

Bakken Economics

Full Slide Deck

Justin J Kringstad

Geological Engineer

Director

North Dakota Pipeline Authority

Jan 24, 2018



Objective

Define where the Bakken/Three Forks system may be economic in the current oil price environment.

Method

Analyze past well performance across the region and estimate well economics for various production levels.

Disclaimer

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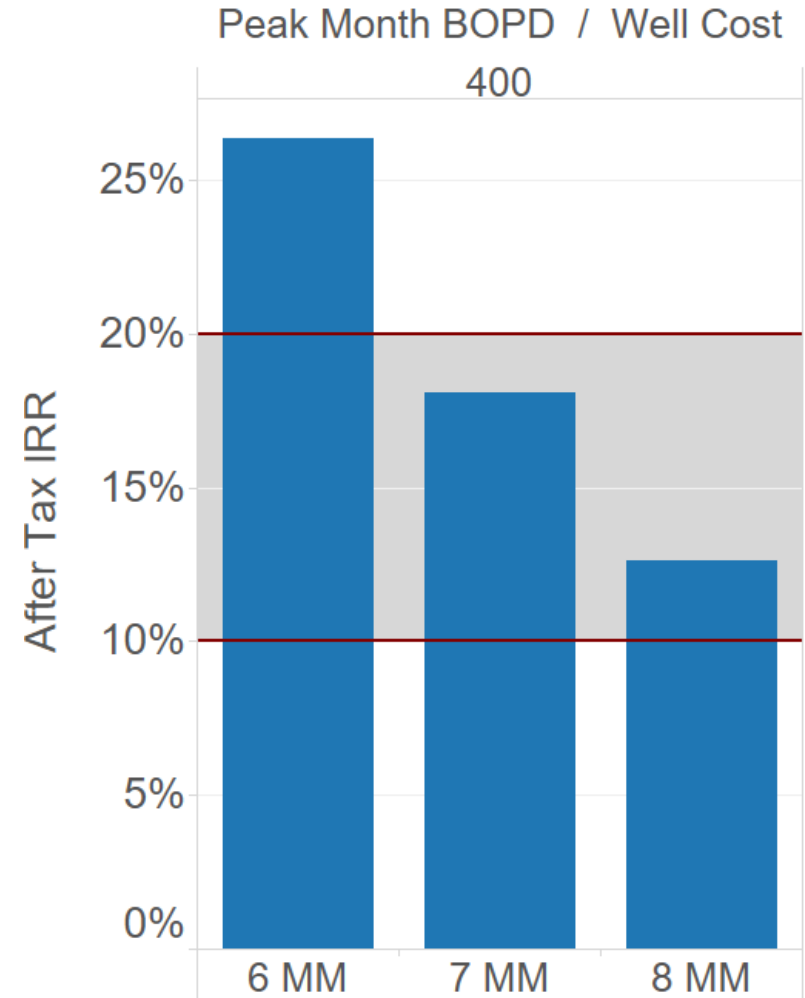
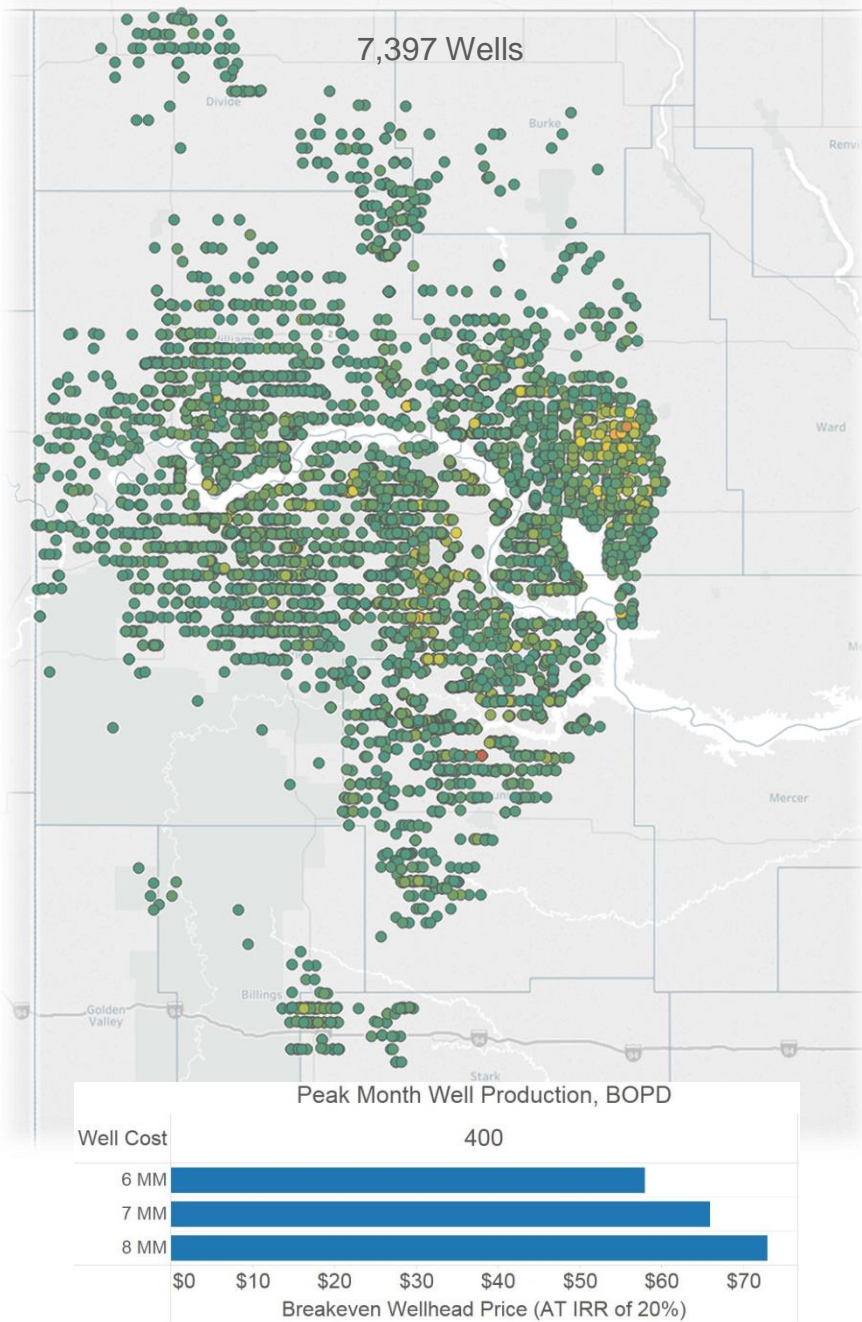


Key Economic Assumptions

- \$6-\$8 Million Well Costs
- \$59/BBL & \$5.00/MCF Wellhead Pricing
- 1/6 Royalty
- Zero Flaring
- Assumed 10-20% IRR to drill (calculated after production taxes and royalties)
- No Tax Incentives Included
- Production rate is 30-day average
- All Bakken/Three Forks wells drilled in 2008+



