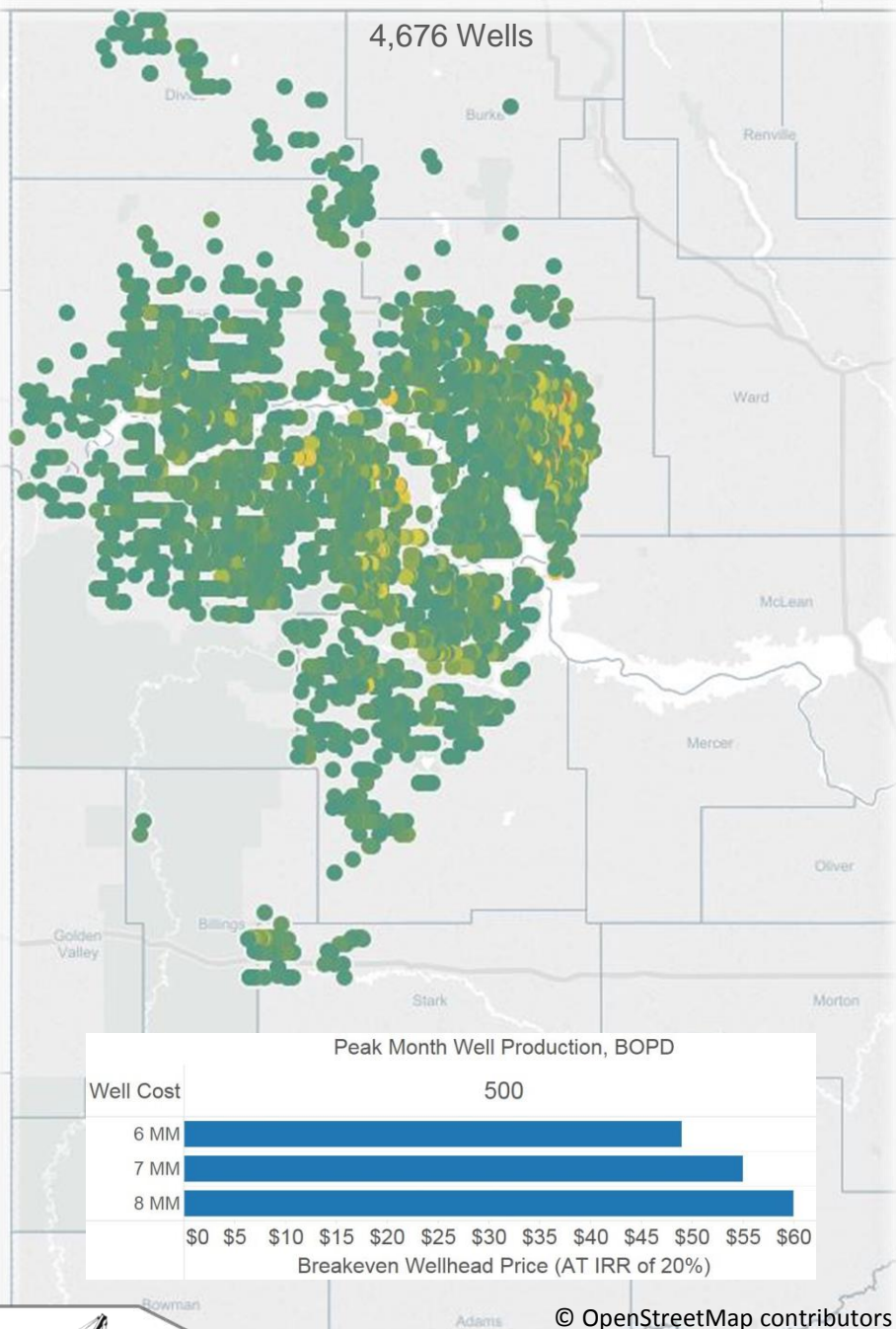
Peak Month Minimum 400 BOPD



2.5 Mile Buffer



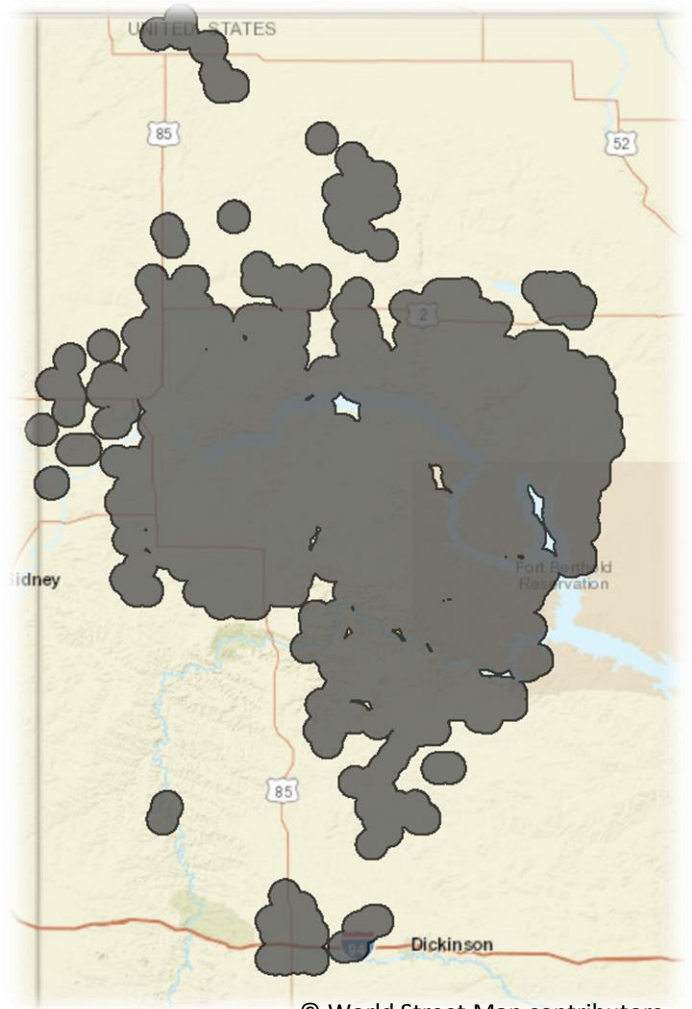
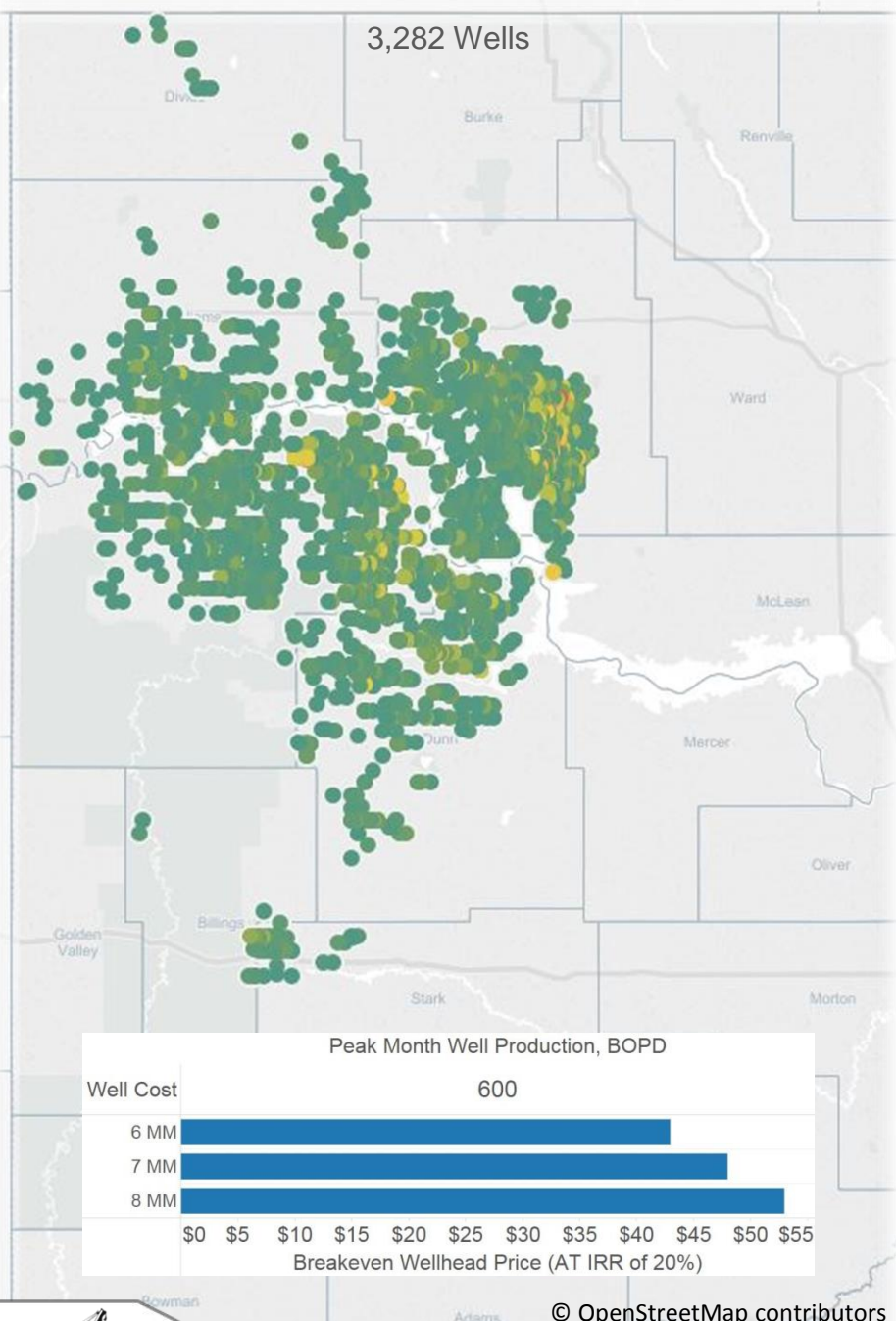
Peak Month Minimum 500 BOPD



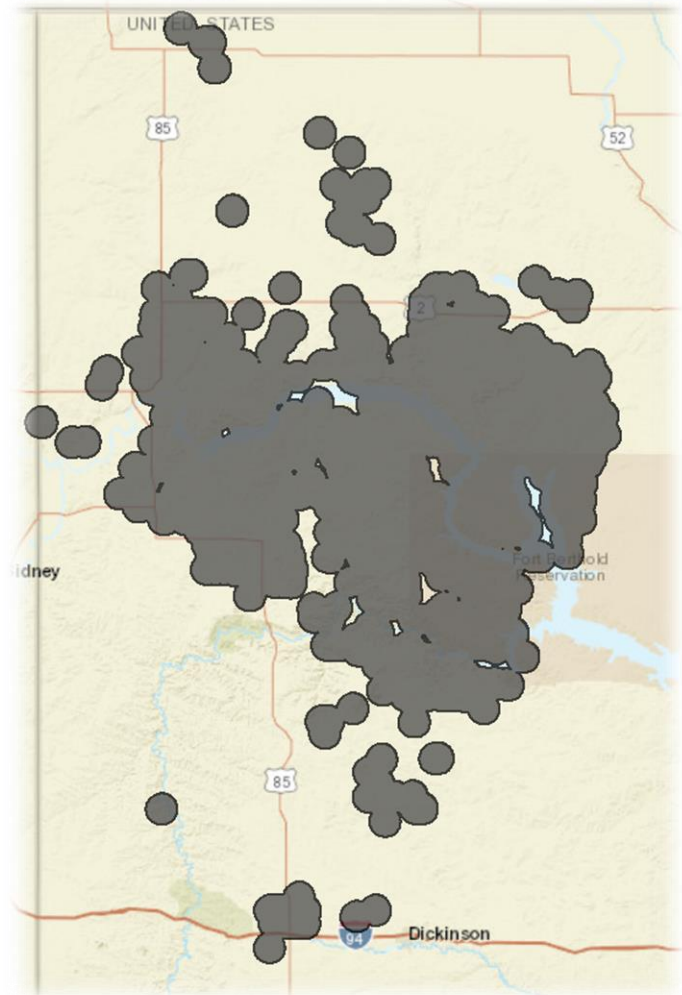
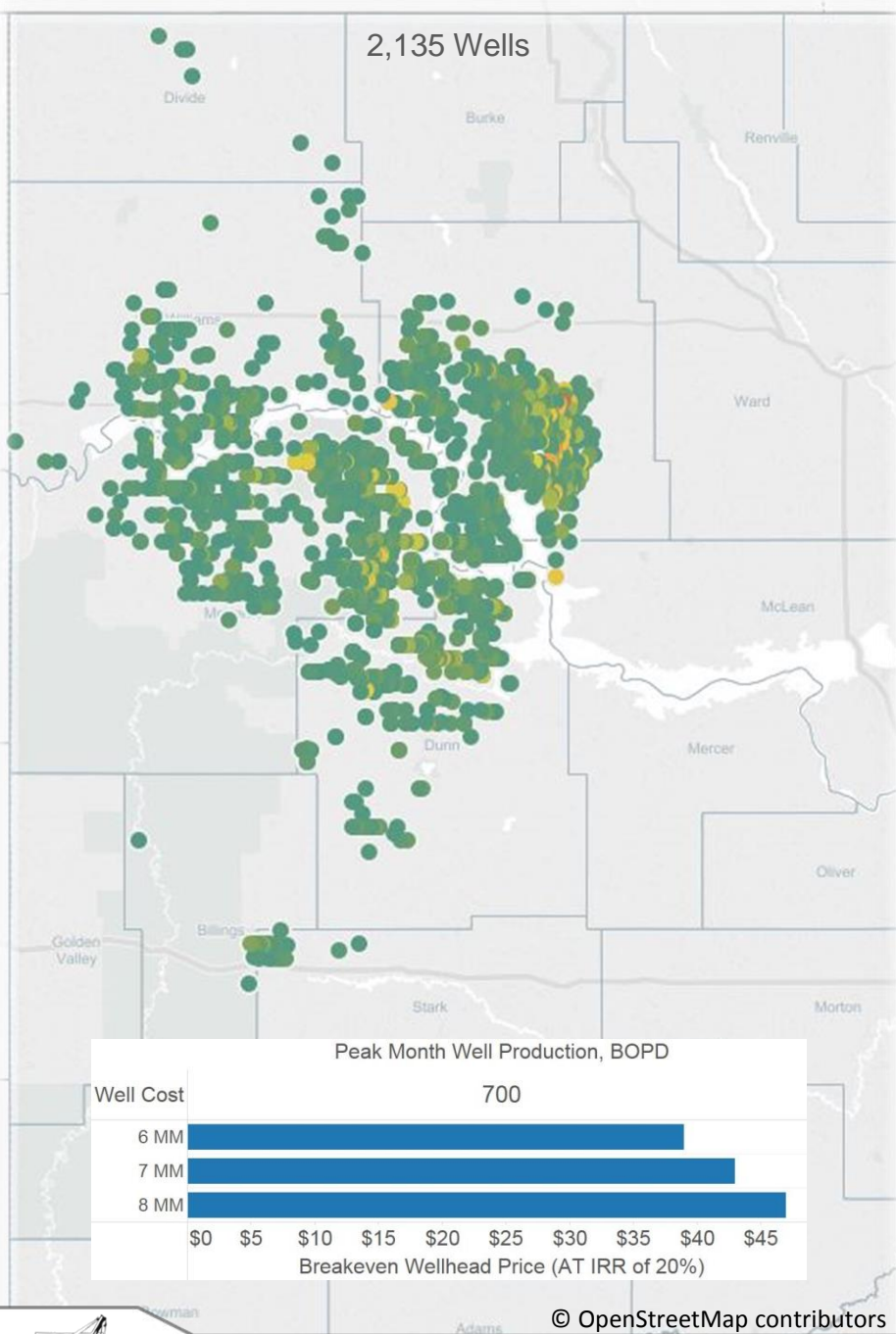
2.5 Mile Buffer