Peak Month Minimum 400 BOPD

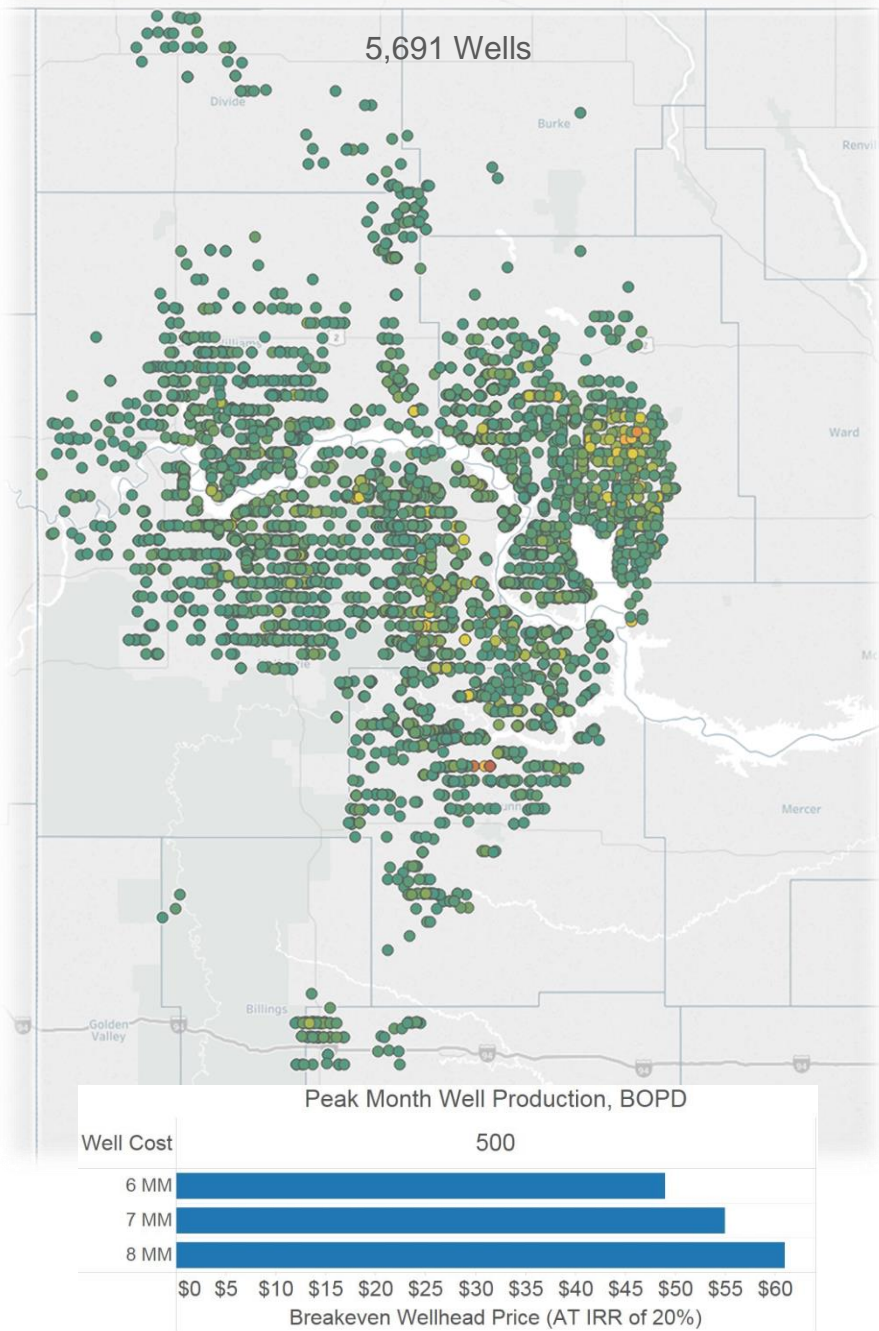


\$59 Wellhead

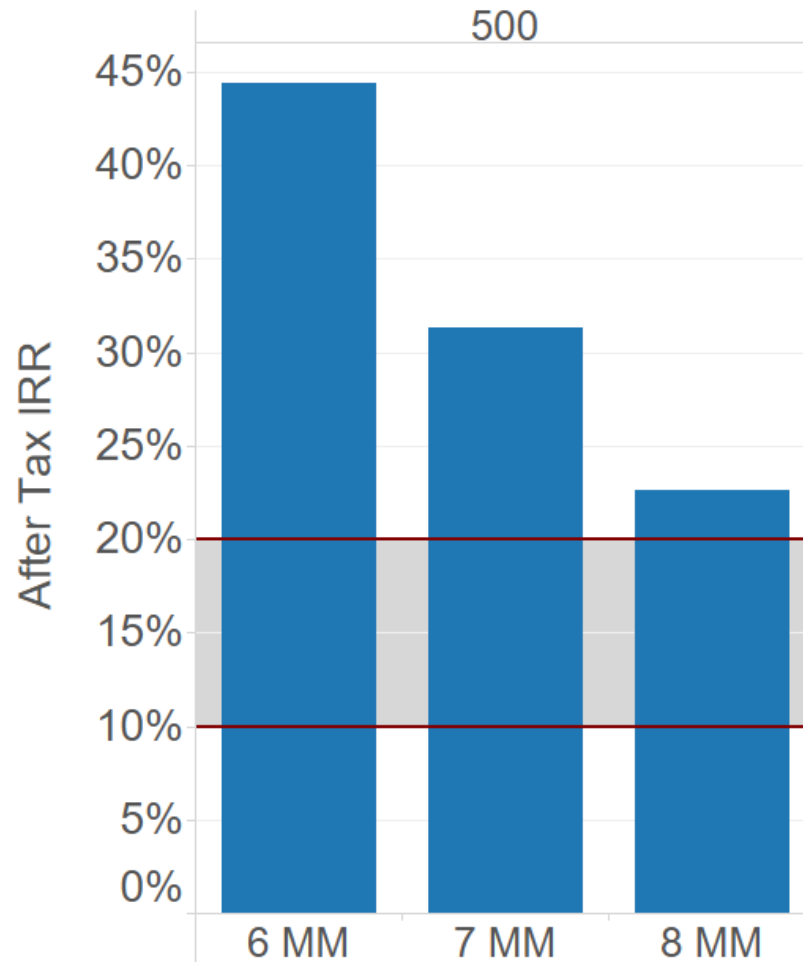
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Peak Month Minimum 500 BOPD



Peak Month BOPD / Well Cost
500

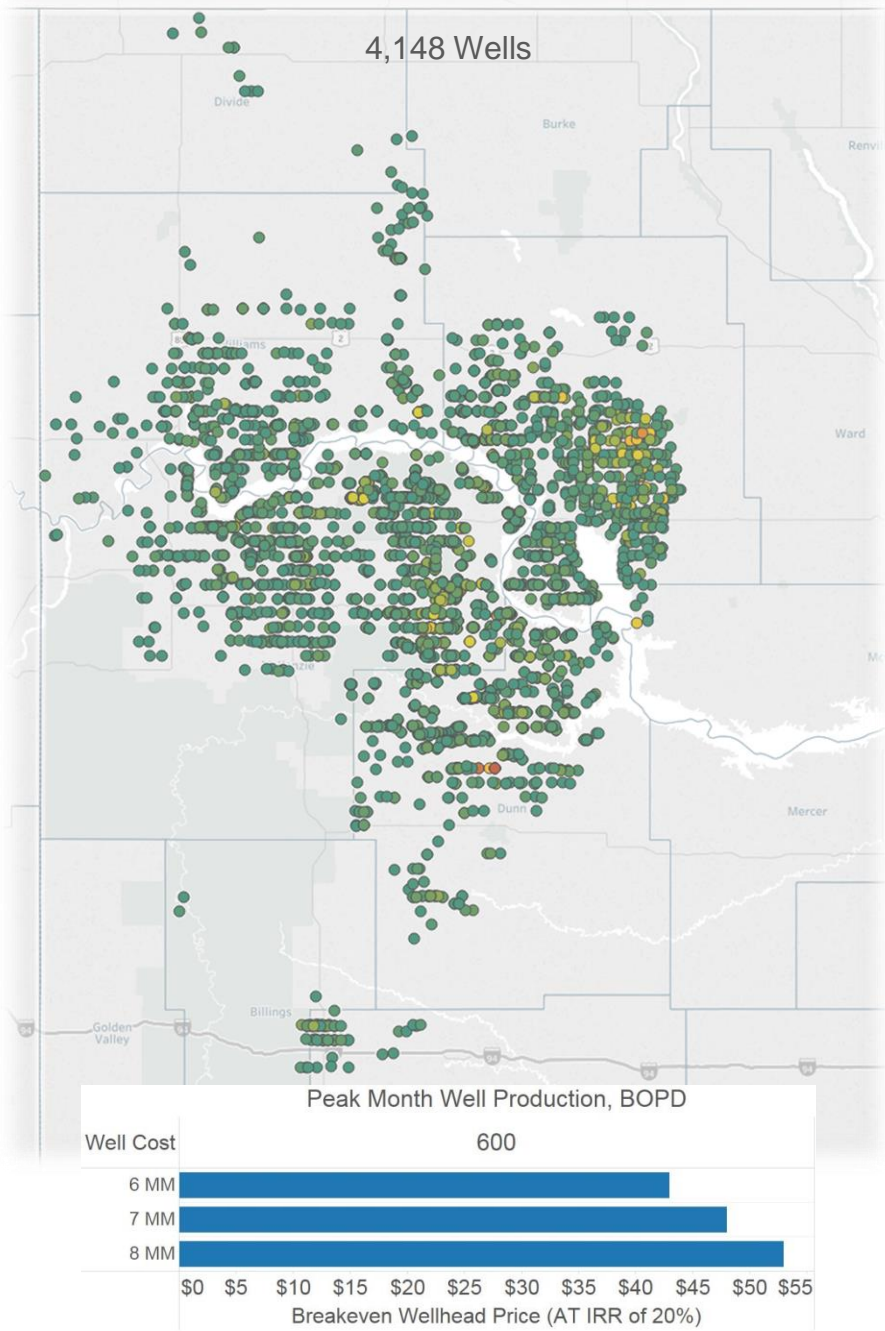


\$59 Wellhead

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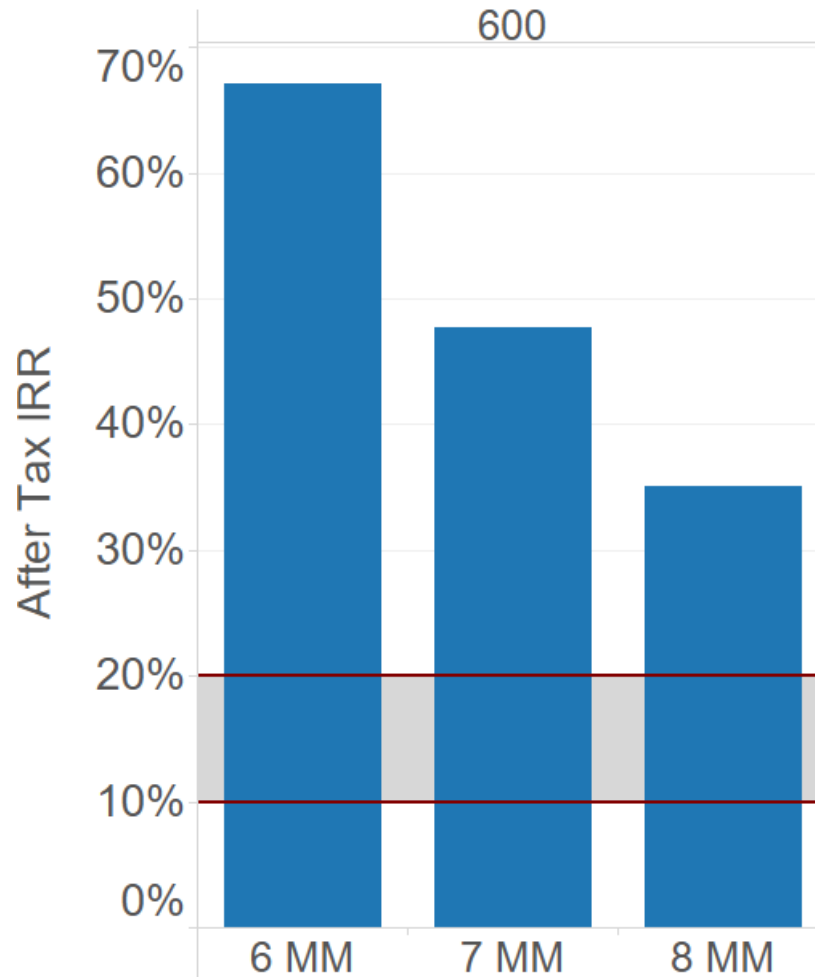