Peak Month Minimum 600 BOPD



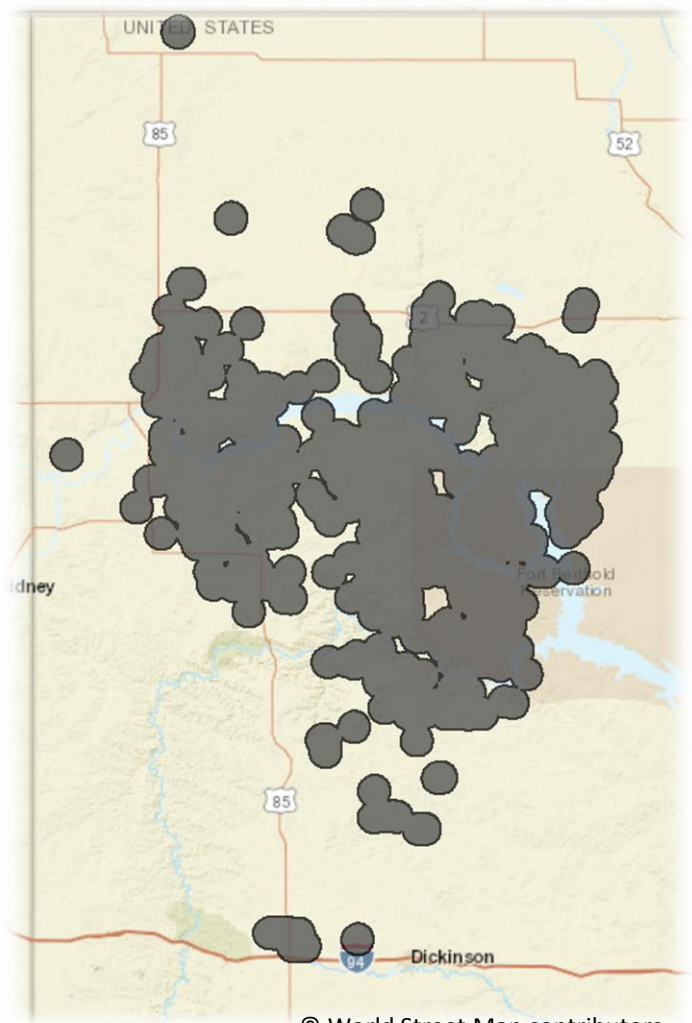
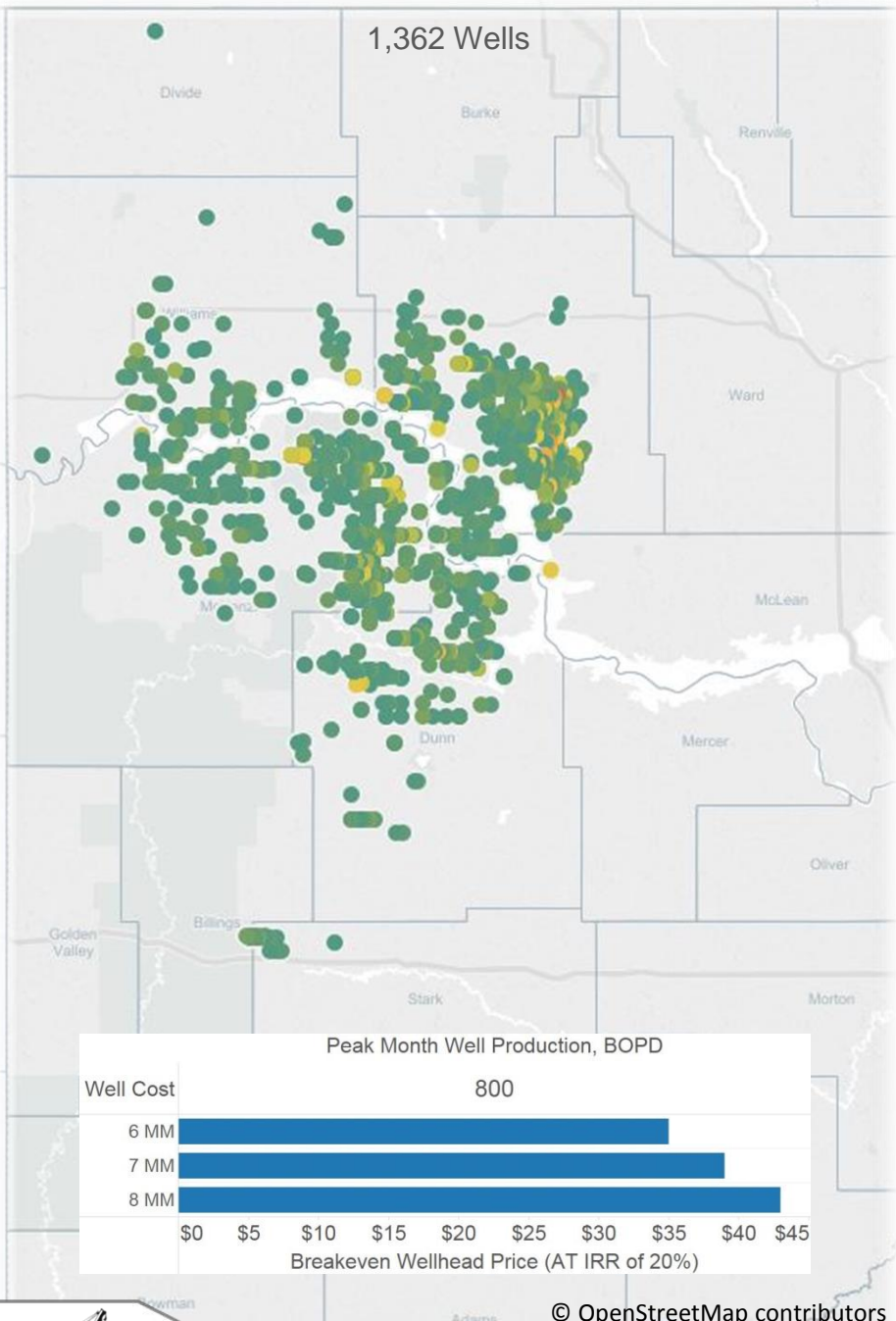
Peak Month Minimum 700 BOPD



2.5 Mile Buffer



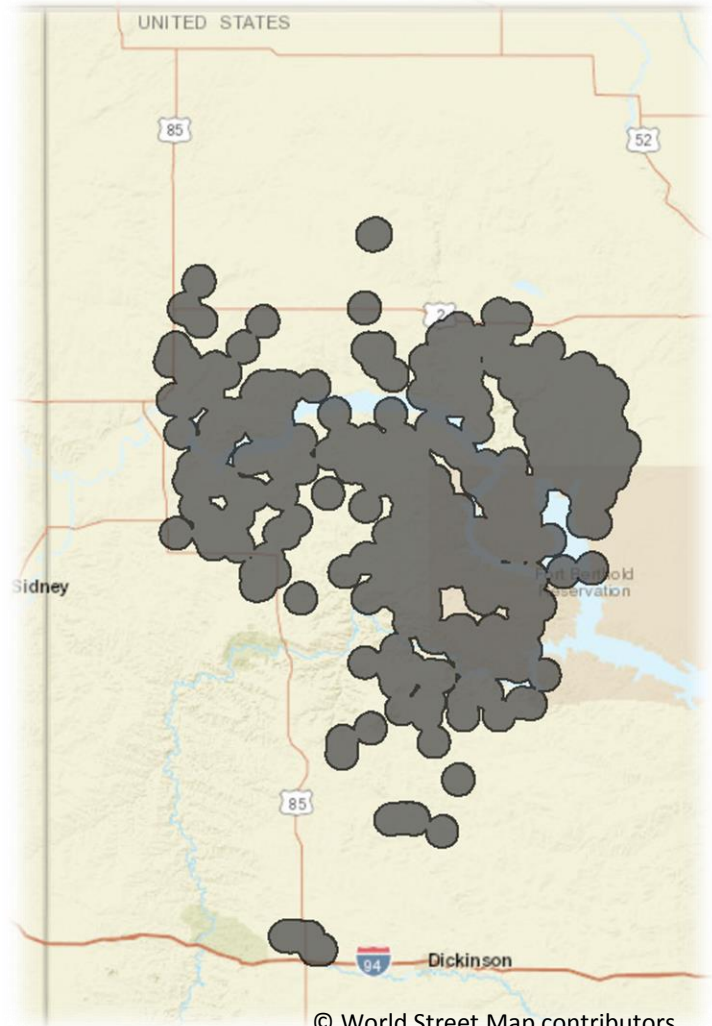
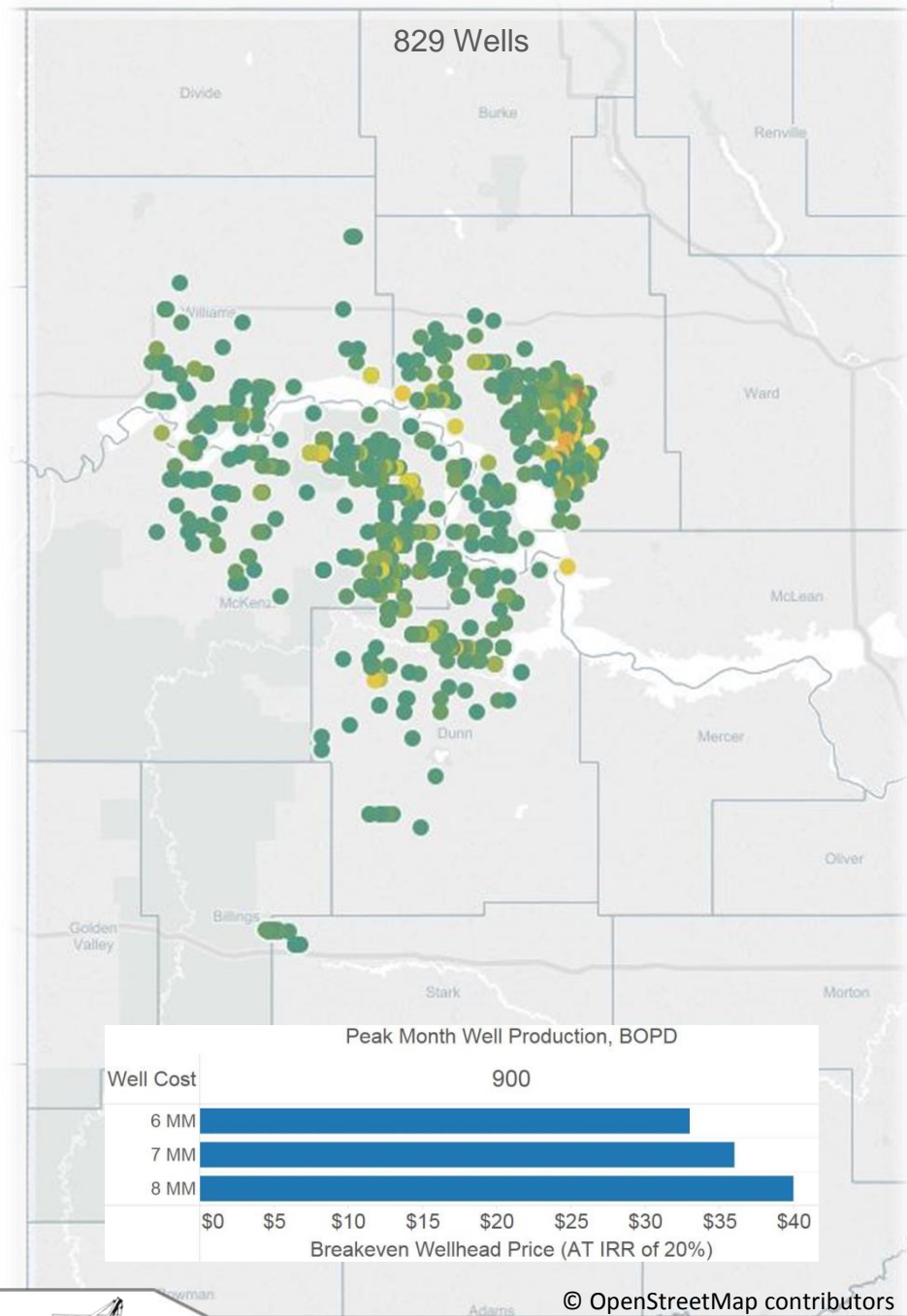
Peak Month Minimum 800 BOPD



2.5 Mile Buffer



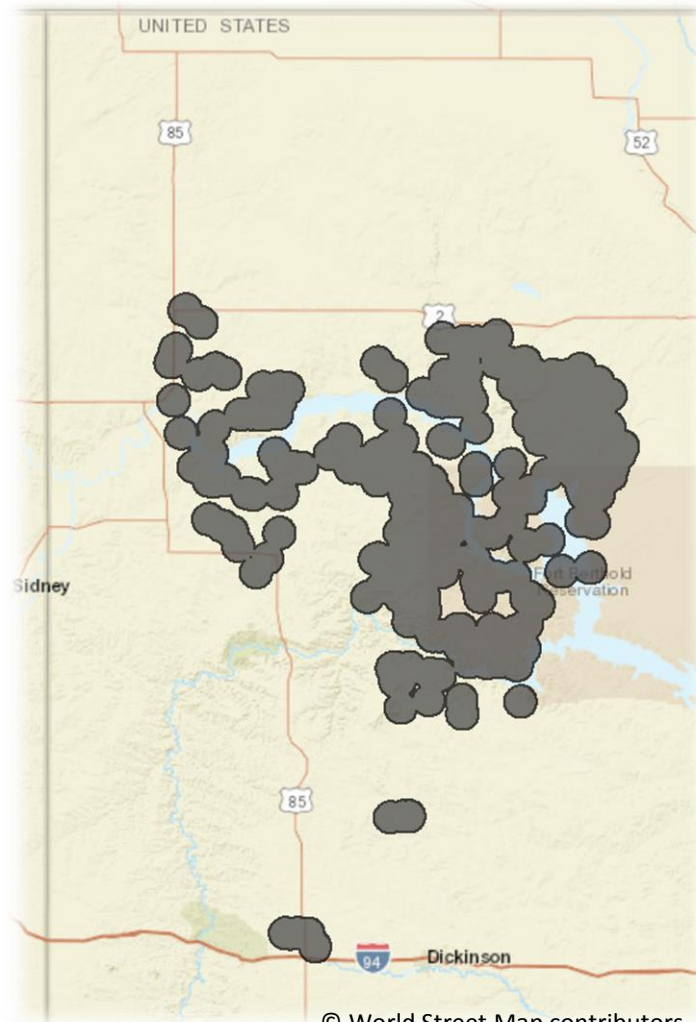
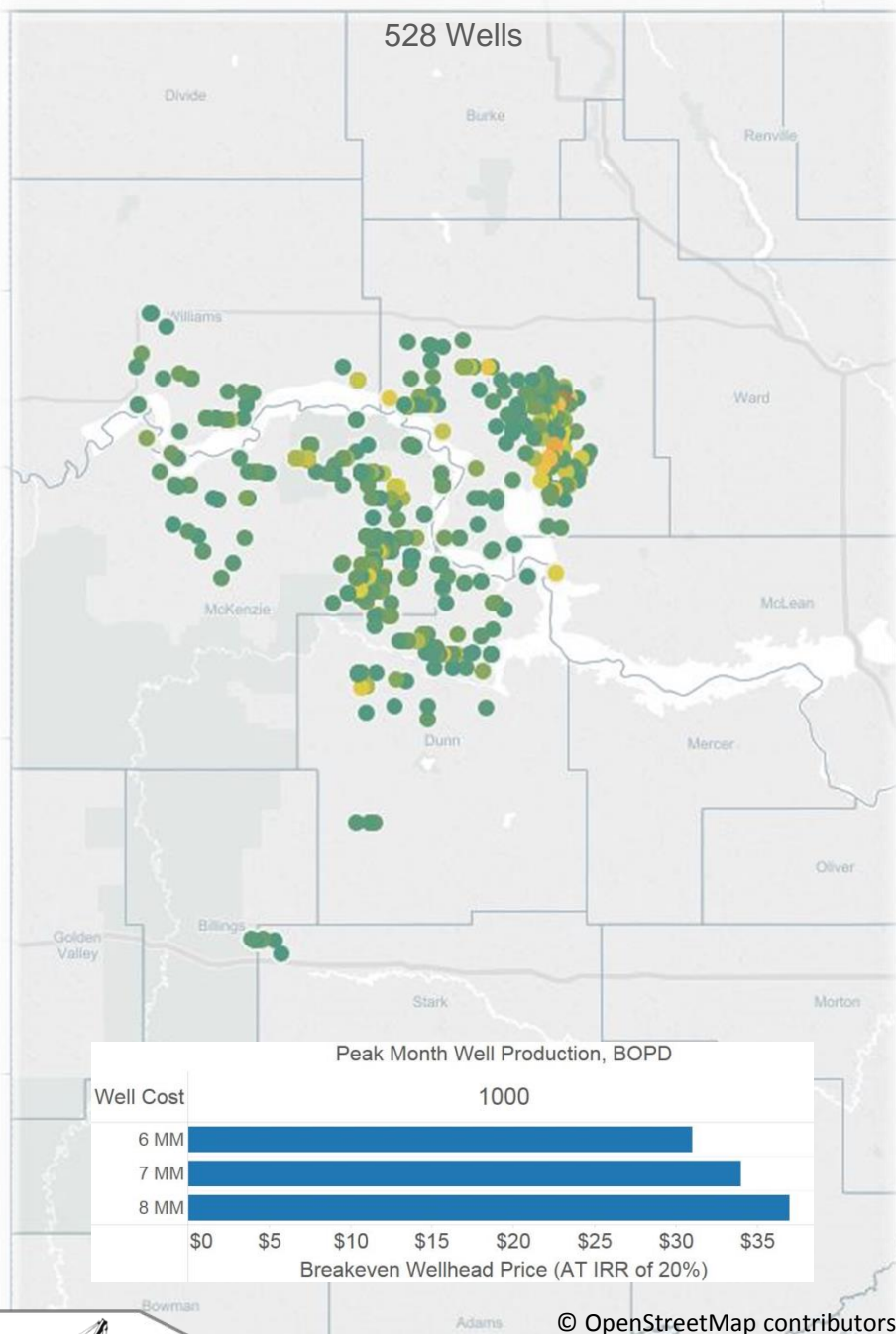
Peak Month Minimum 900 BOPD



2.5 Mile Buffer



Peak Month Minimum 1,000 BOPD

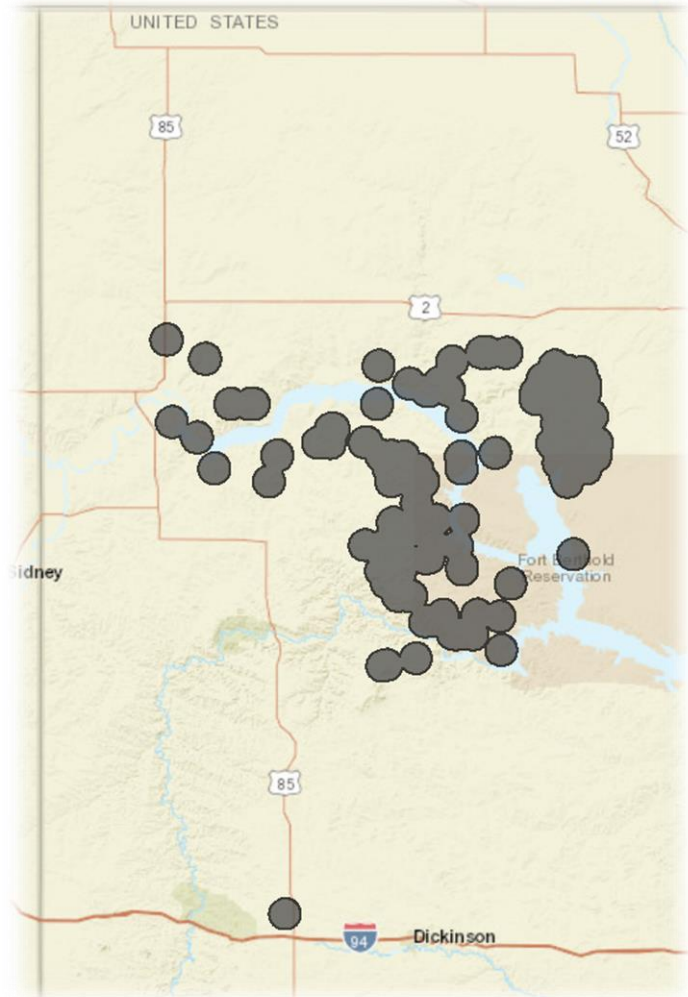
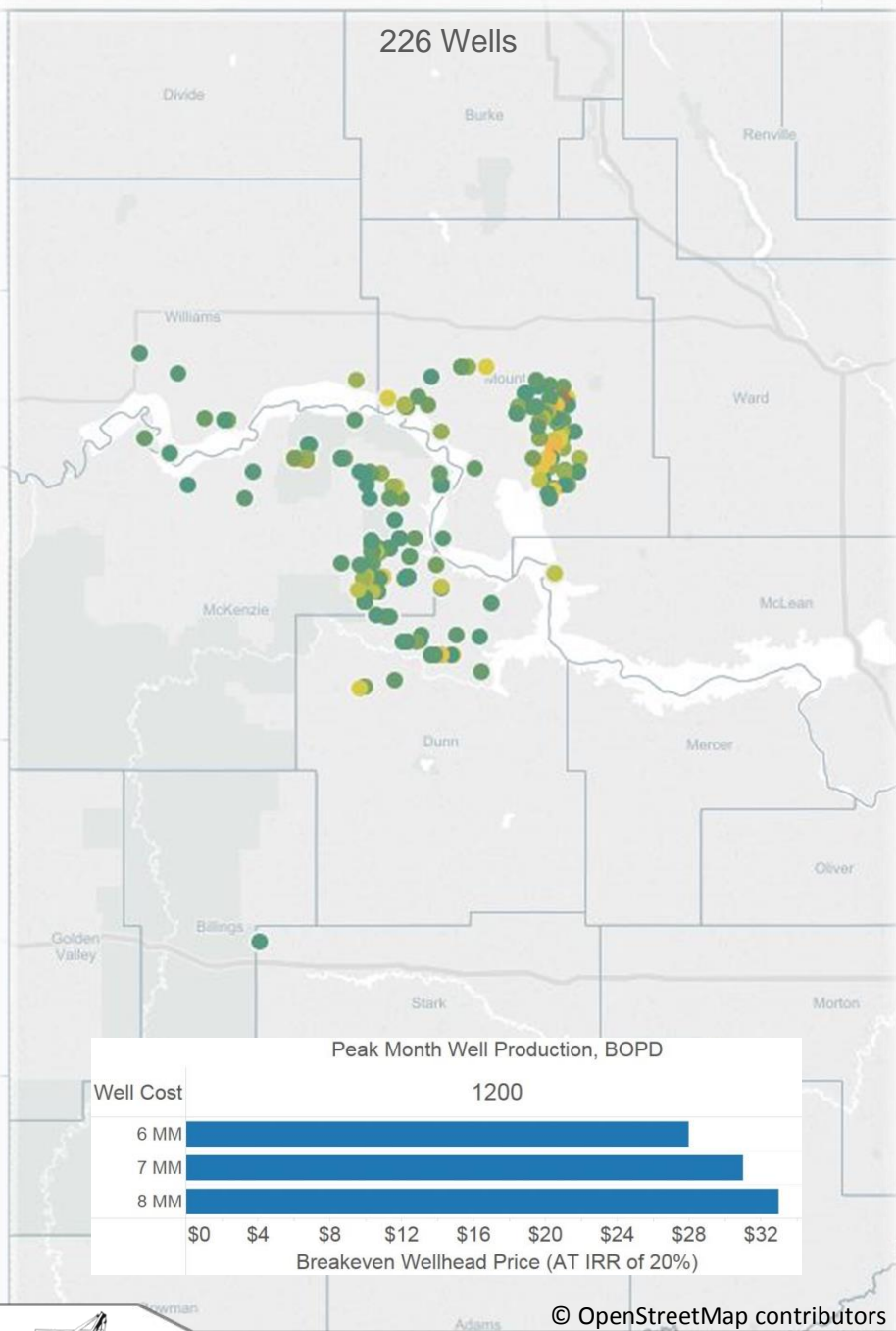


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2.5 Mile Buffer



Peak Month Minimum 1,200 BOPD

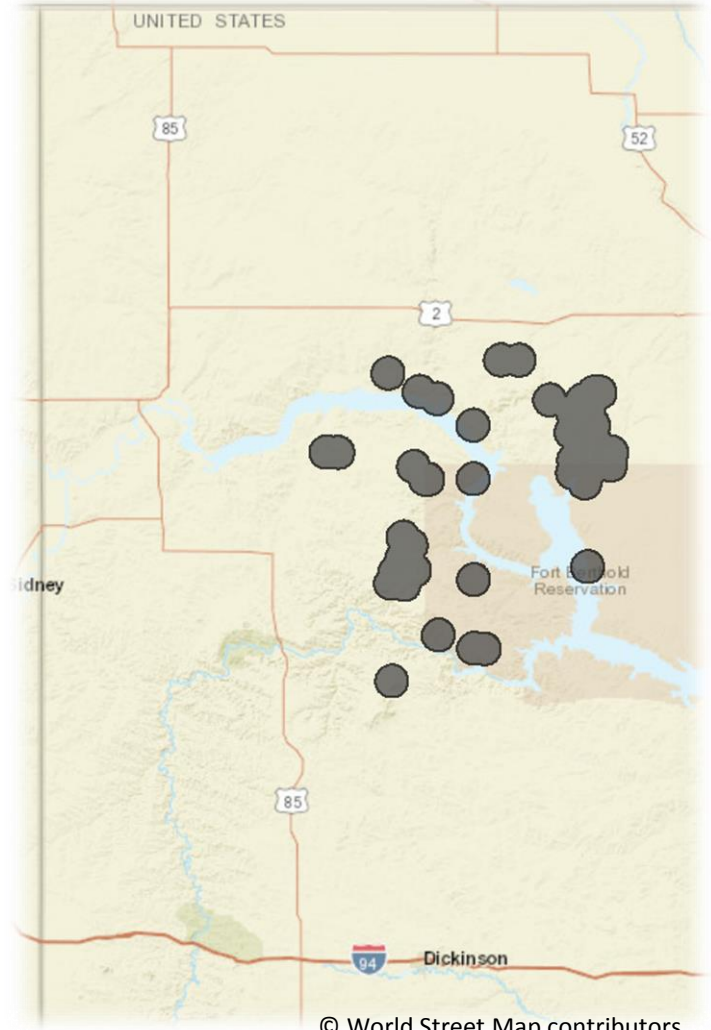
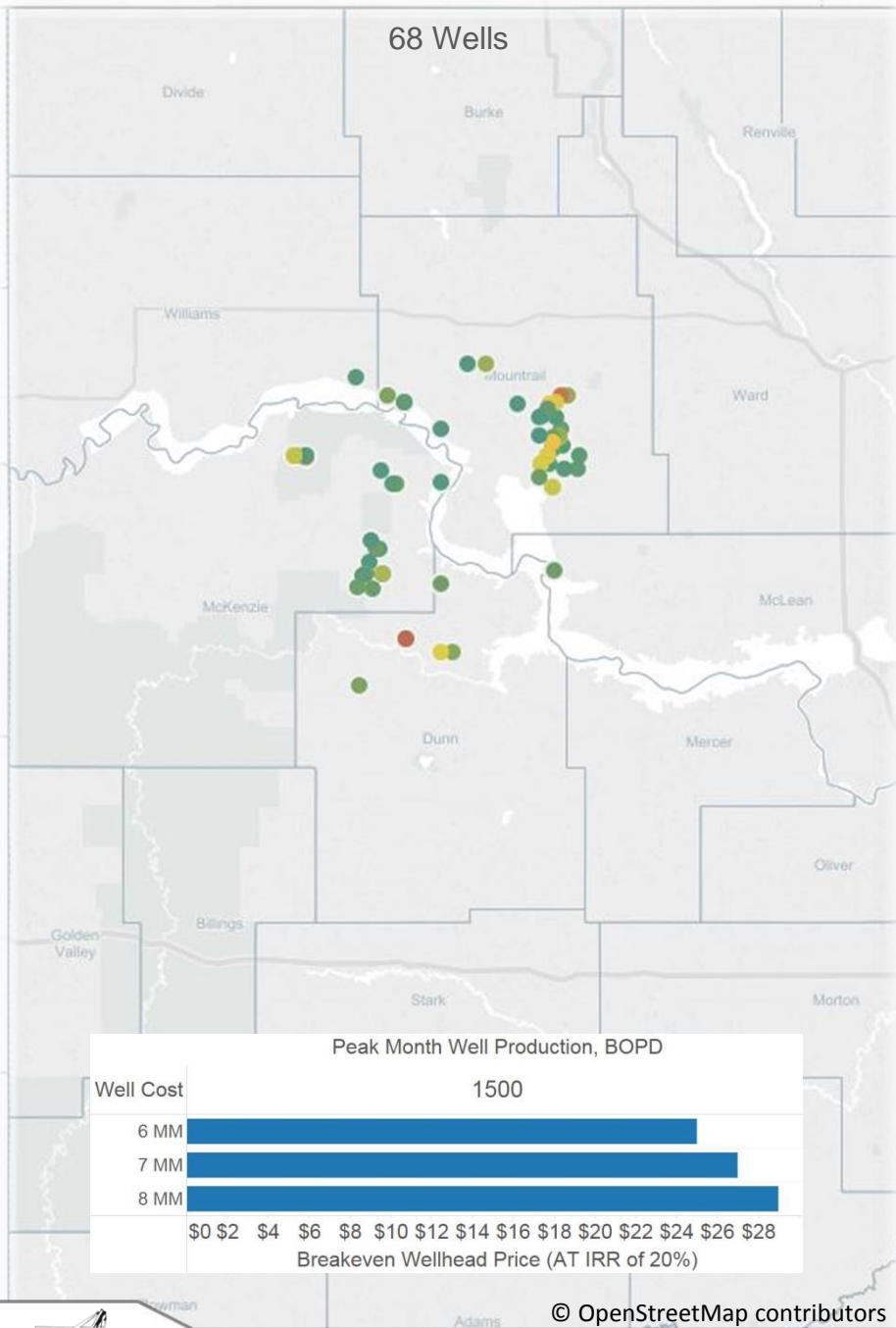