Peak Month Minimum 600 BOPD



Peak Month BOPD / Well Cost

600

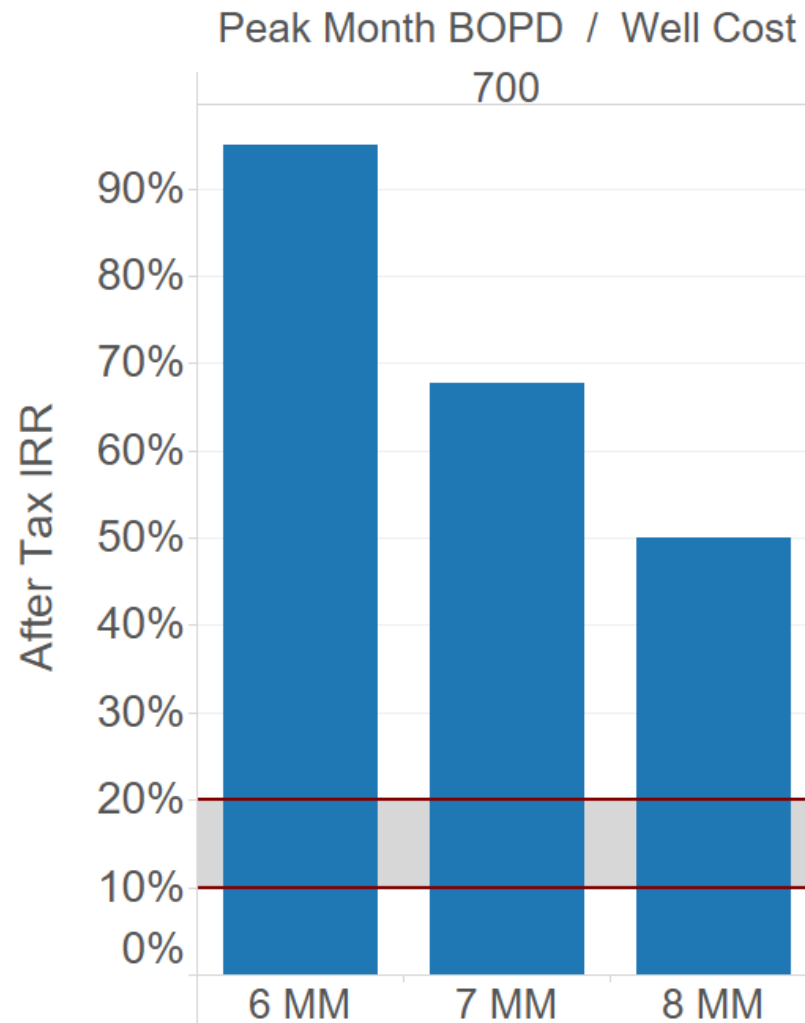
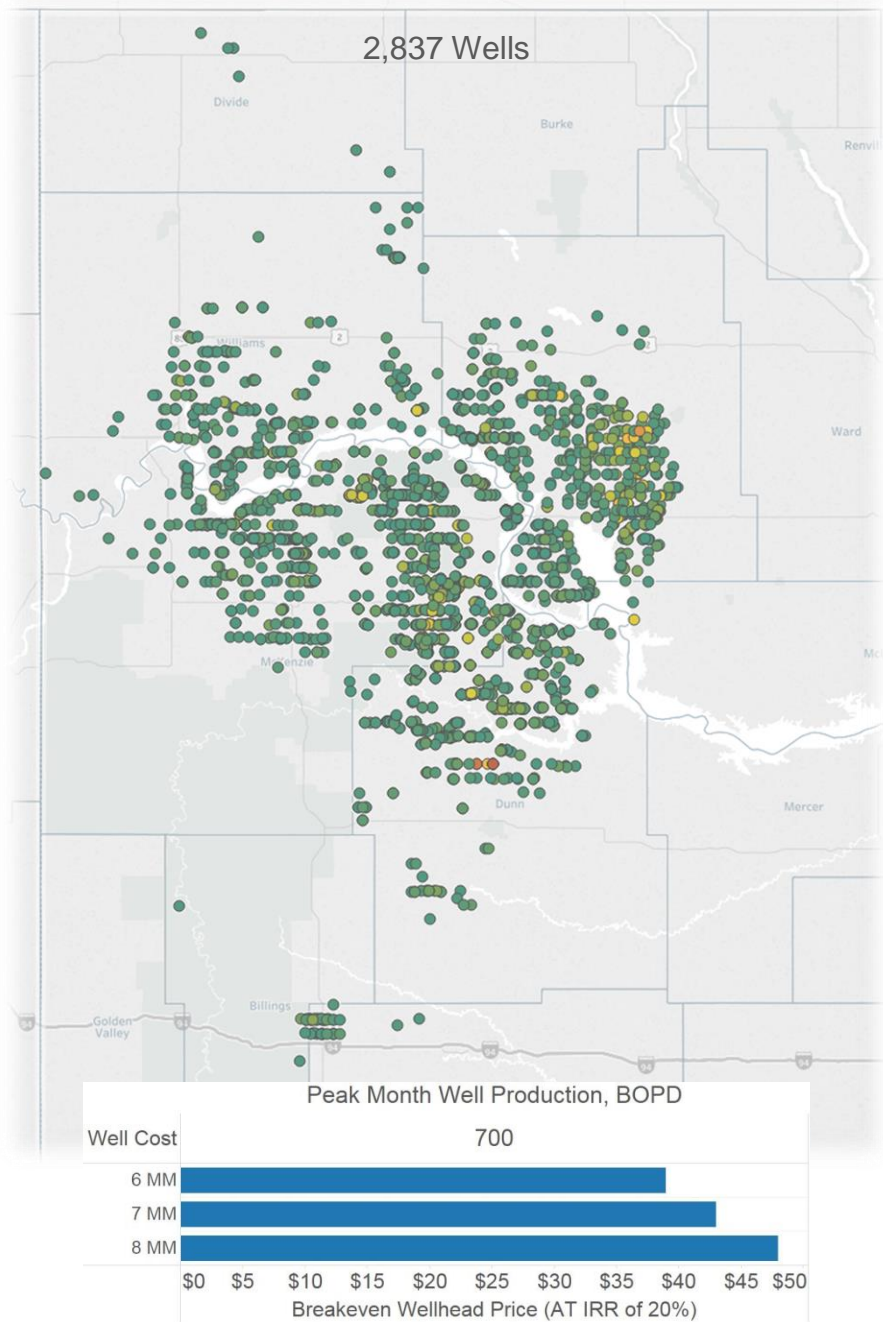


\$59 Wellhead

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Peak Month Minimum 700 BOPD

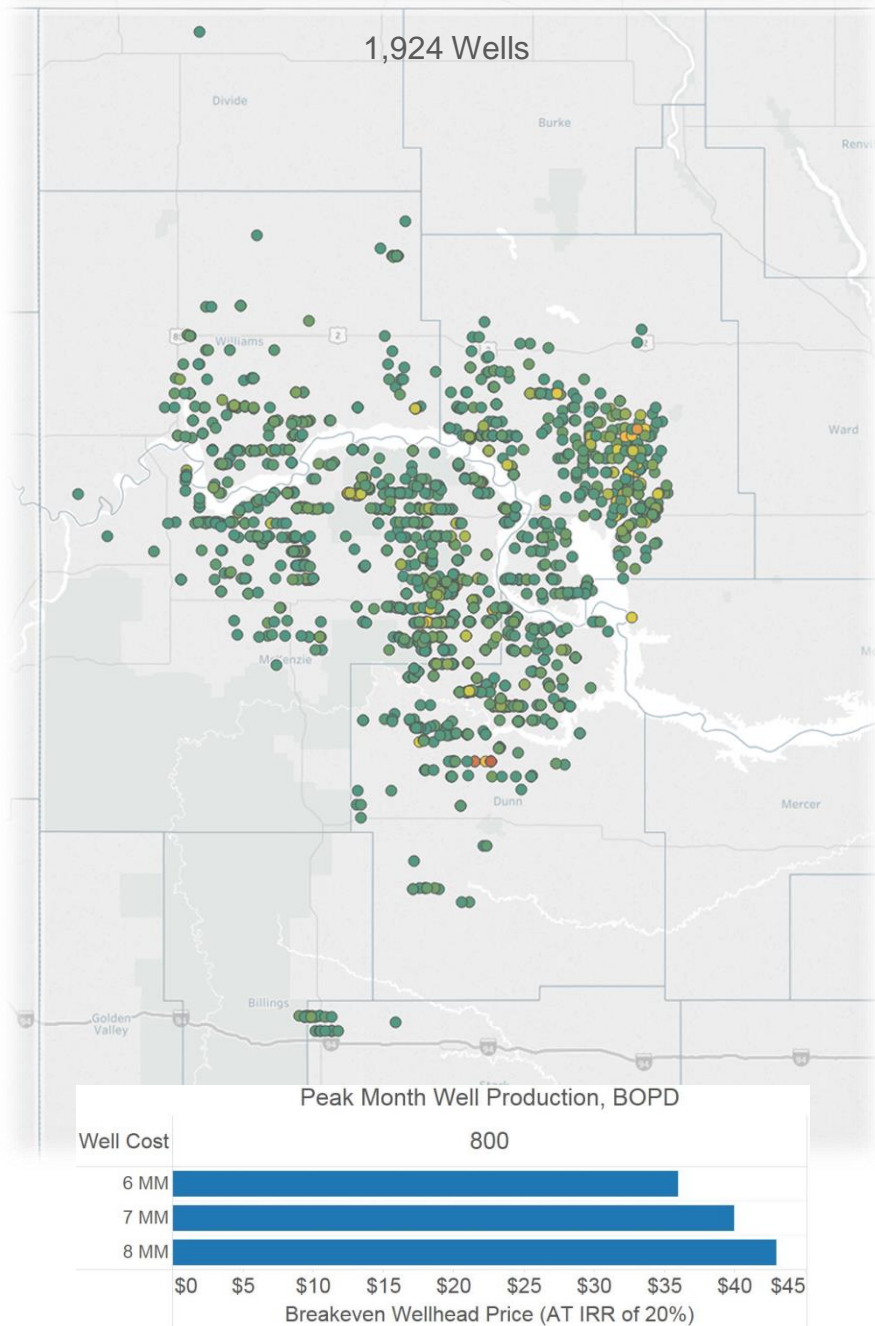


\$59 Wellhead

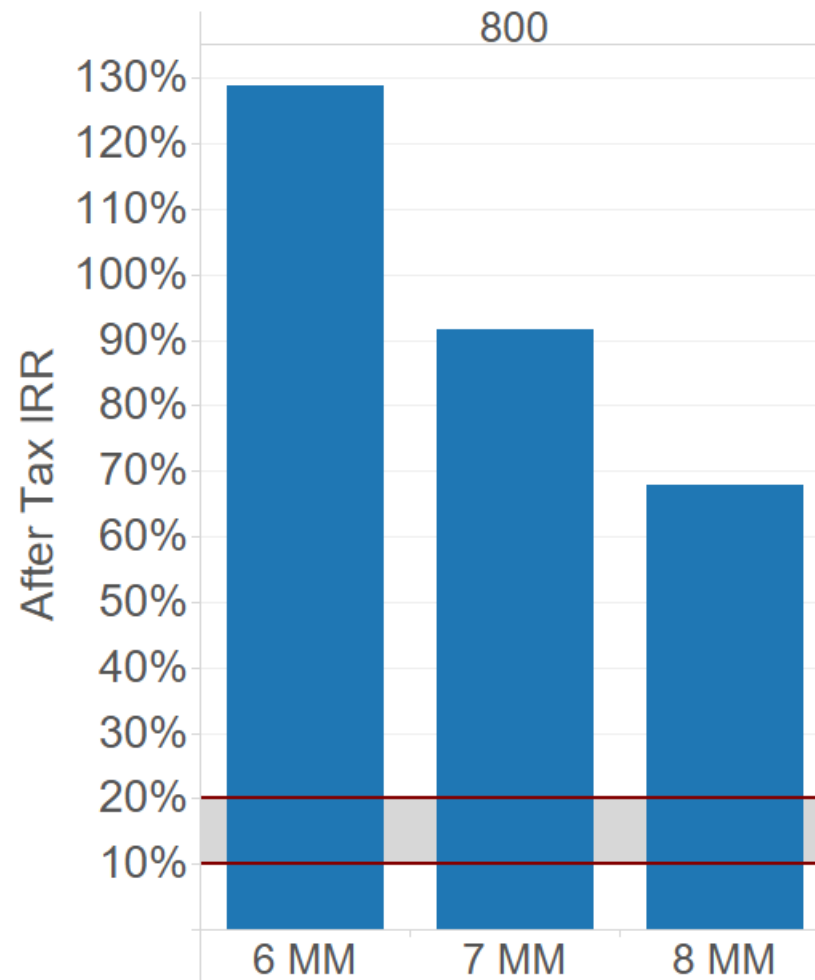
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Peak Month Minimum 800 BOPD