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2.5 Mile Buffer



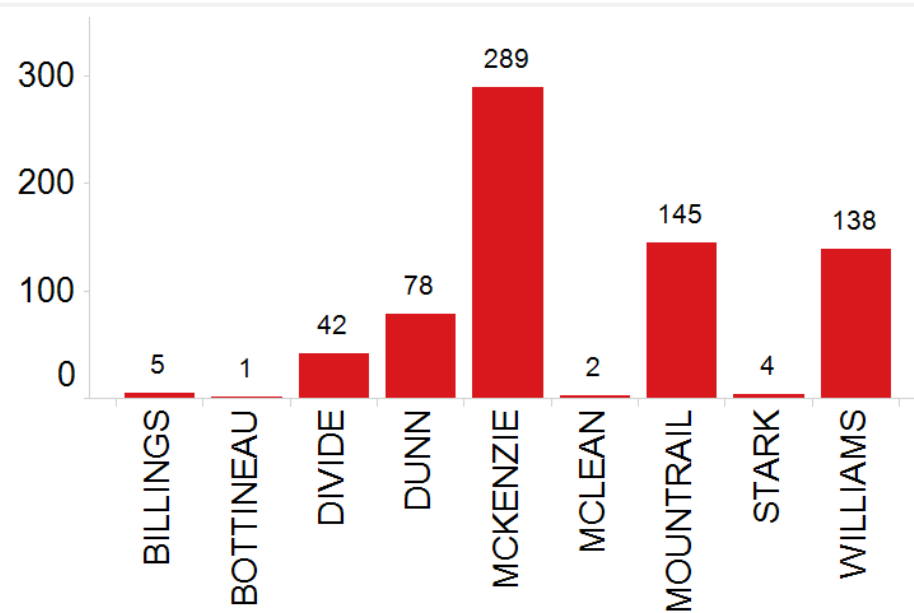
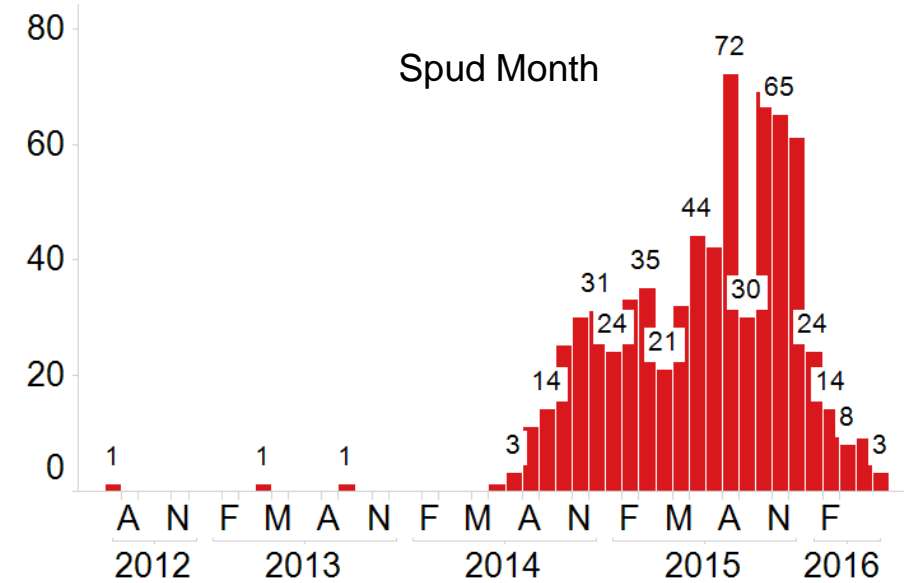
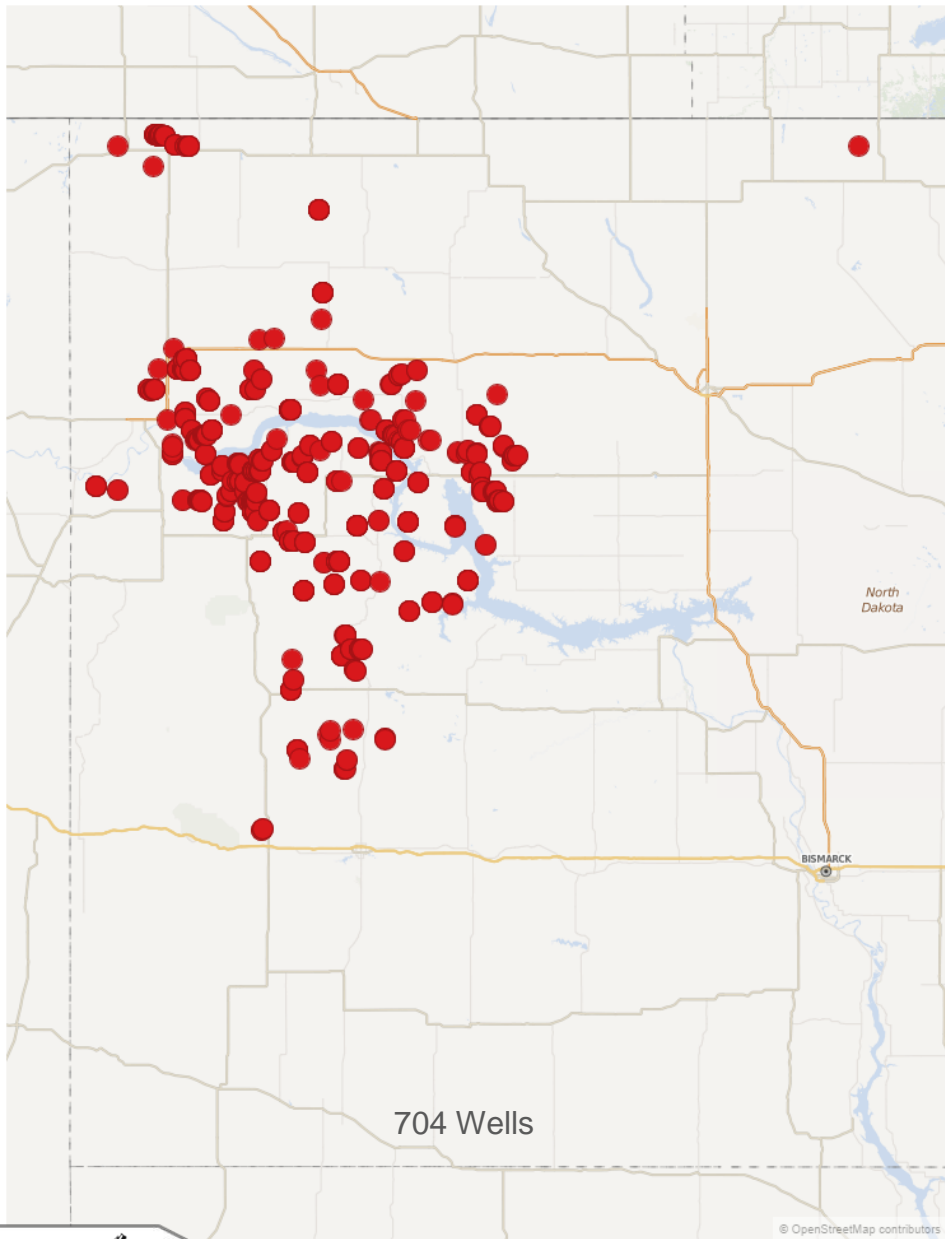
Peak Month Minimum 1,500 BOPD



2.5 Mile Buffer



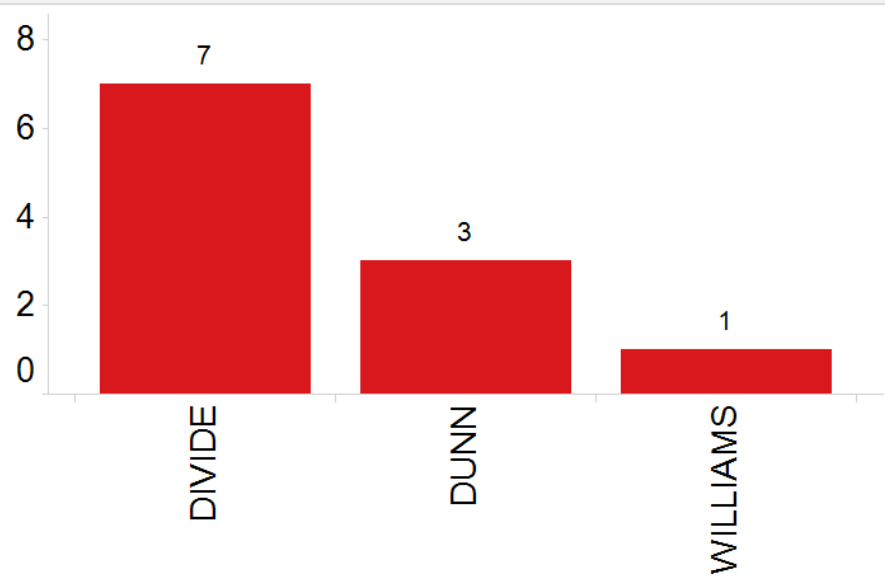
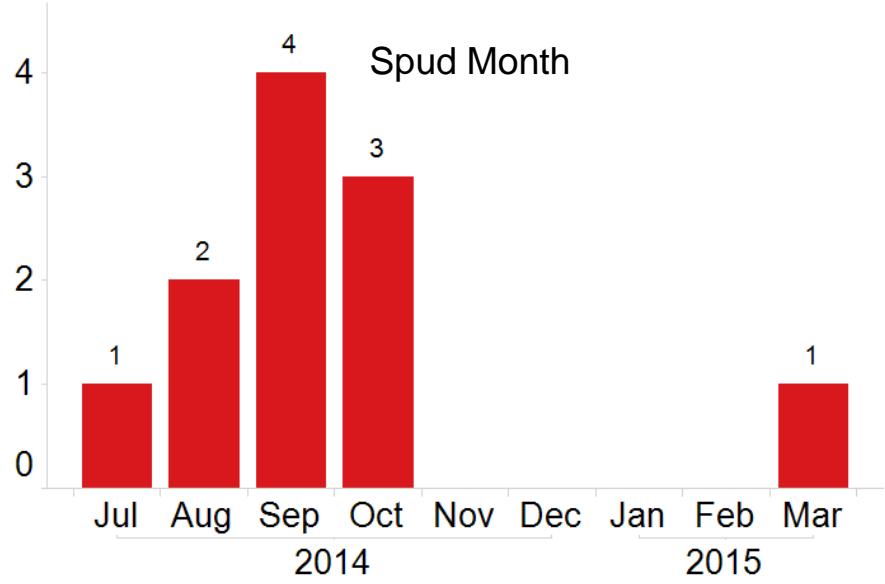
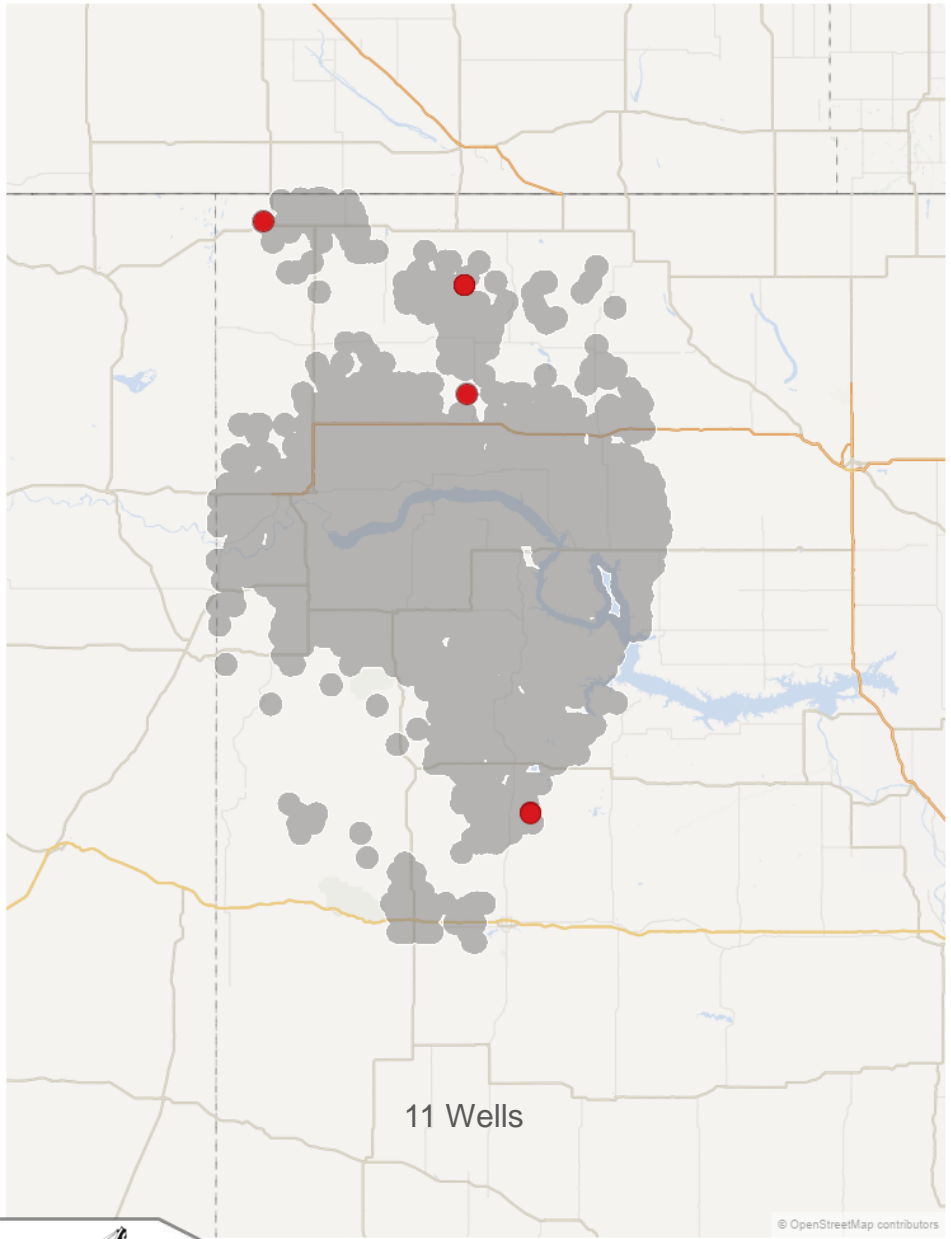
All "NC" & "NCW" Wells June 23, 2016



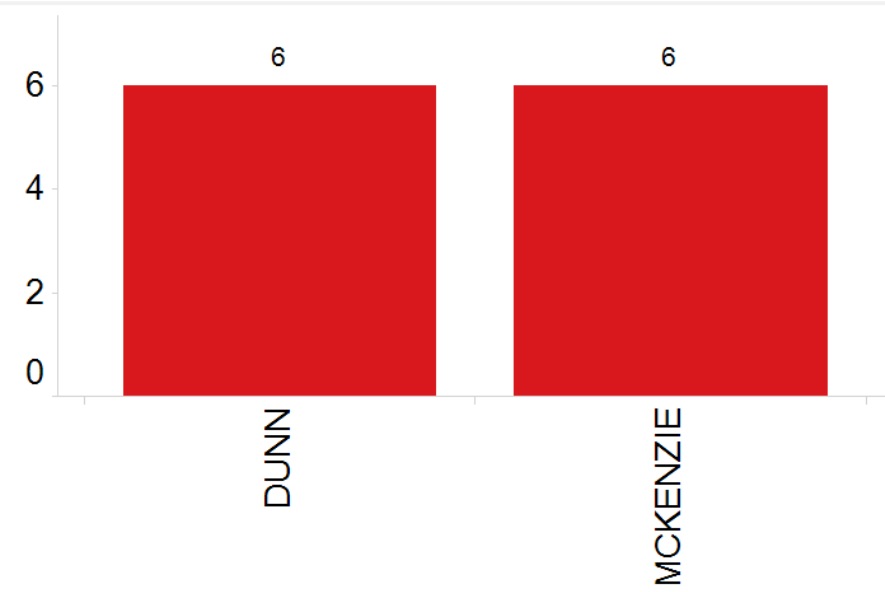
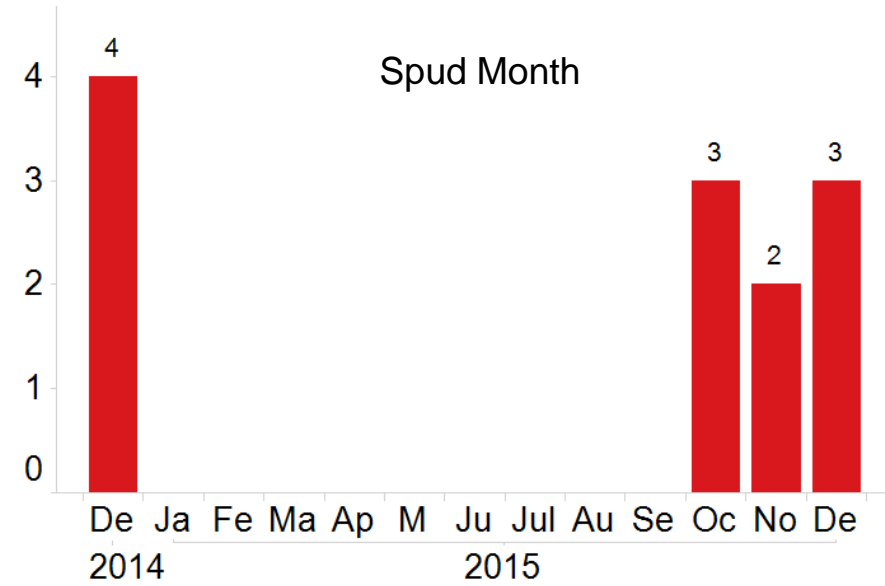
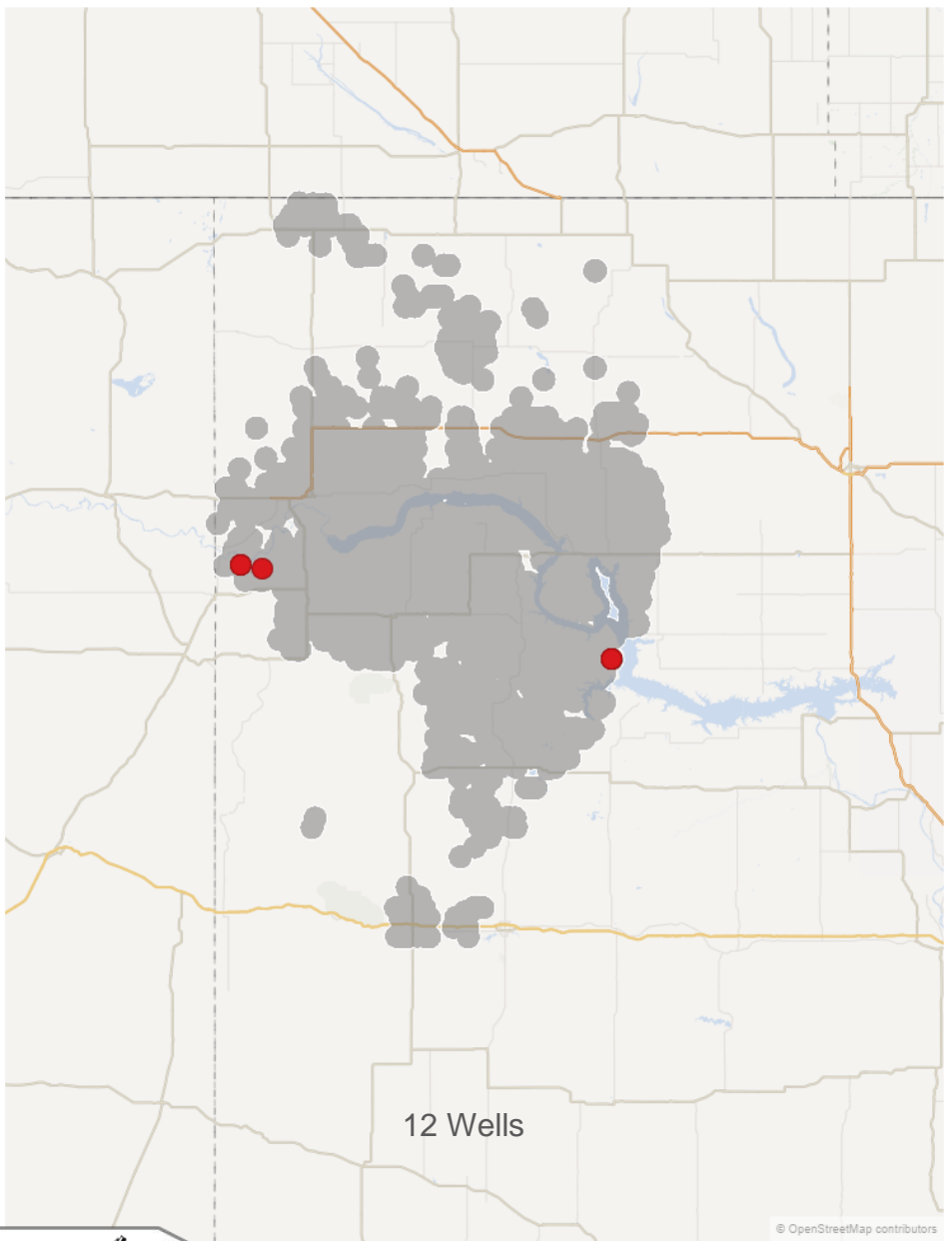
Breakdown of NC/NCW Wells by Maximum 2.5mi Production Buffer Zone



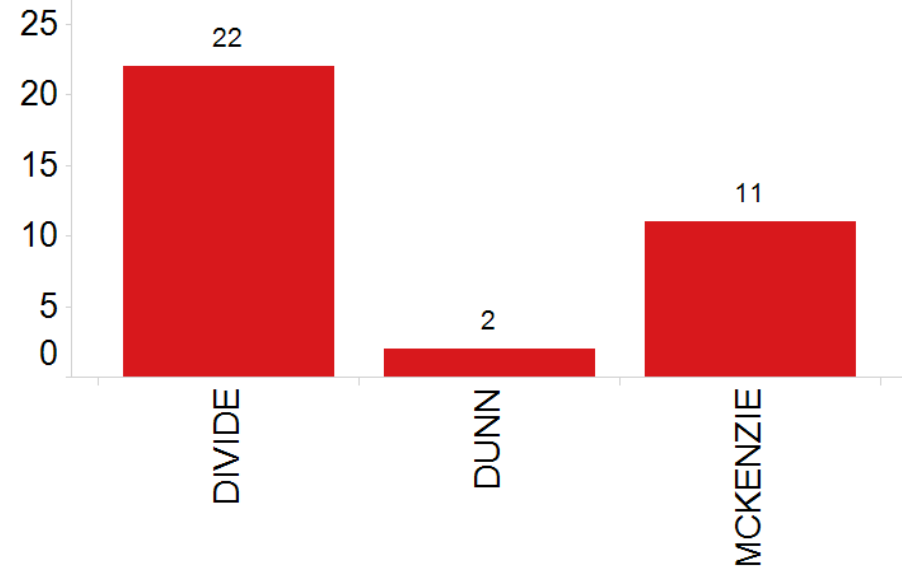
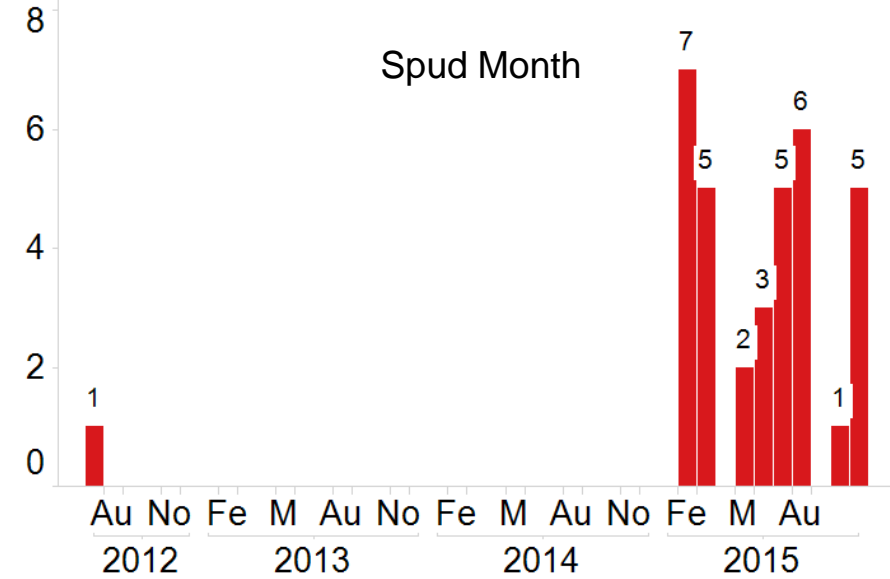
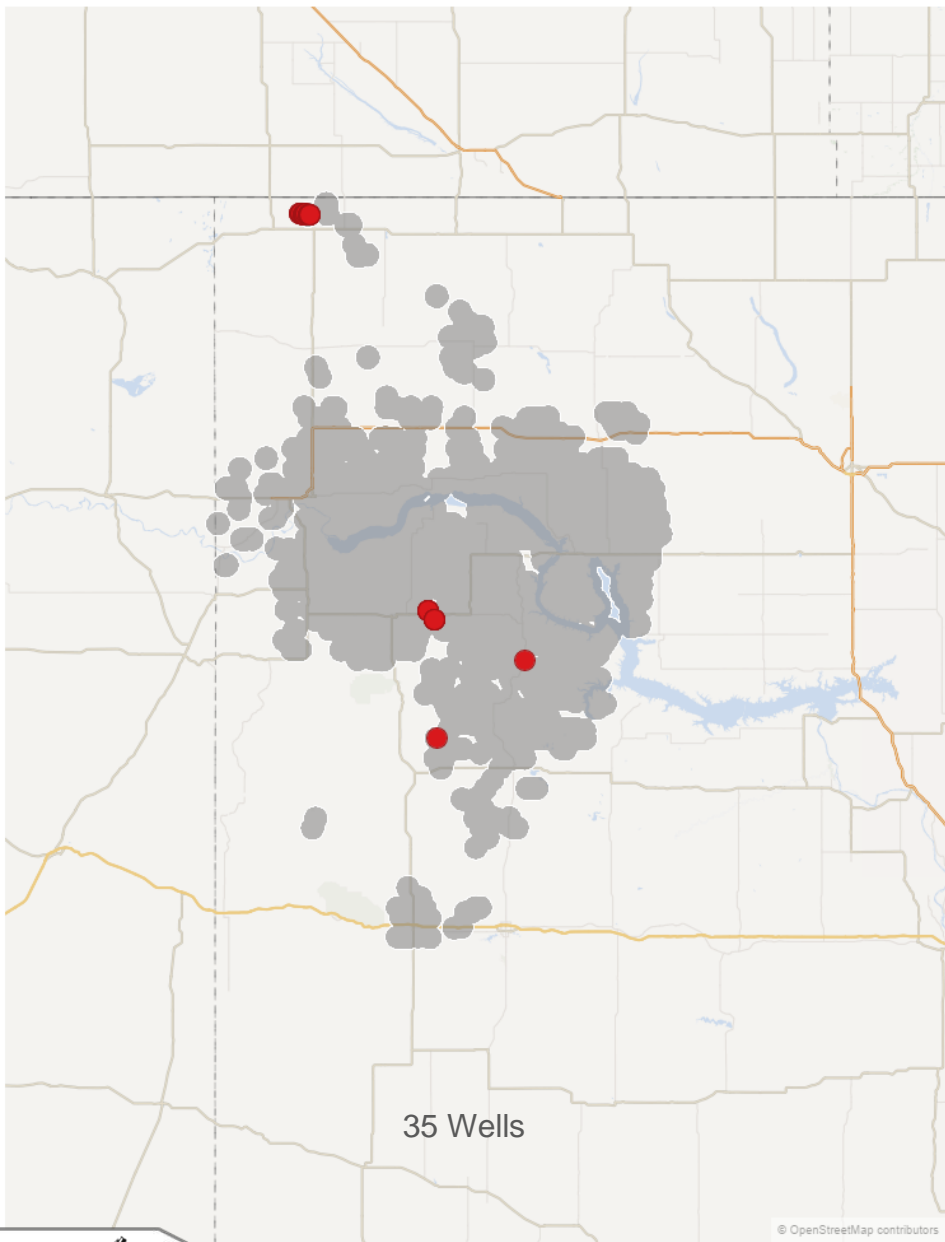
NC/NCW Wells Inside 2.5mi 400 BOPD Buffer



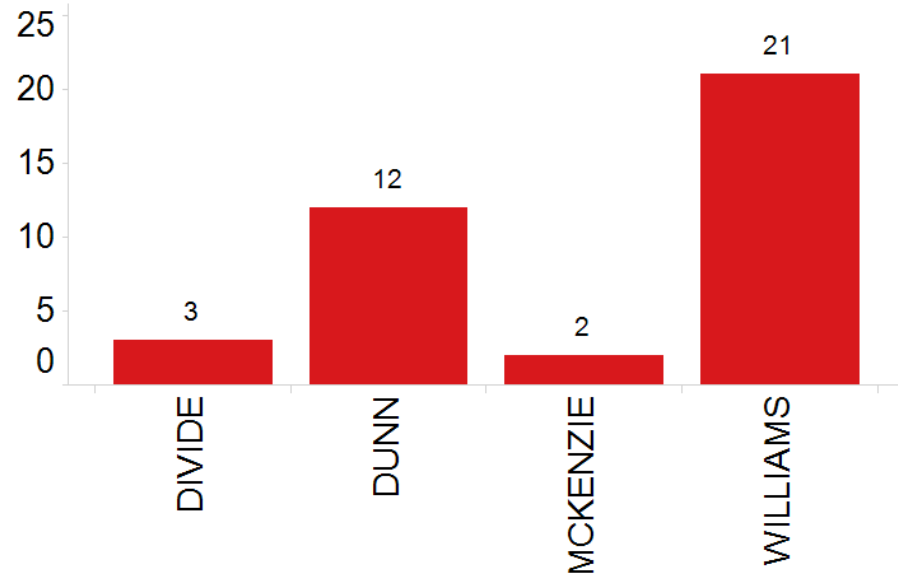
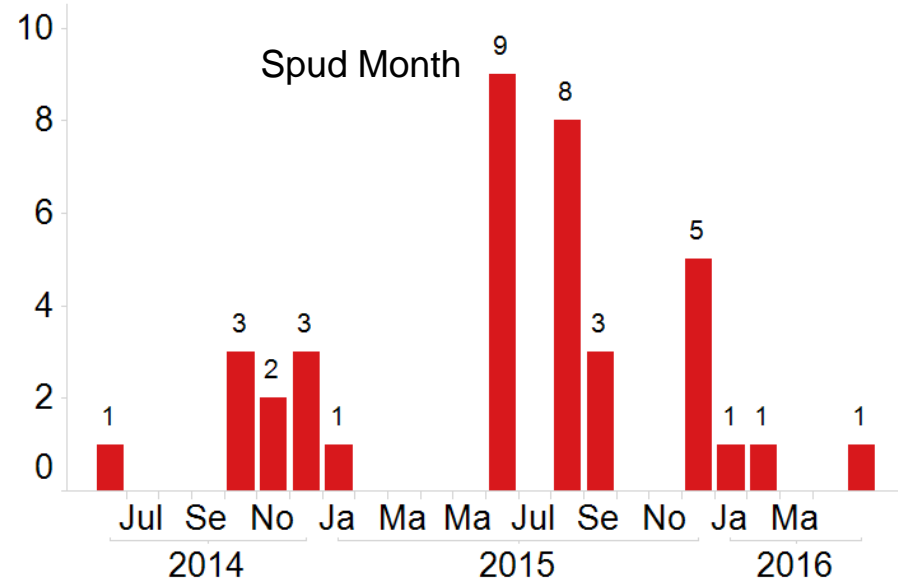
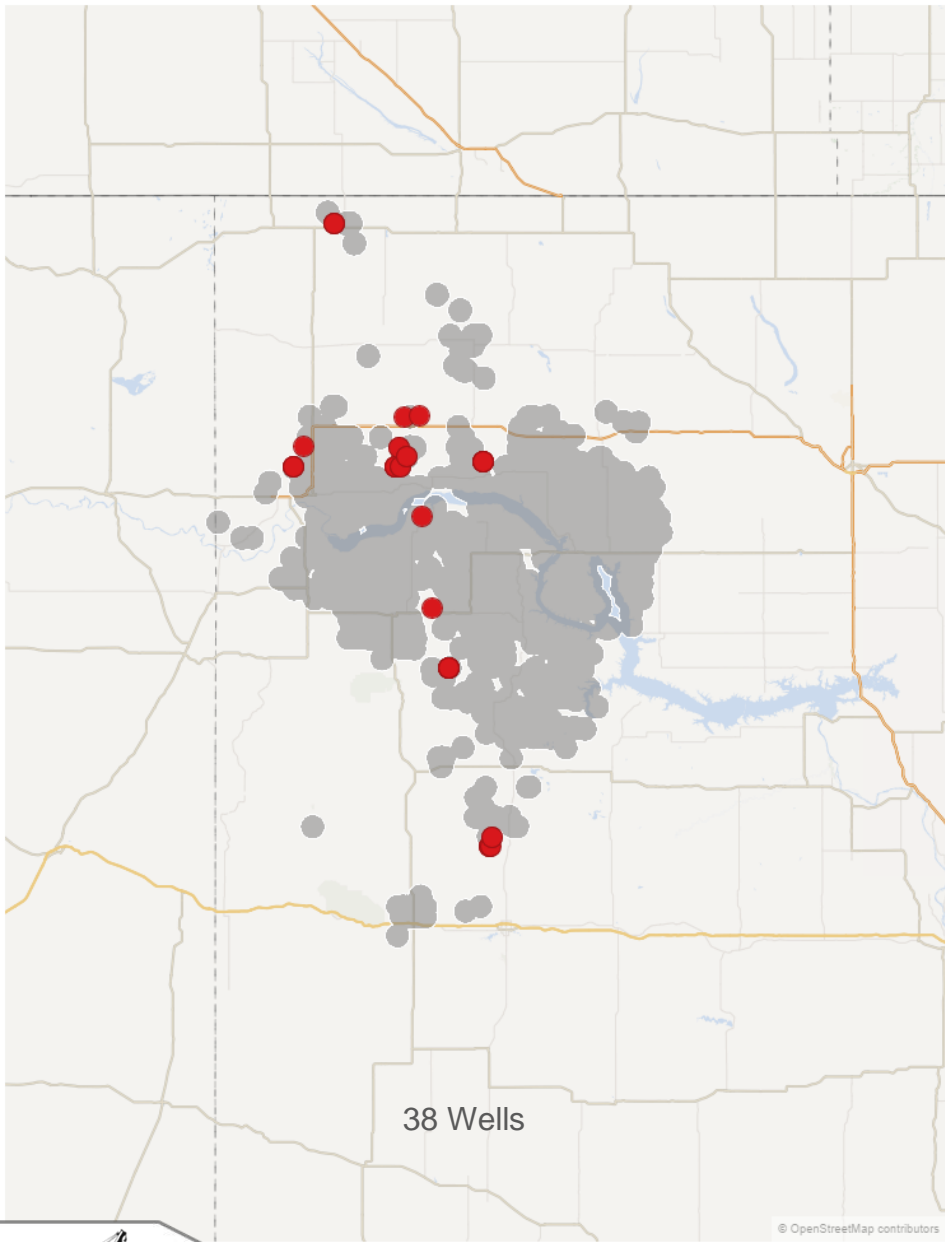
NC/NCW Wells Inside 2.5mi 500 BOPD Buffer