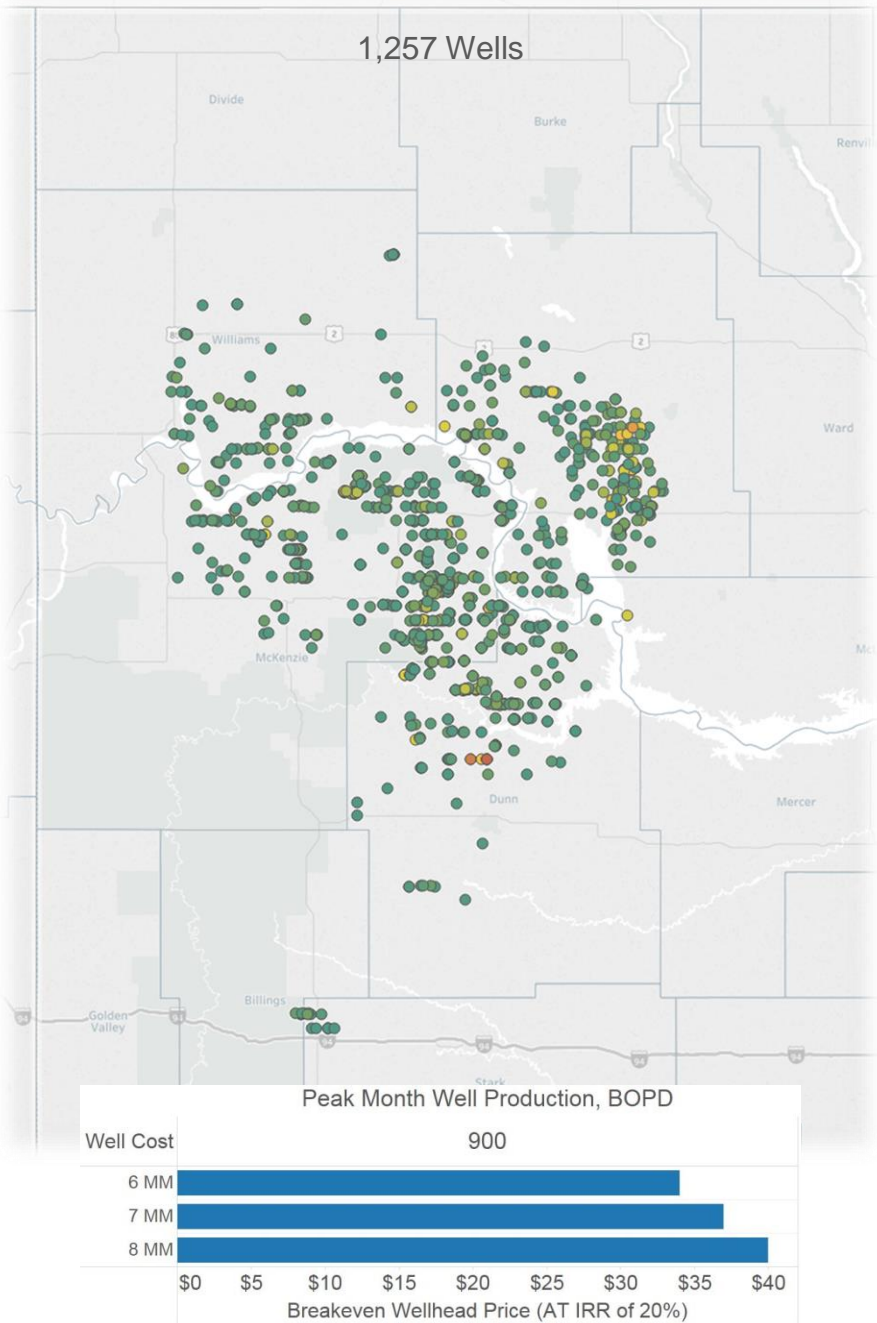
Peak Month BOPD / Well Cost
800



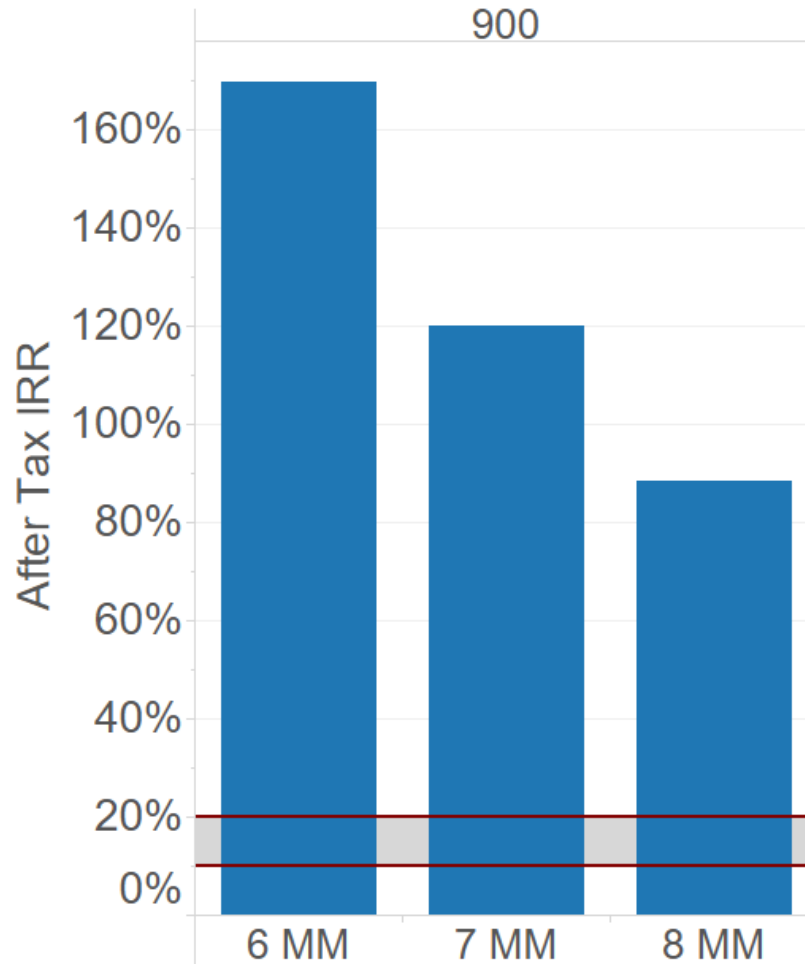
\$59 Wellhead



Peak Month Minimum 900 BOPD



Peak Month BOPD / Well Cost
900

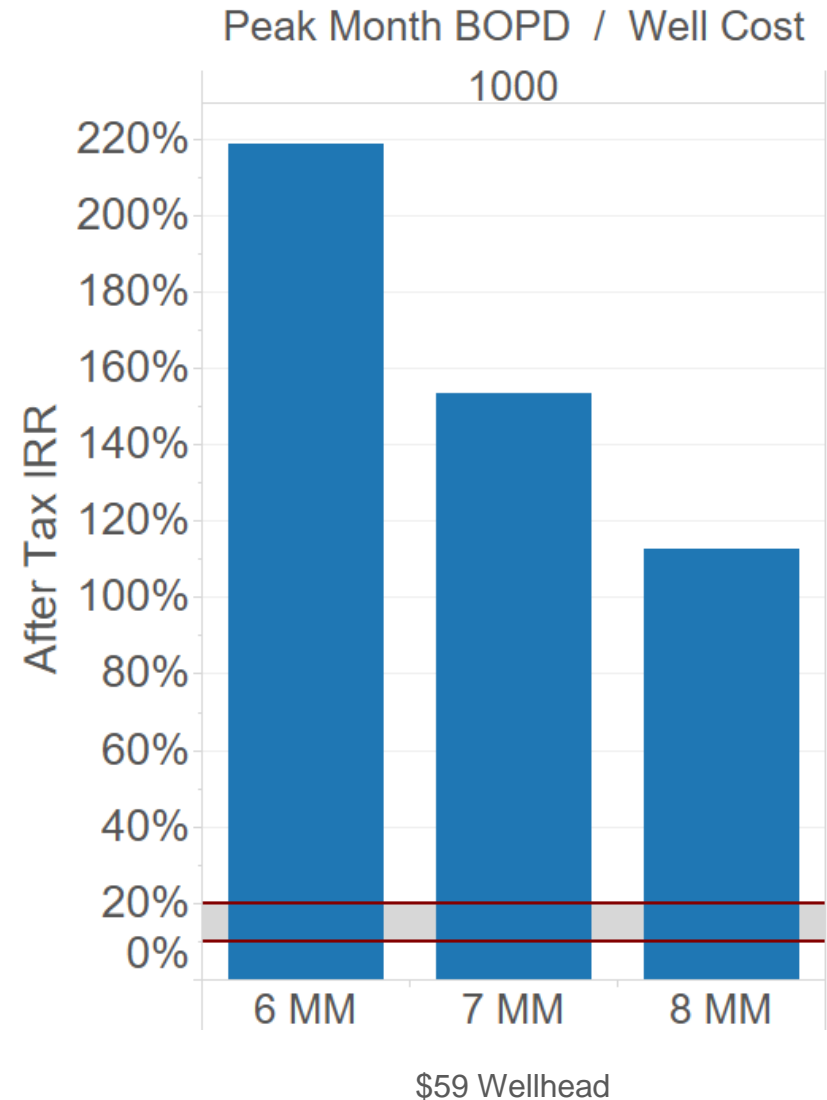
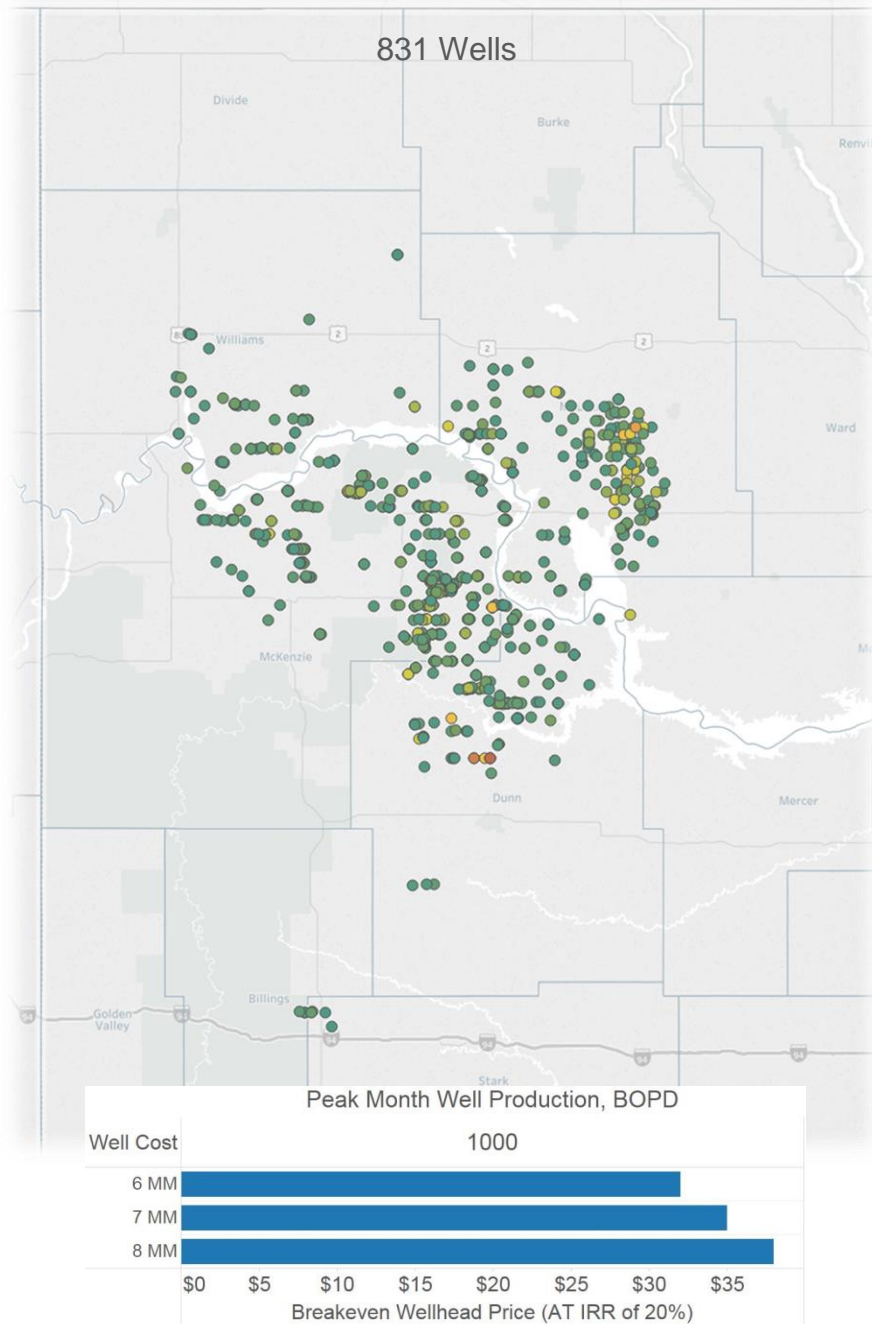