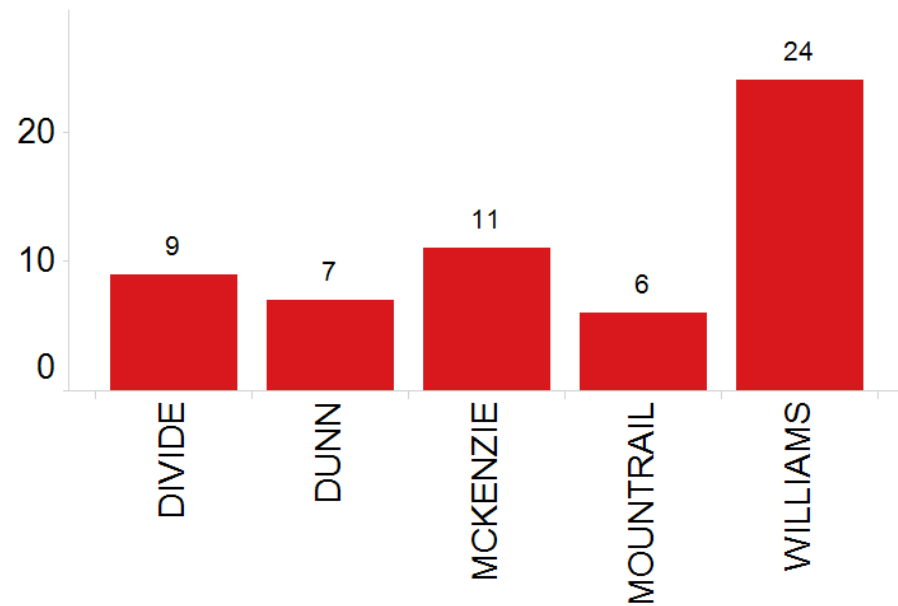
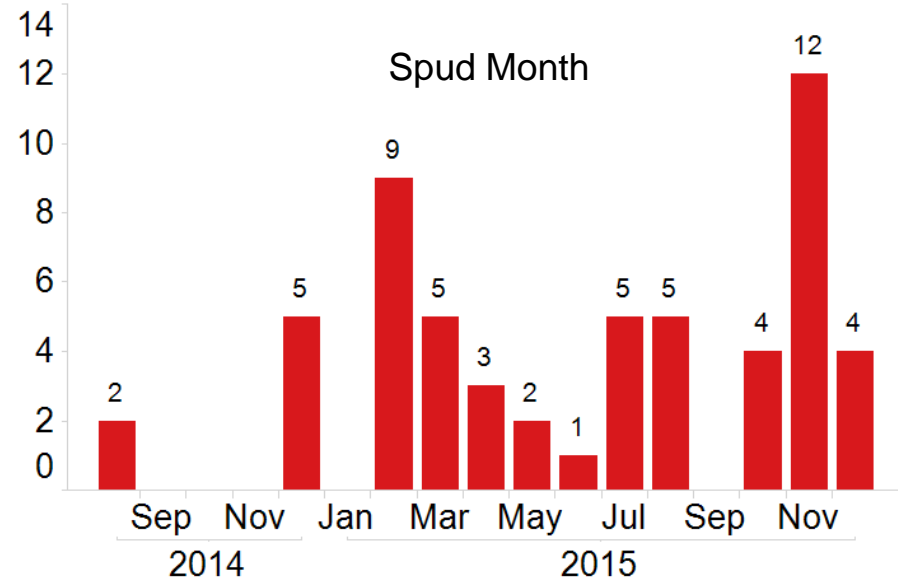
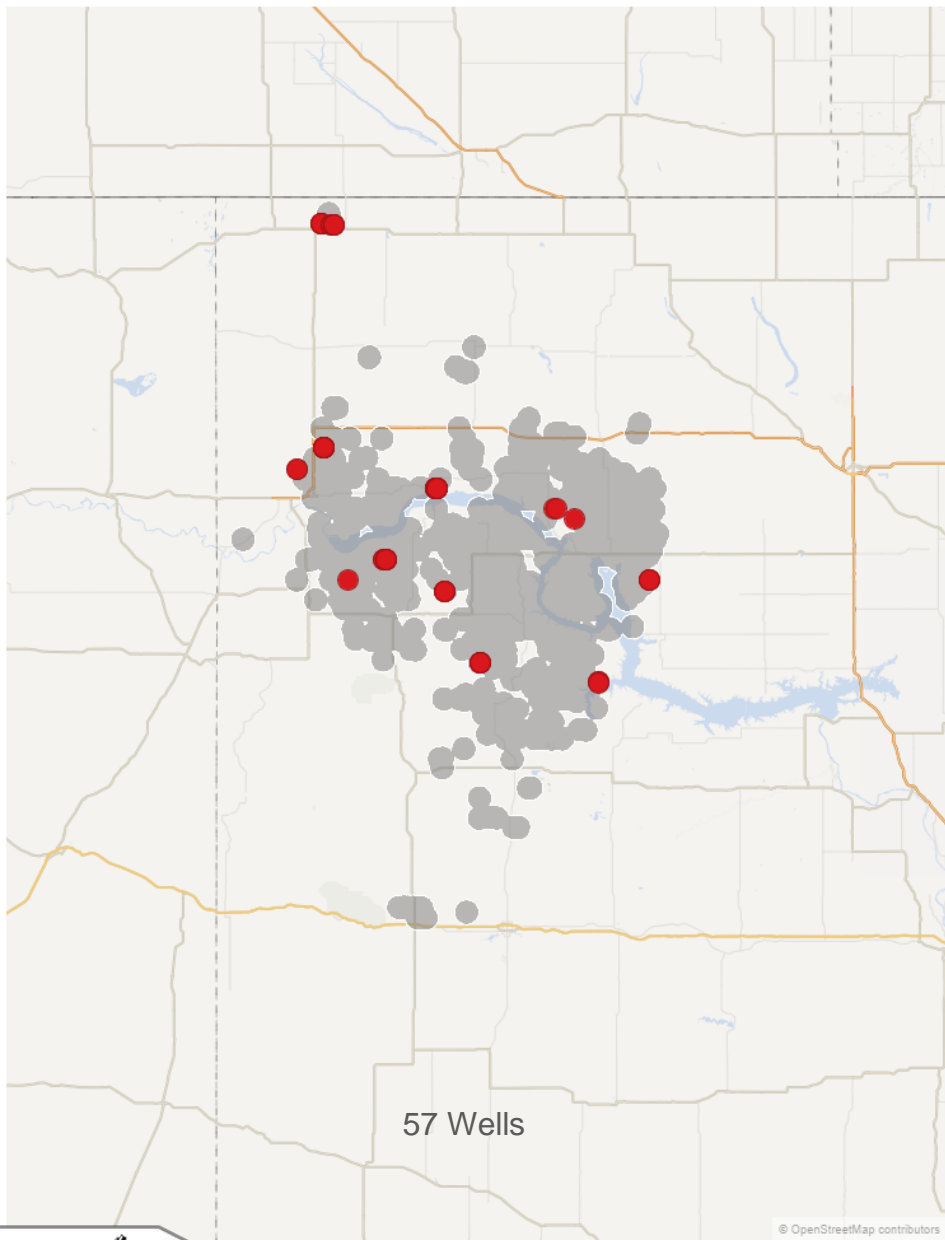
NC/NCW Wells Inside 2.5mi 600 BOPD Buffer



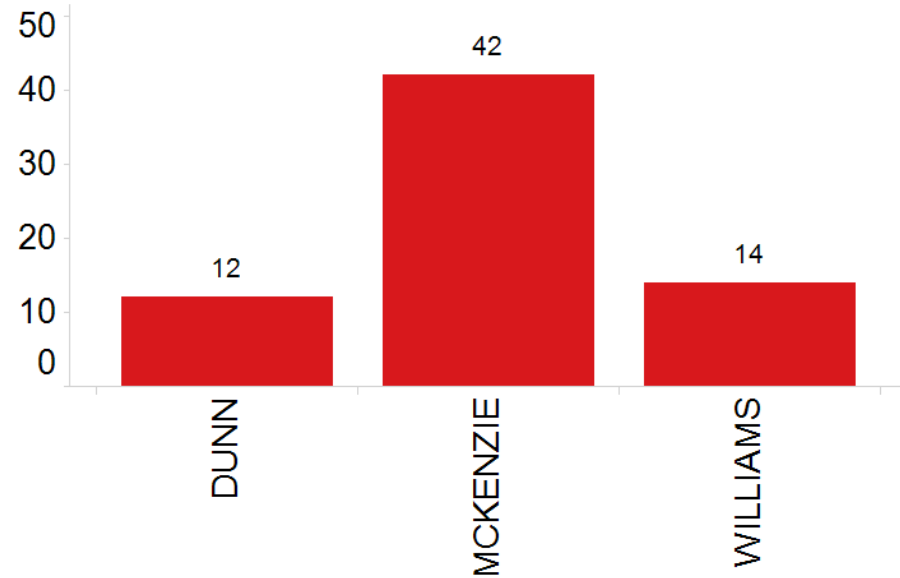
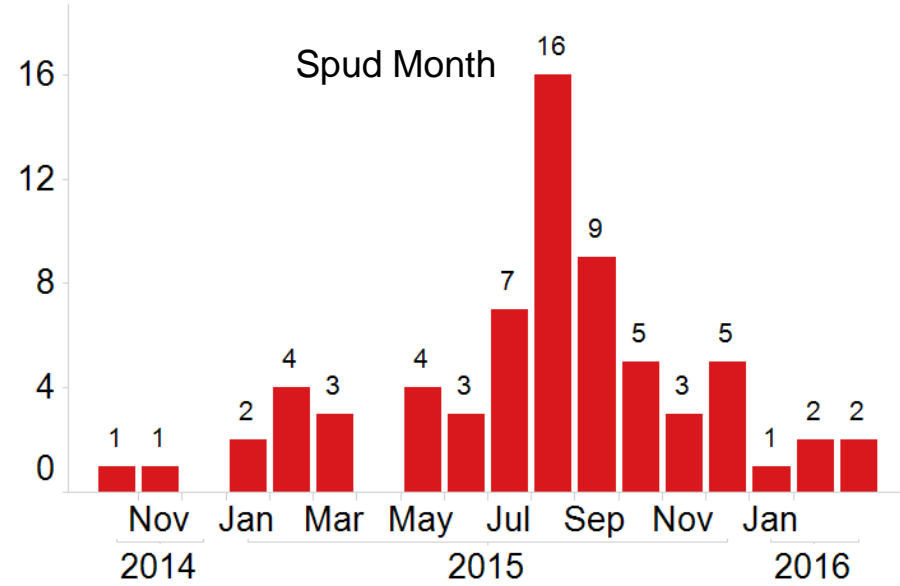
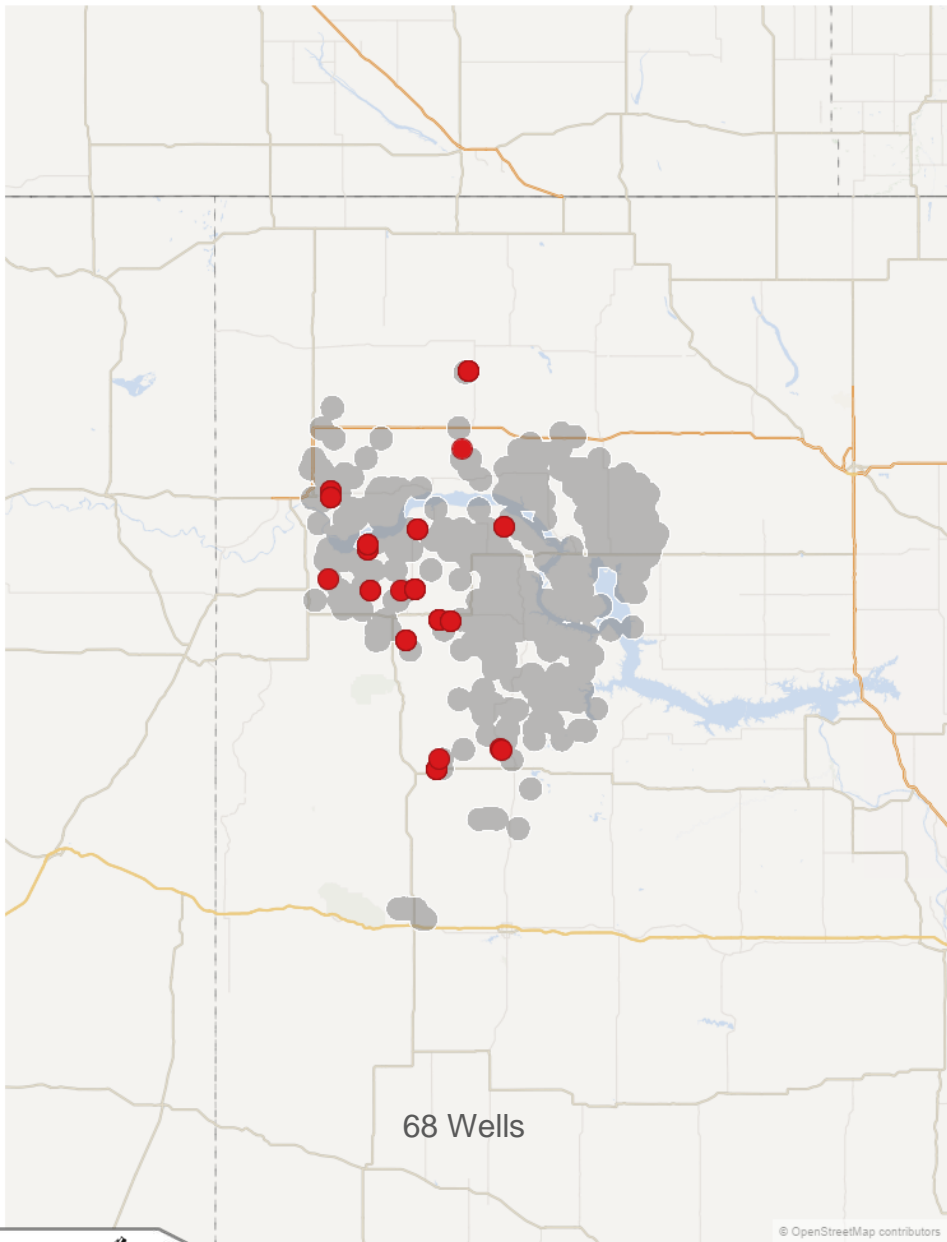
NC/NCW Wells Inside 2.5mi 700 BOPD Buffer



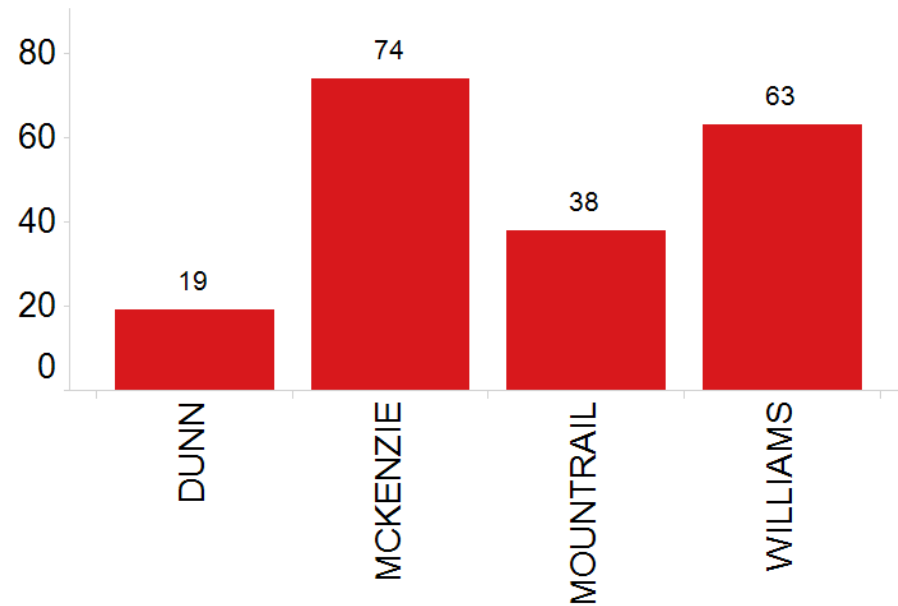
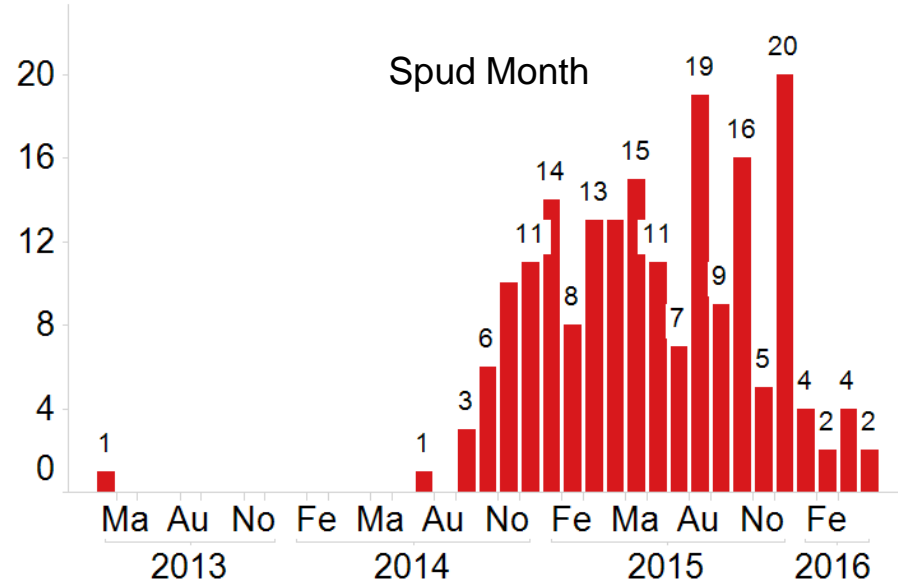
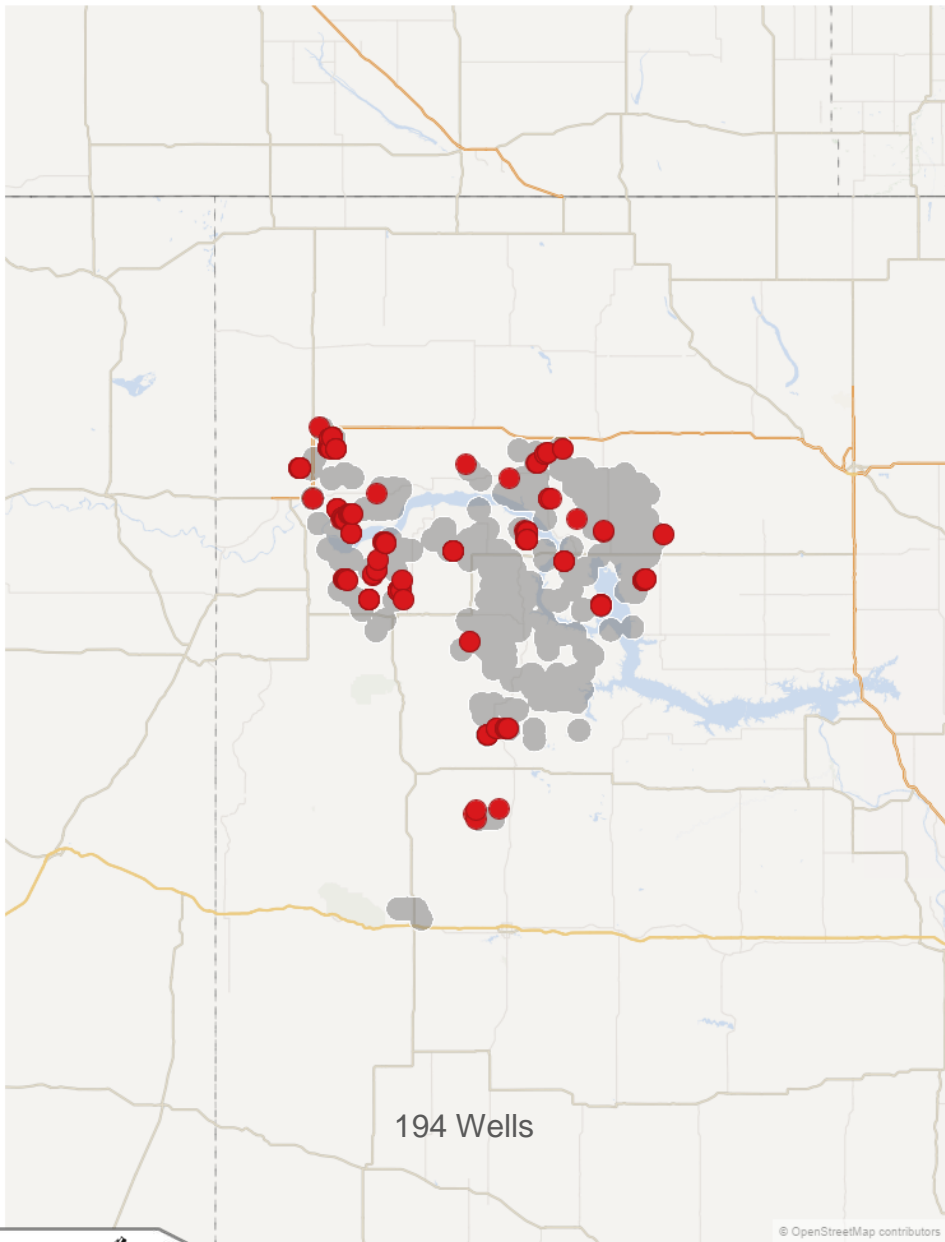
NC/NCW Wells Inside 2.5mi 800 BOPD Buffer



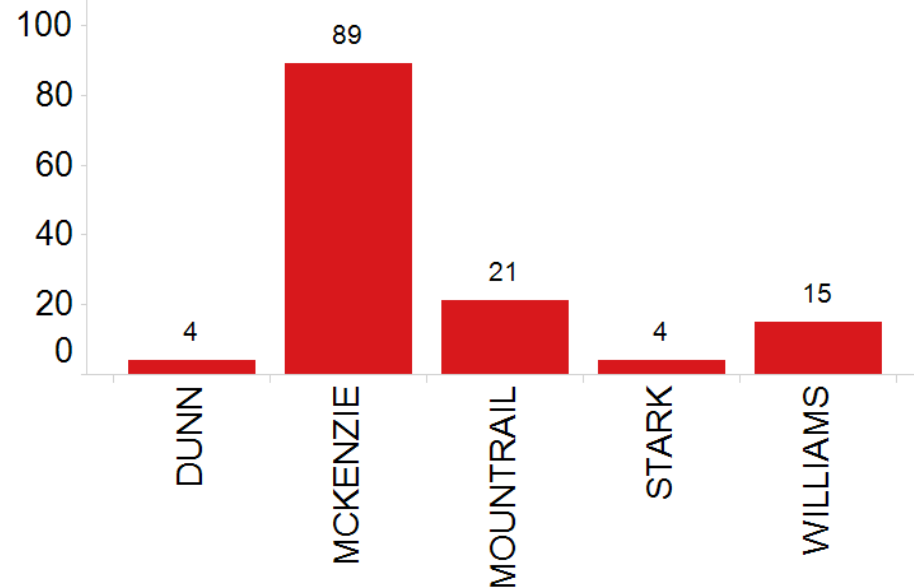
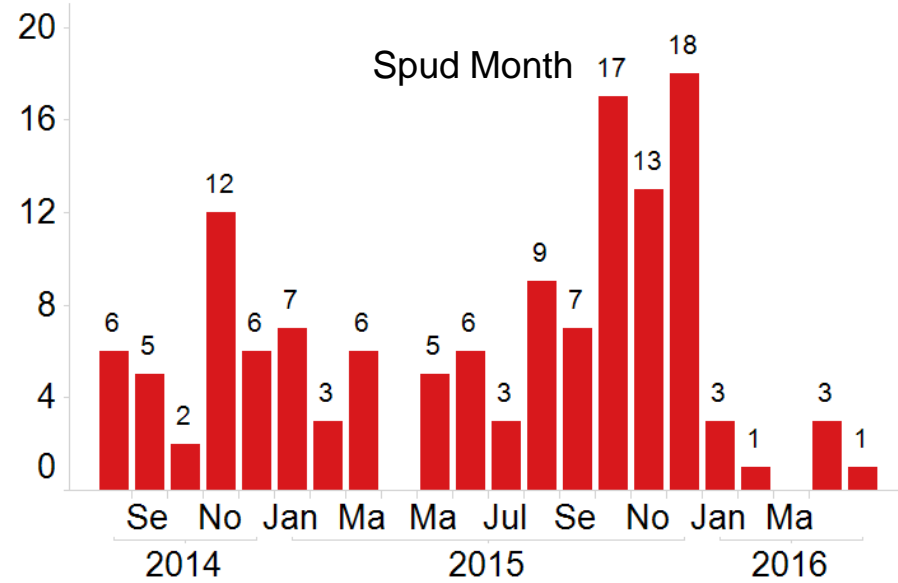
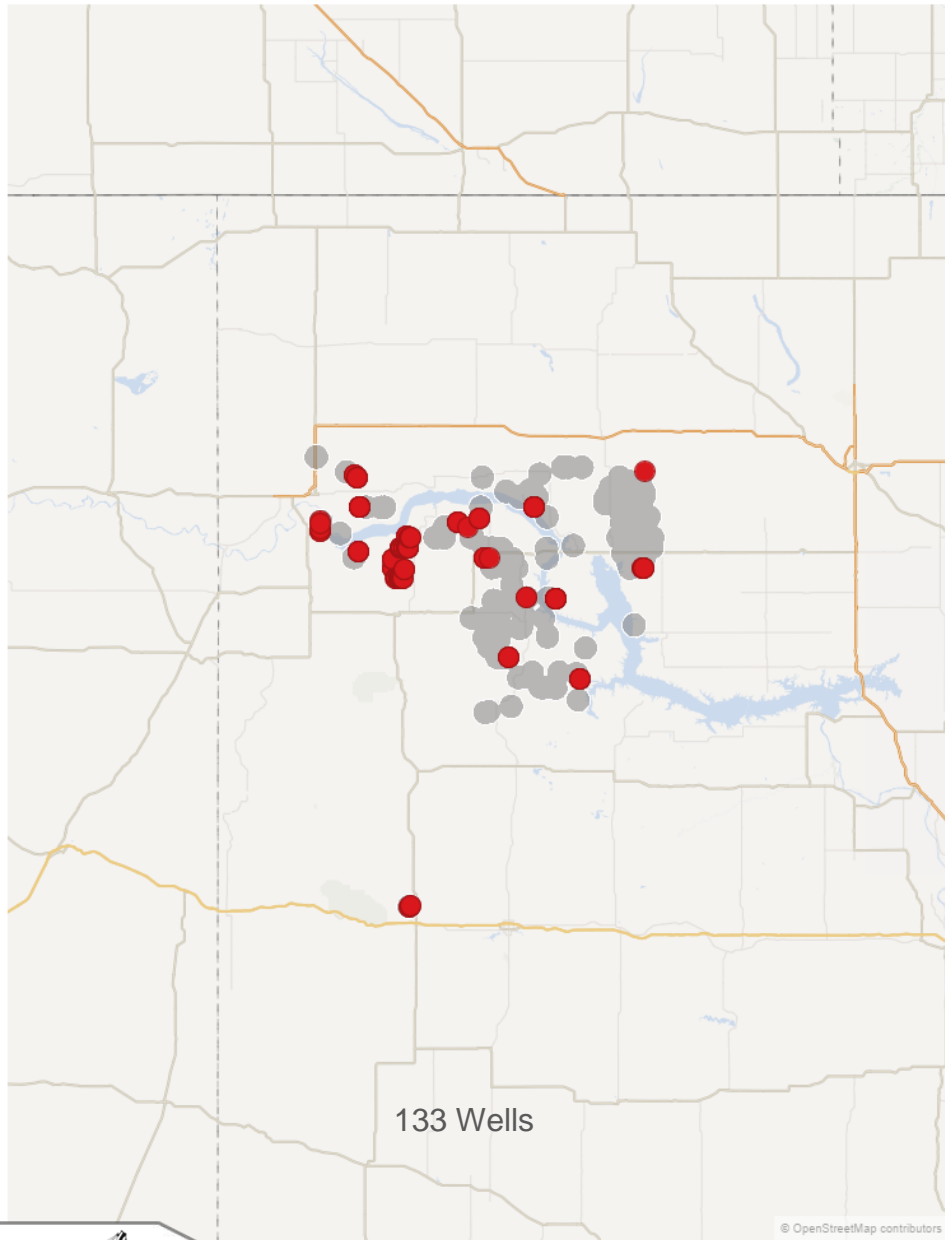
NC/NCW Wells Inside 2.5mi 900 BOPD Buffer