\$59 Wellhead

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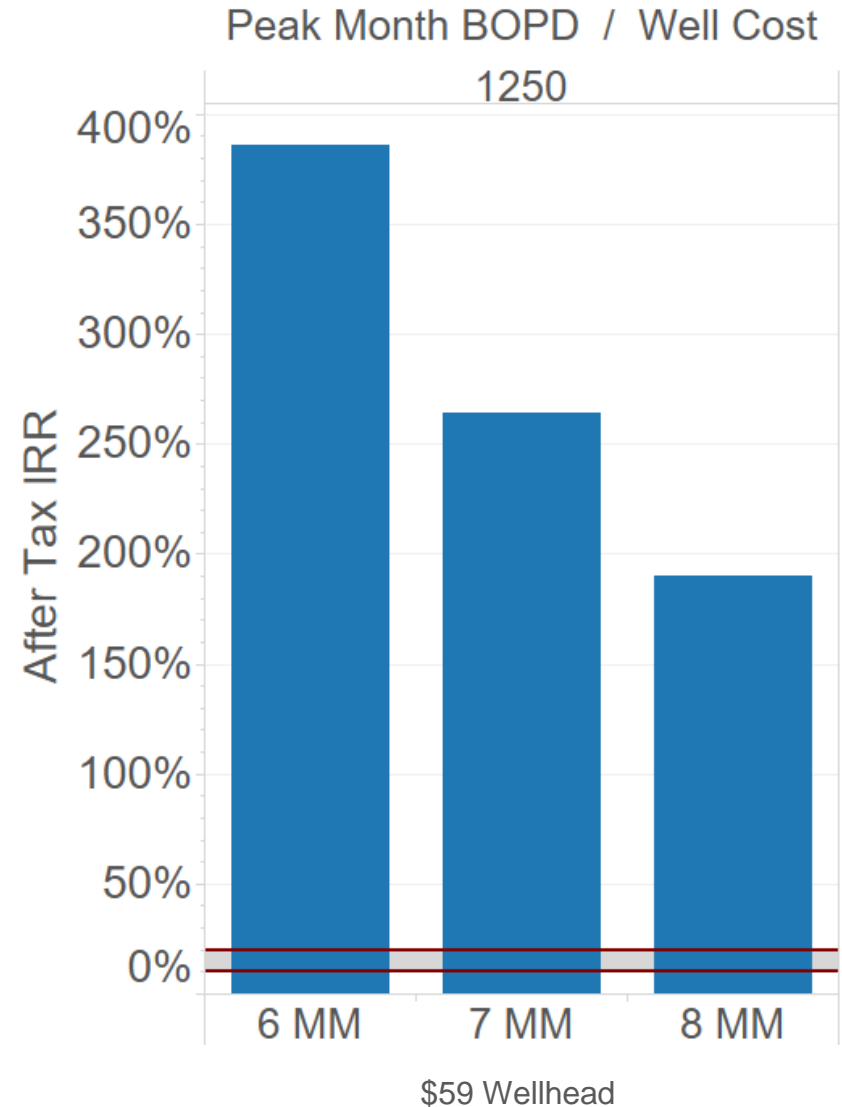
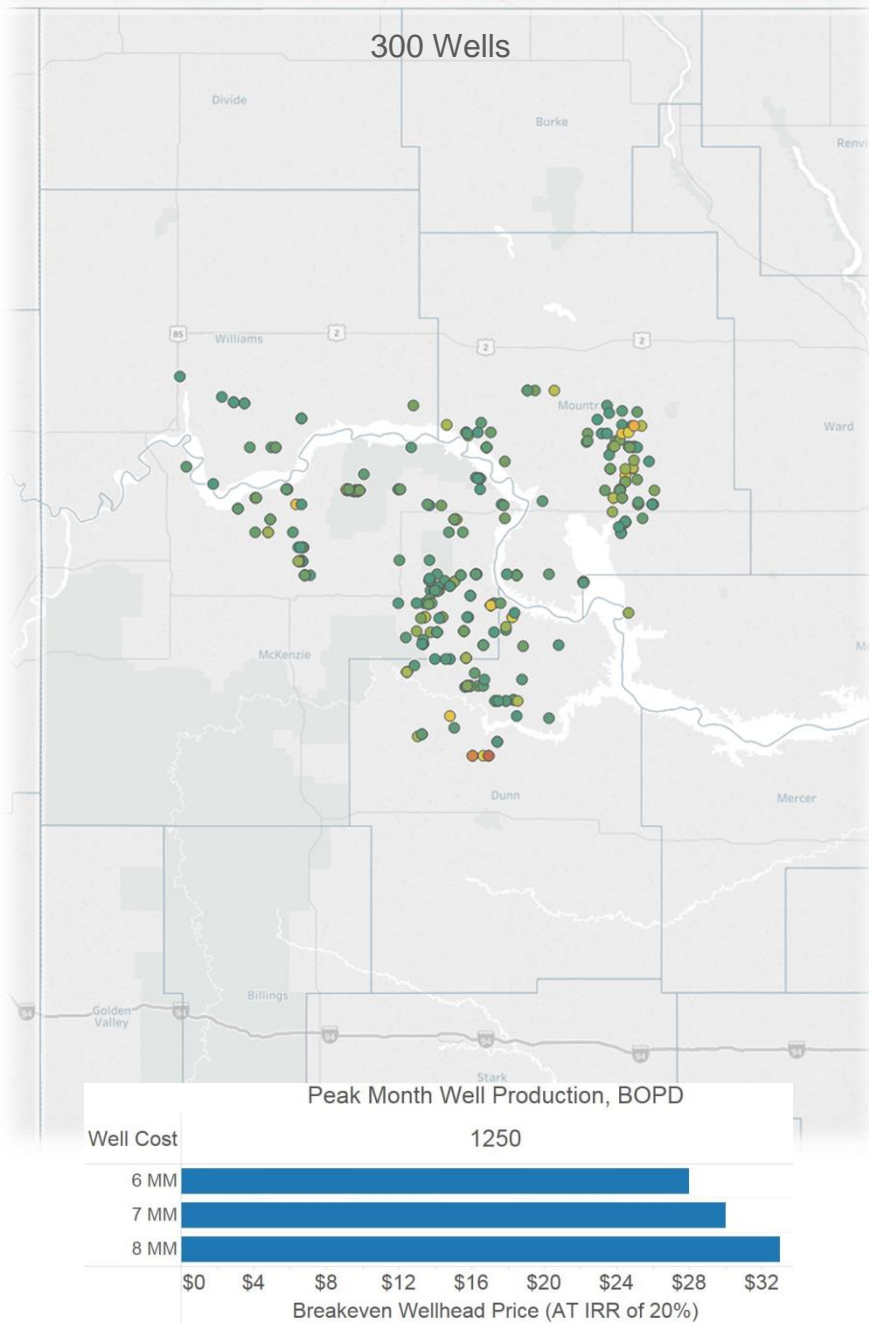
Peak Month Minimum 1,000 BOPD