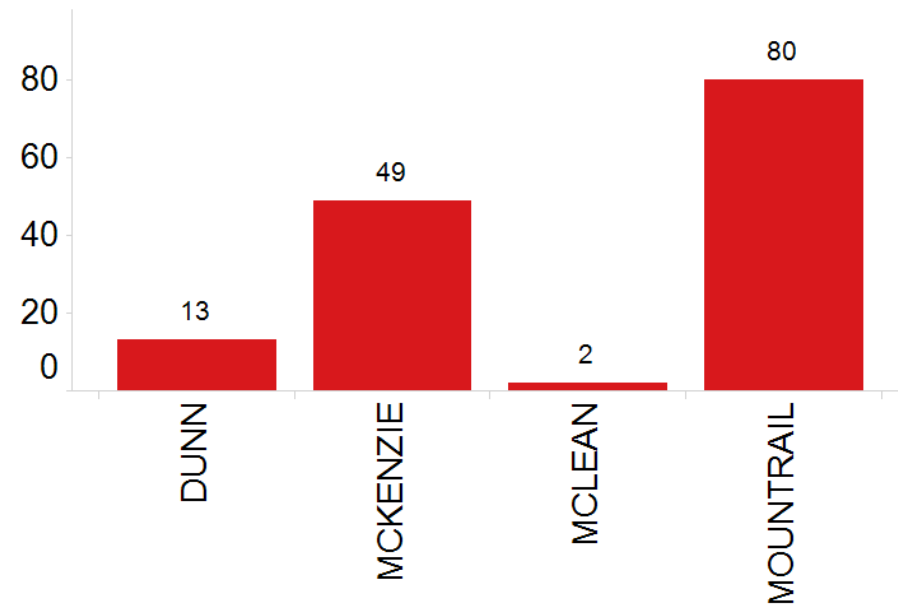
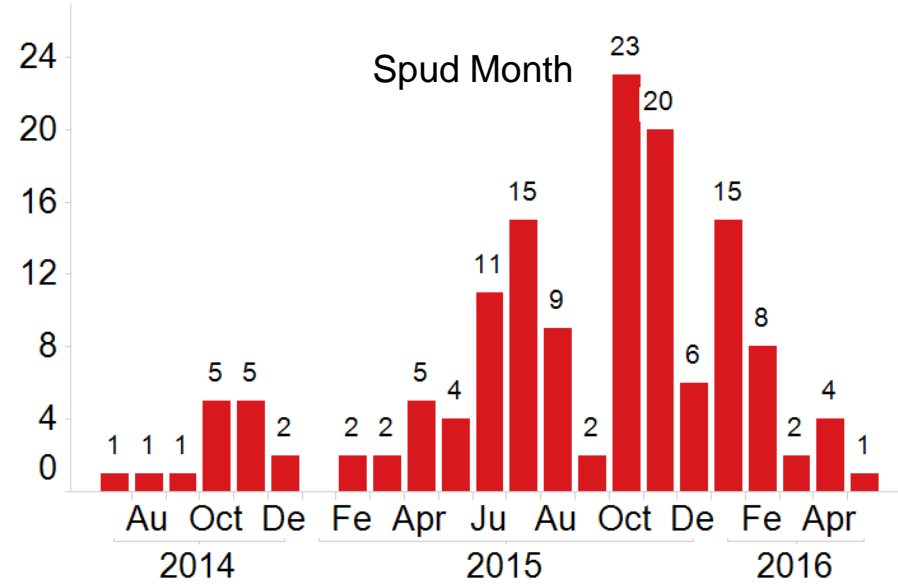
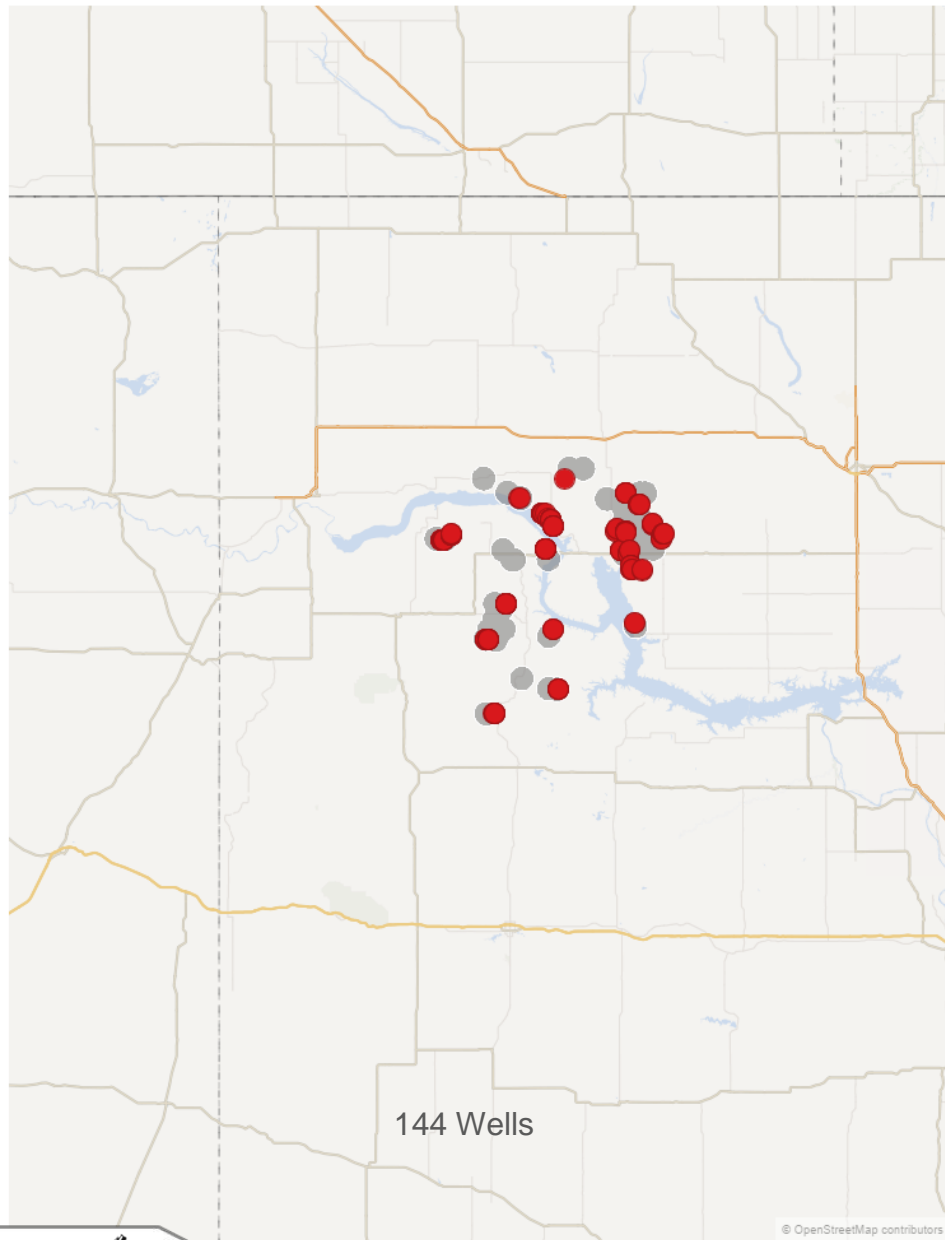
NC/NCW Wells Inside 2.5mi 1,000 BOPD Buffer



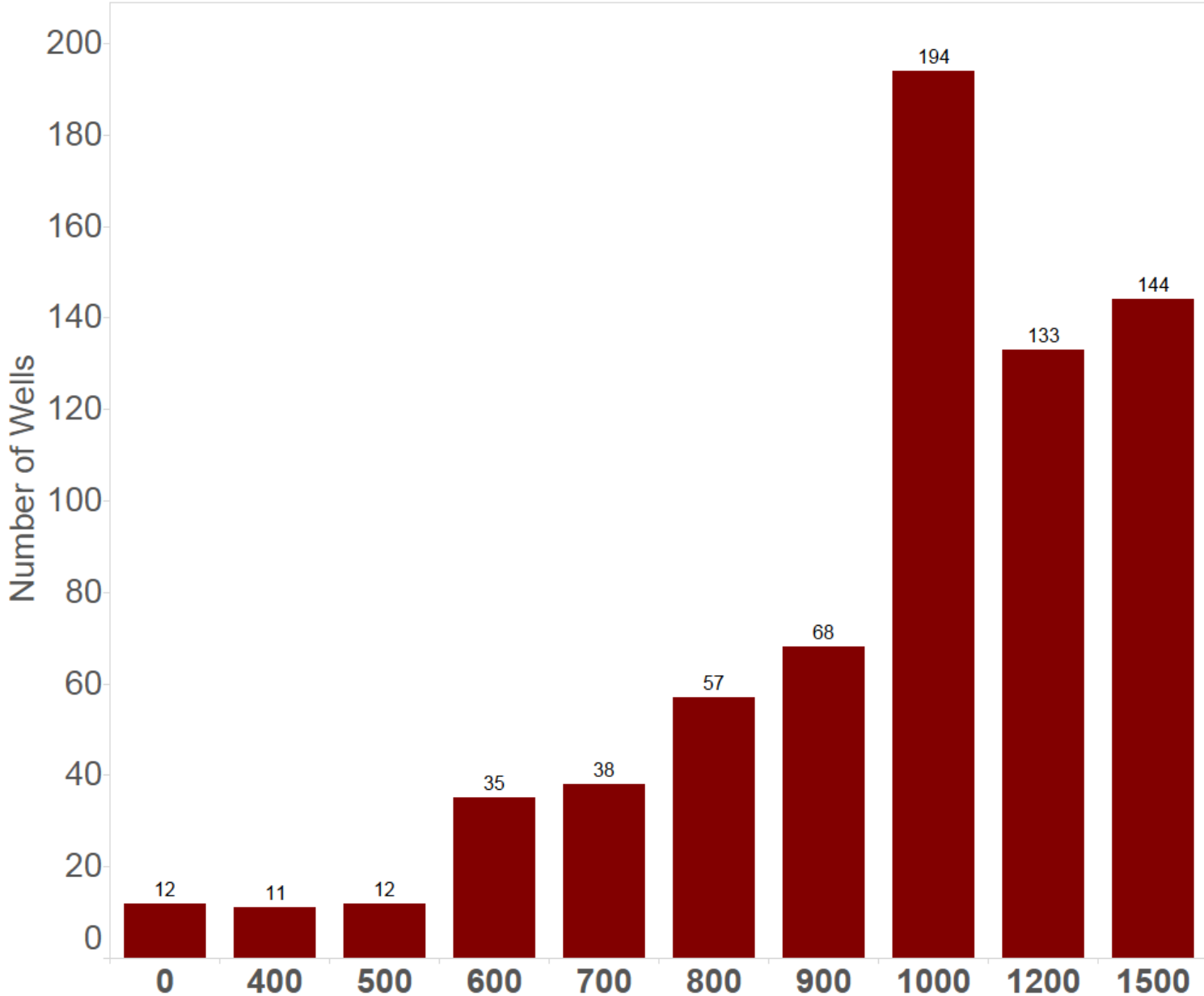
NC/NCW Wells Inside 2.5mi 1,200 BOPD Buffer



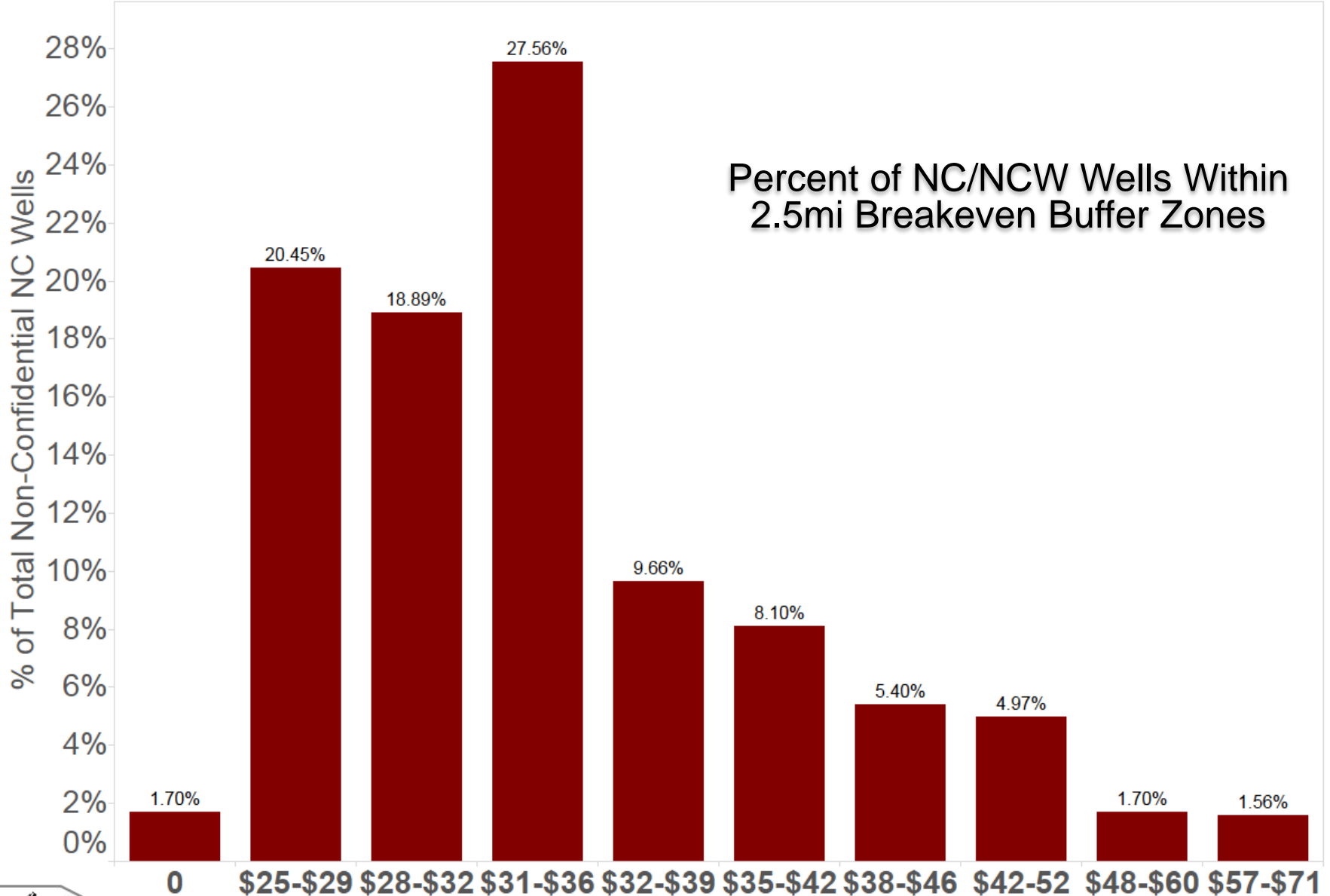
NC/NCW Wells Inside 2.5mi 1,500 BOPD Buffer



NC/NCW Well Count by Maximum 2.5mi Buffer Zone



Converting Well Performance to Estimated Breakeven Wellhead Pricing

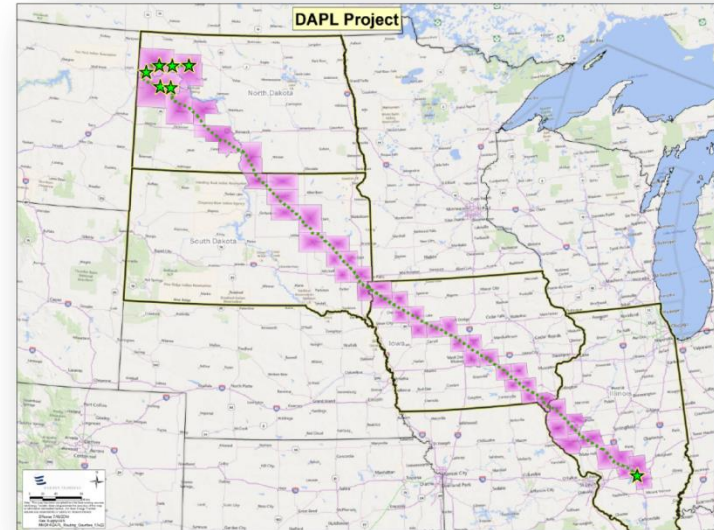
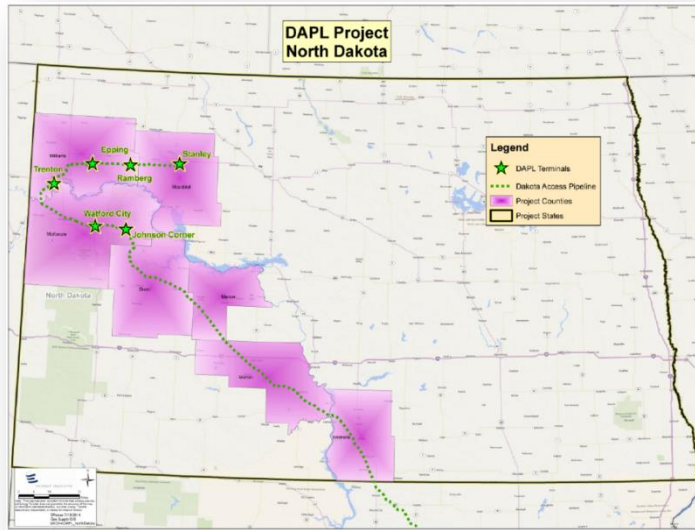


Conclusions

- A vast majority of the current NC/NCW wells in North Dakota are well positioned relative to adjacent well performance.
- Completion decisions will vary by operator, but a reasonable assumption is that many of these NC/NCW wells may be the first wells completed when adequate and stable pricing is achieved.
- It must be noted that regardless of neighboring well performance, geologic risk is ever present and will be a major consideration in scheduling completions.



Dakota Access Update



- Construction Started May 16, 2016
- Terminals – 38%
- Tanks – 53%
- Pipeline – 20%
- Targeting October 31, 2016 for mechanical completions



Contact Information

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www.pipeline.nd.gov

www.northdakotapipelines.com



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