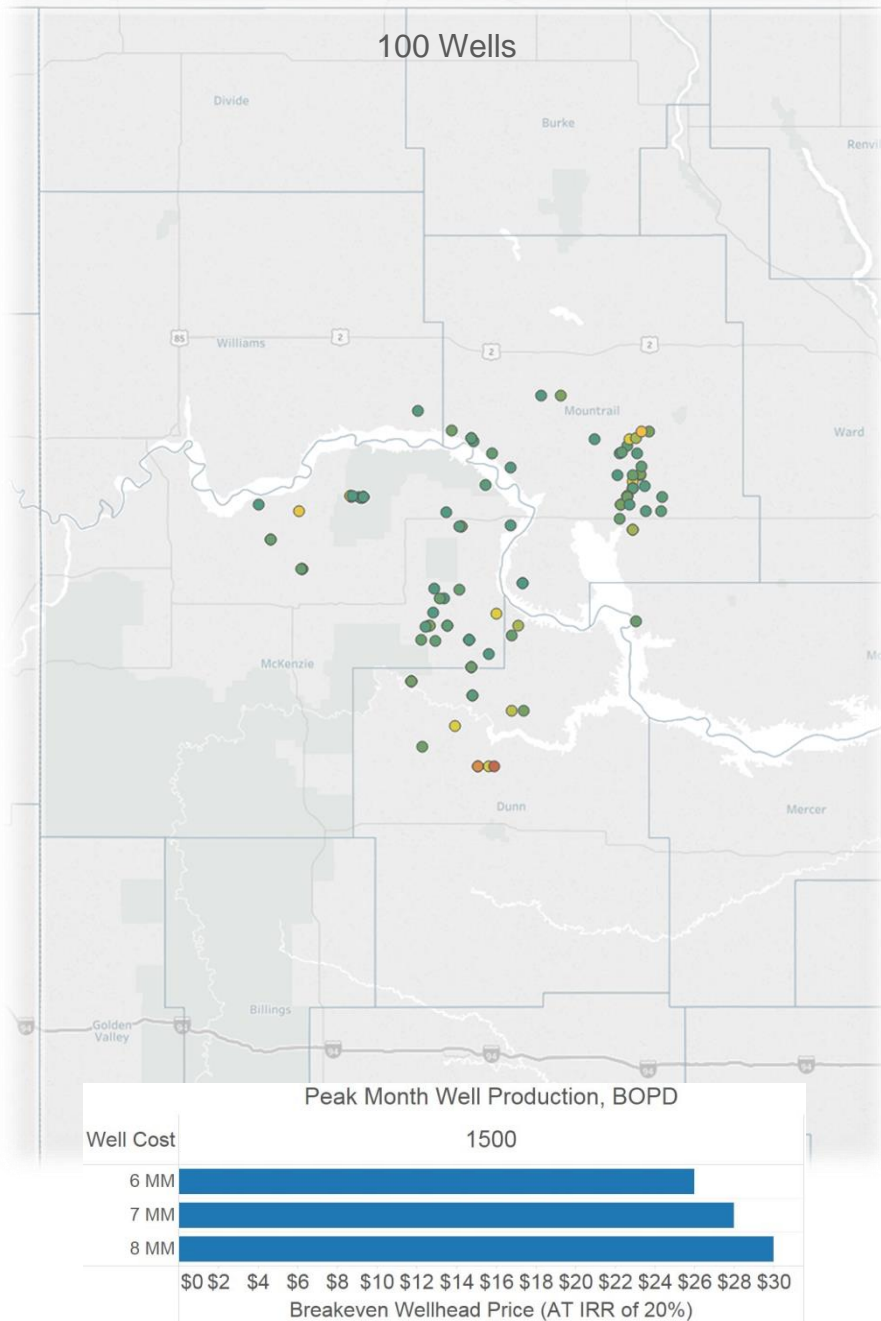
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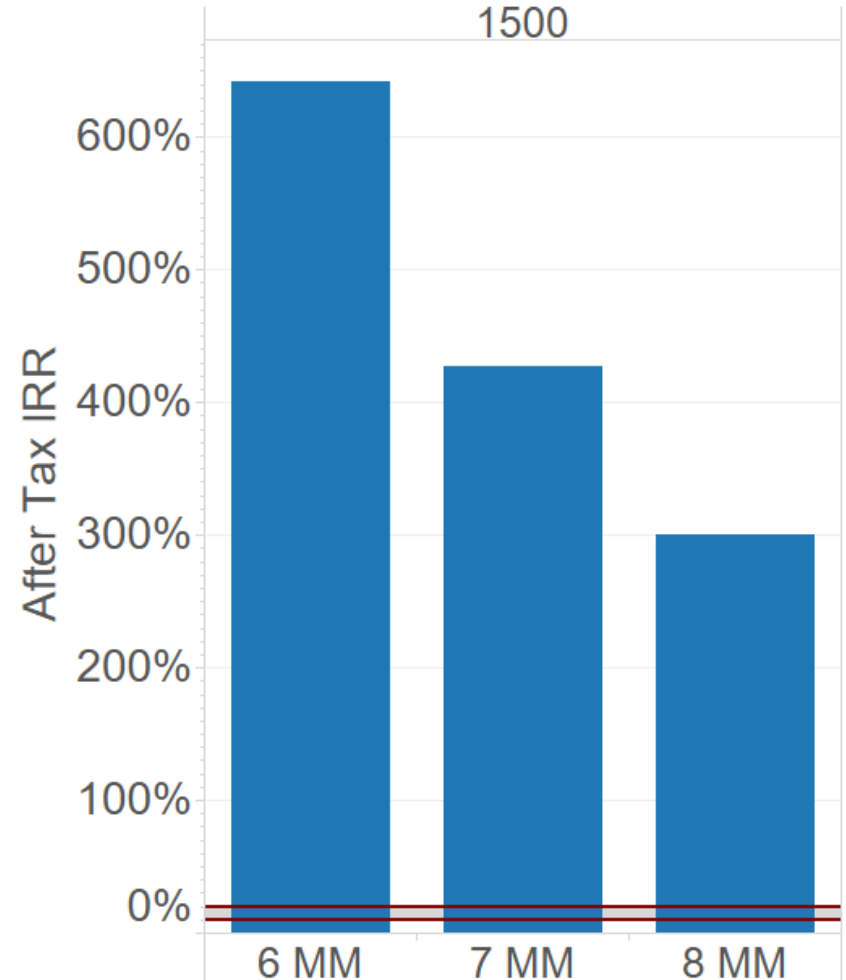
Peak Month Minimum 1,250 BOPD



Peak Month Minimum 1,500 BOPD



Peak Month BOPD / Well Cost
1500

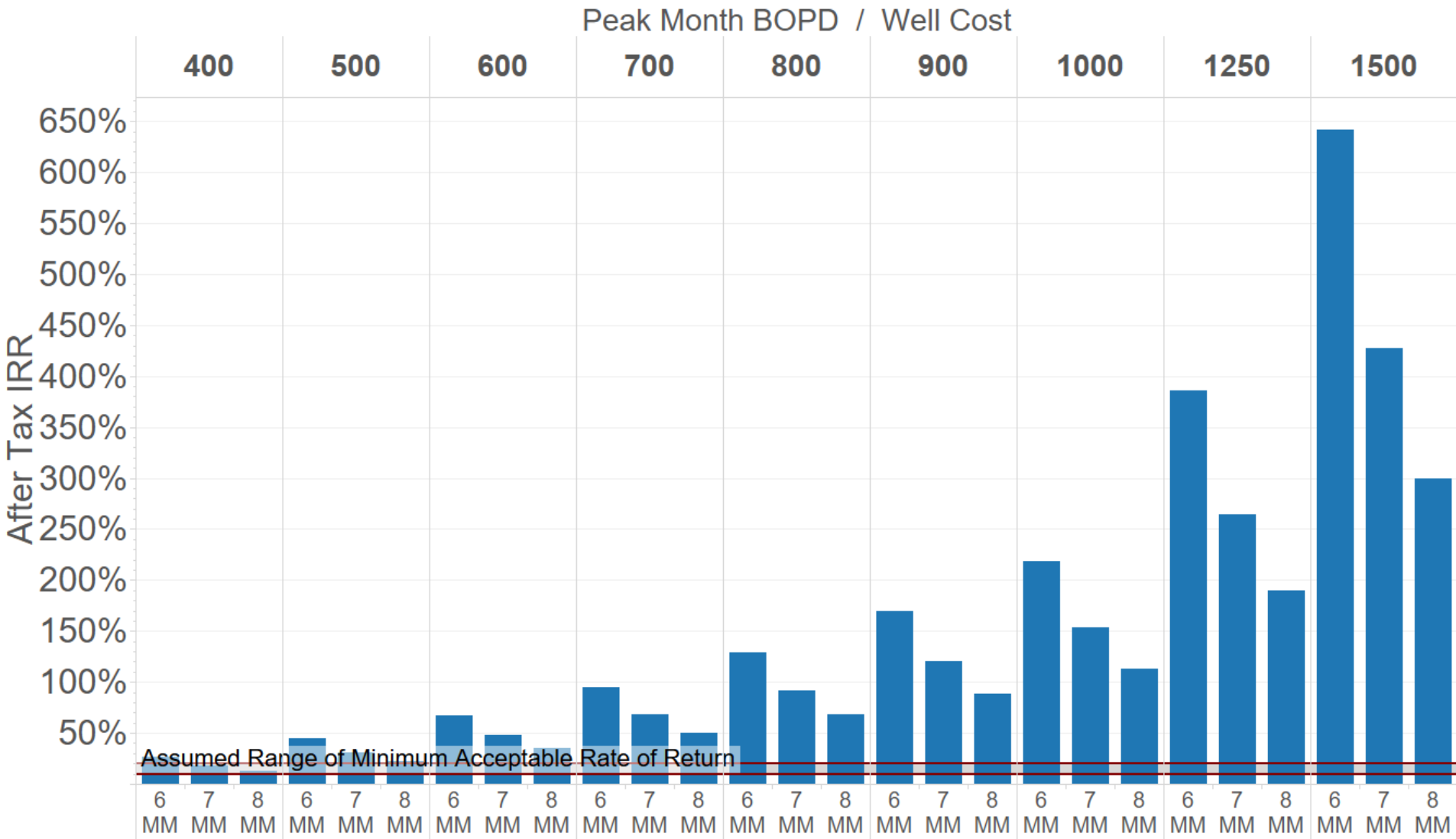


\$59 Wellhead

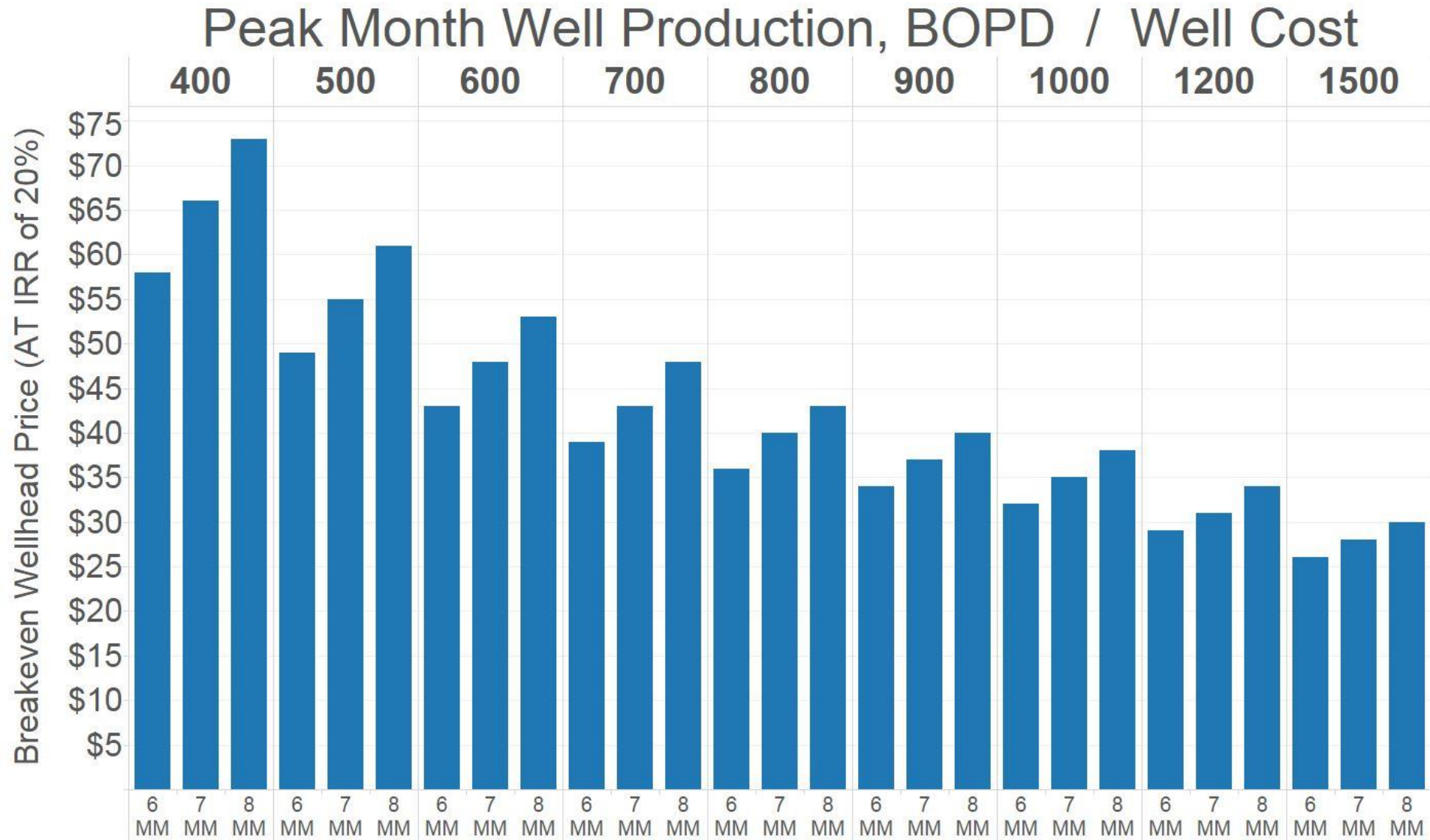
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Summary of \$59 Wellhead Oil



Breakeven Summary



Bakken Economics

Breakeven Analysis

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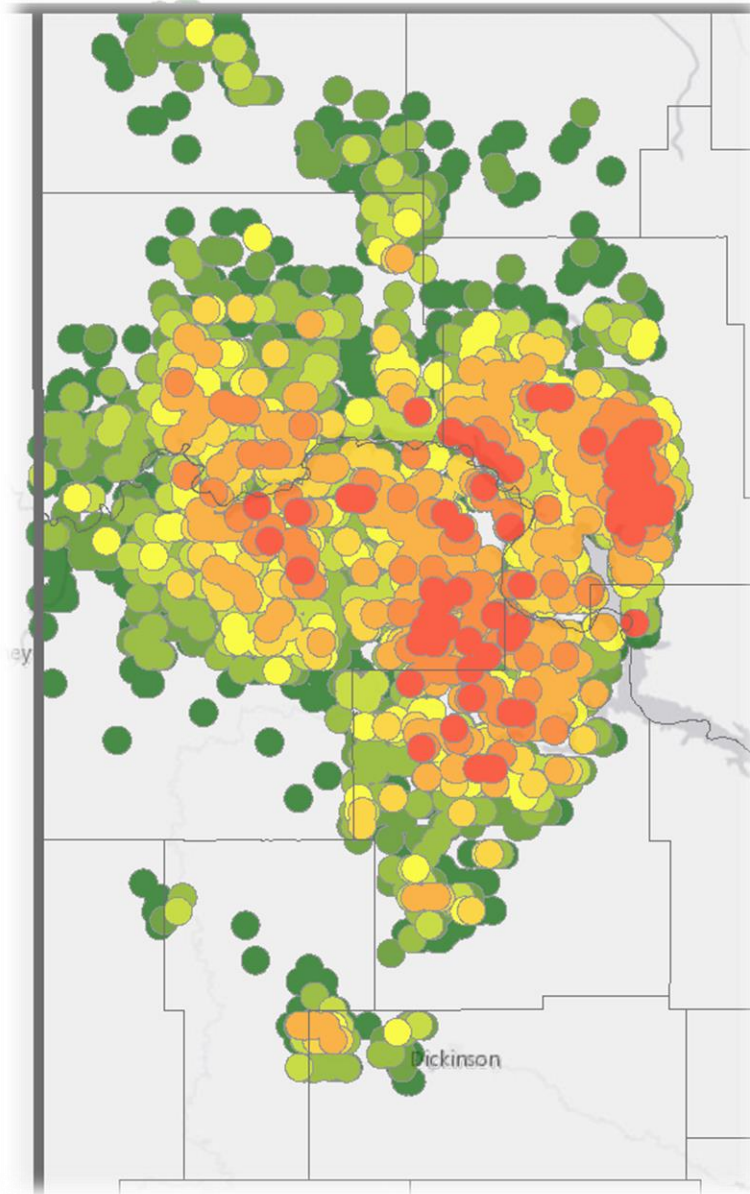
Bakken Breakeven Analysis

Important Considerations

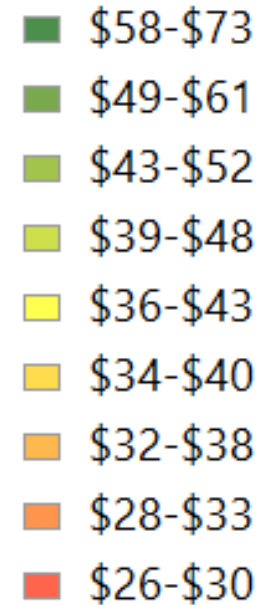
- Breakeven areas were determined by neighboring well performance and are expected to expand as new completion technology is applied in areas outside “the core.”
- Just because an area is considered “economic” **does not mean that it is the most economic** option for the industry participant(s). Competition for capital continues to exist inside and outside the region.



Bakken Breakeven Price Range (20% ATIRR)

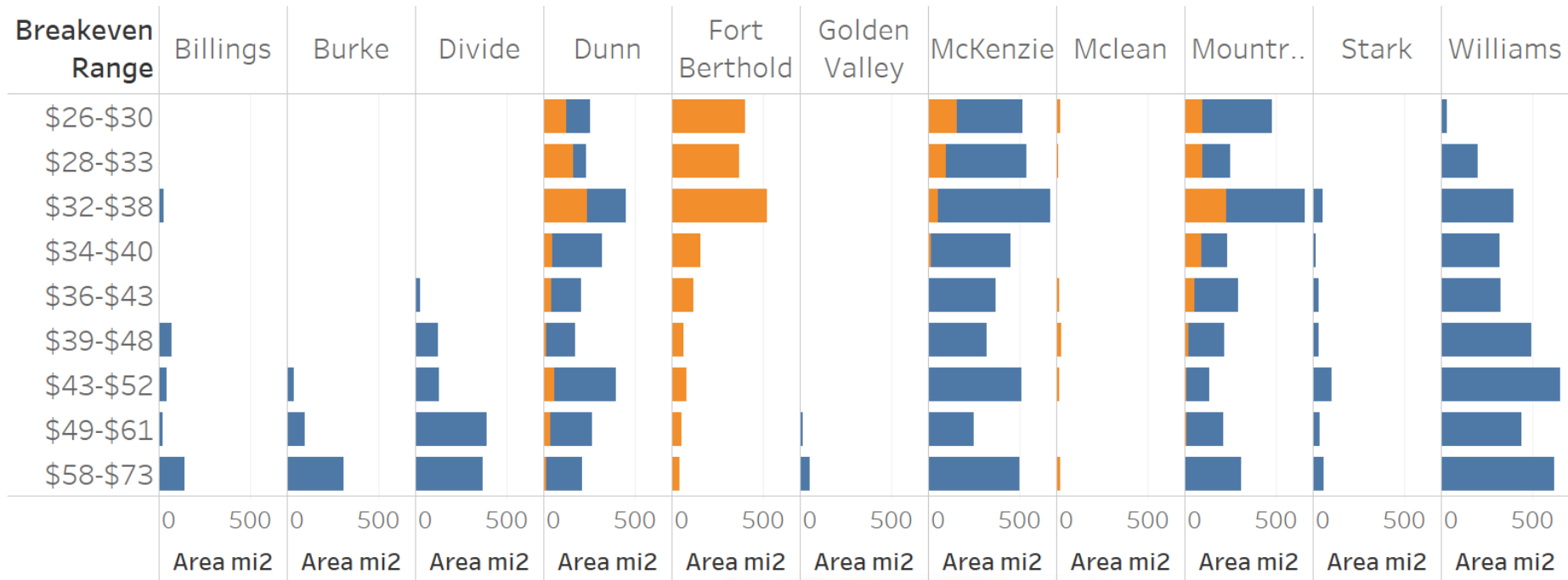


Bakken Breakeven Prices
\$6 - \$8 Million
Completed Wells Cost

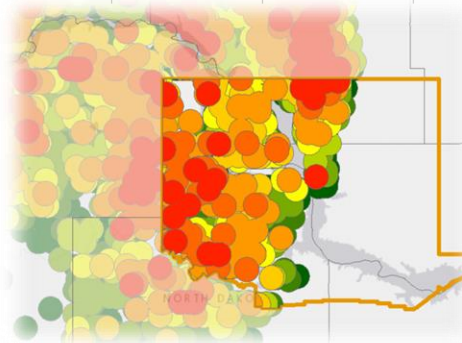


Bakken Breakeven Economics

County/Regional Analysis



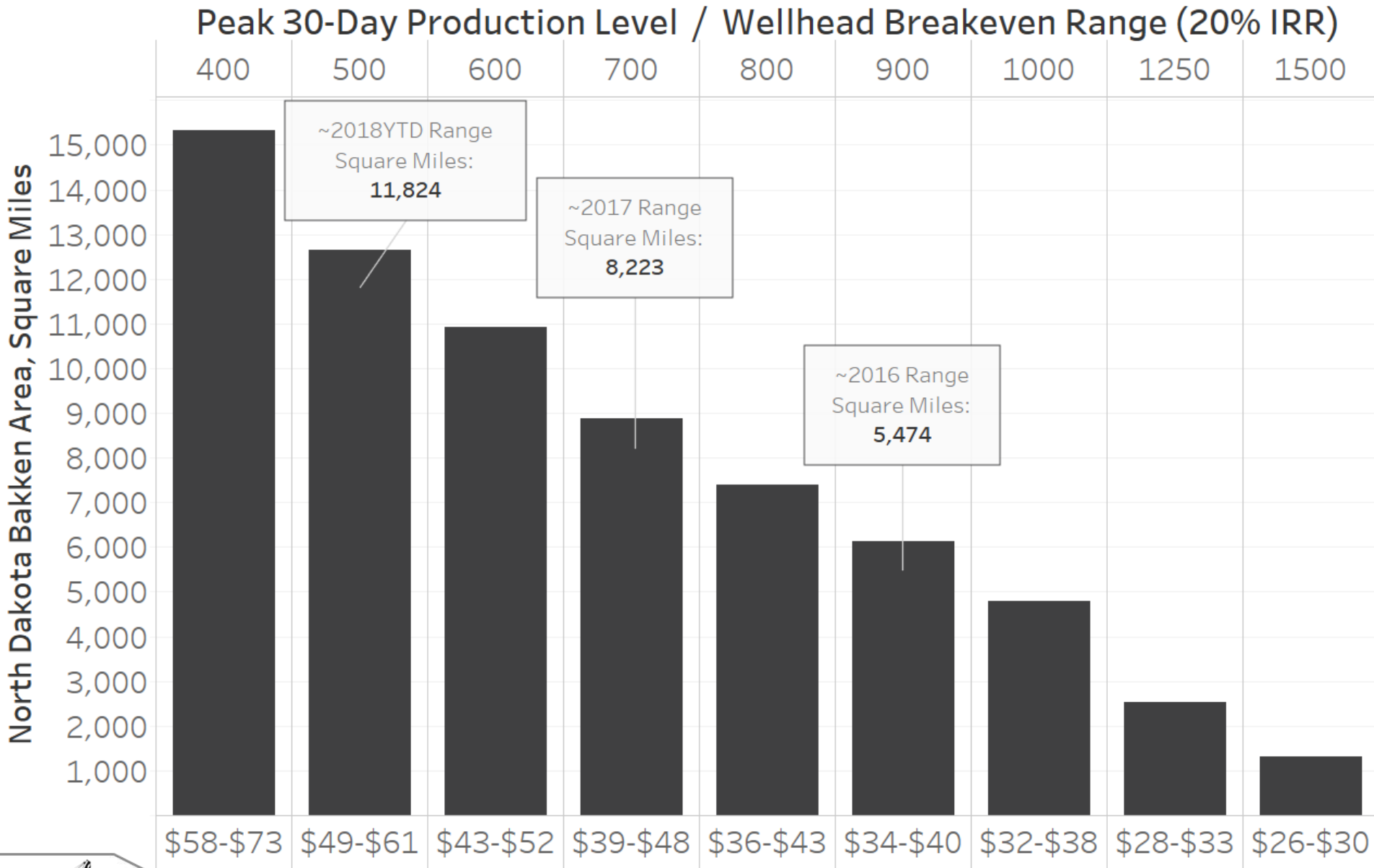
Ft. Berthold
 ■ Yes ■ No



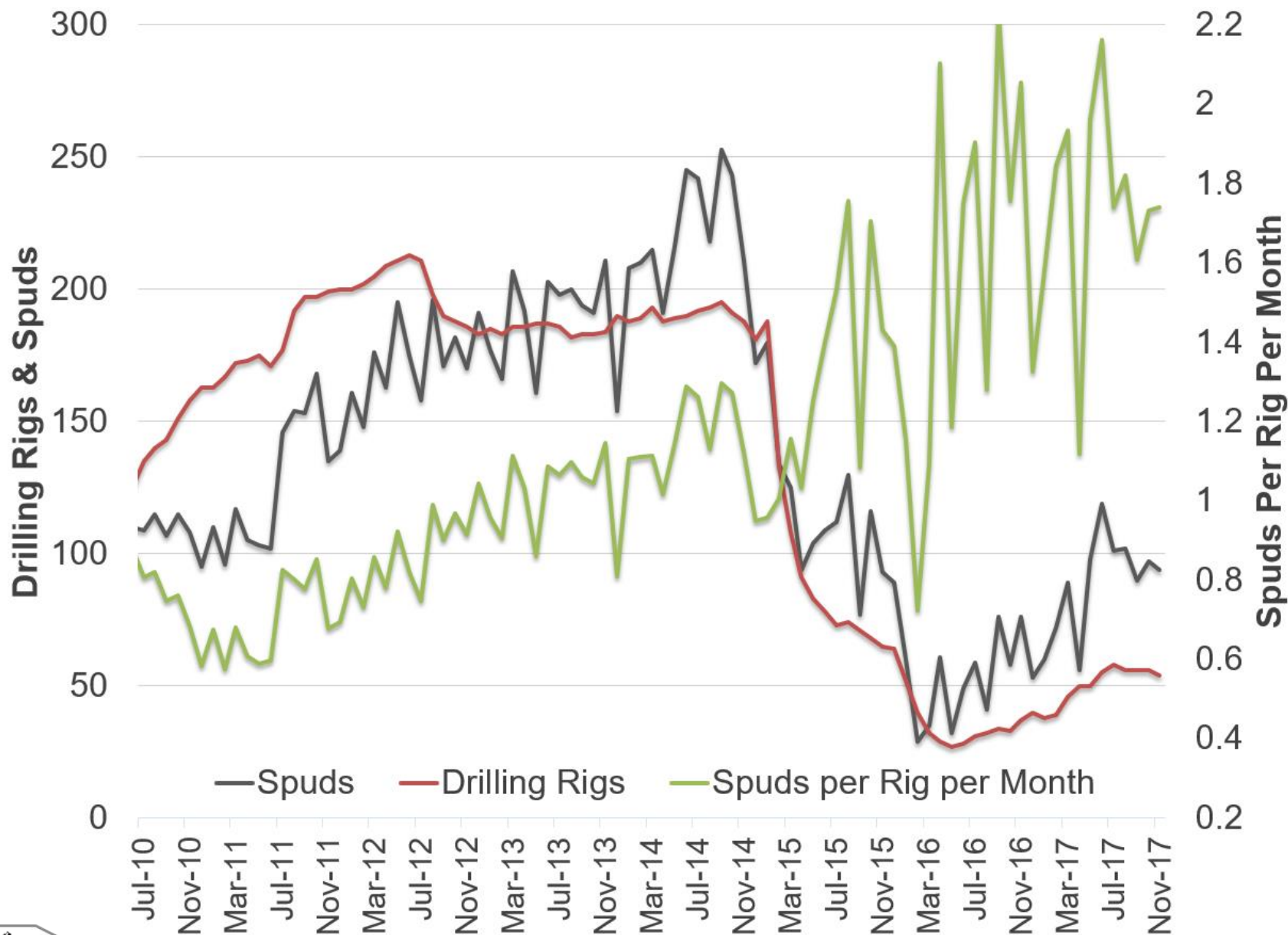
Breakeven Range Included: \$6mm, \$7mm, \$8mm Well Costs



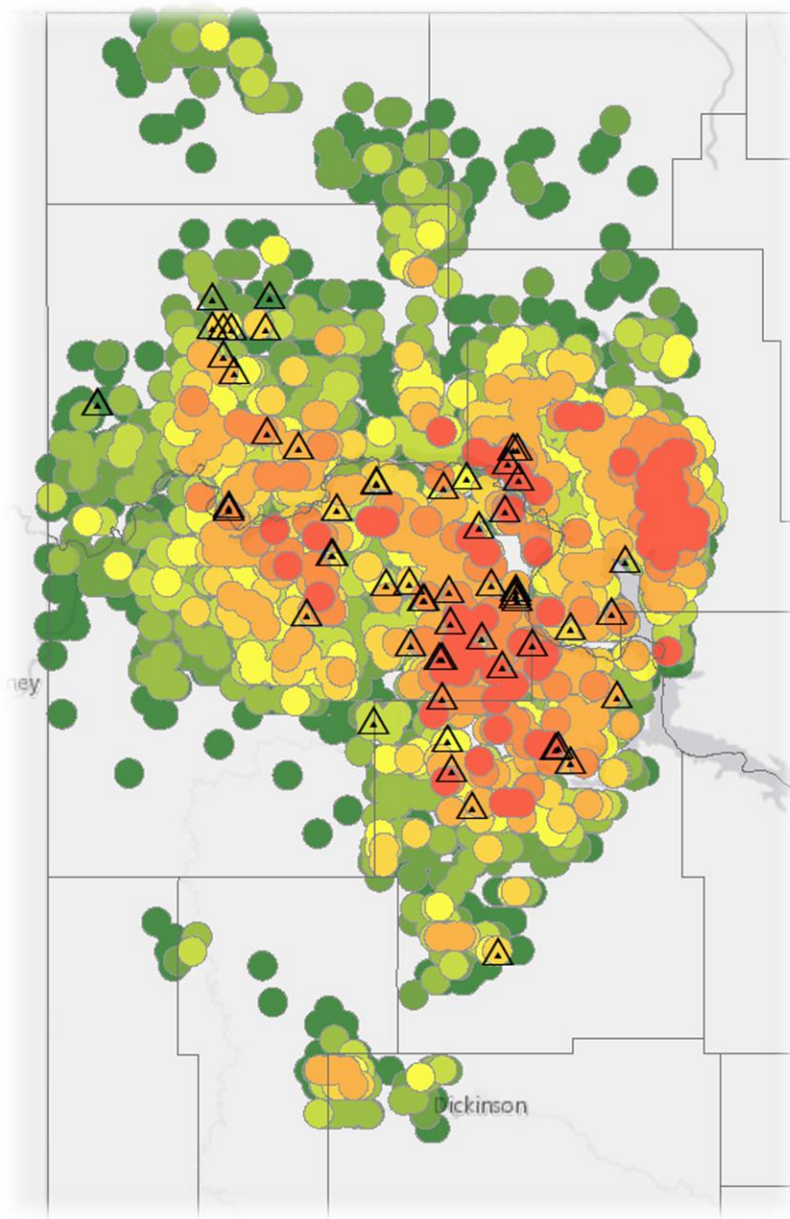
44% Economic Area Increase 2017 to 2018



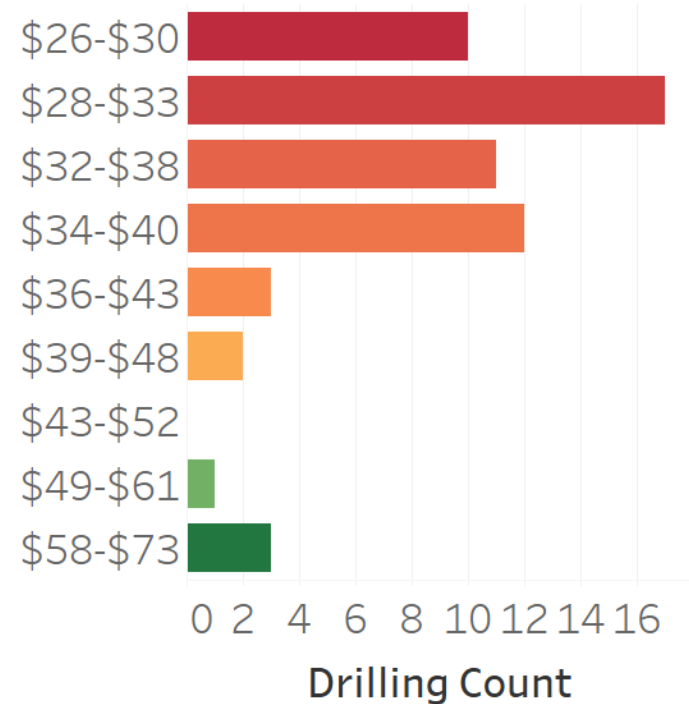
North Dakota Drilling Activity



Drilling Locations* – January 22, 2018



Bakken Breakeven Prices \$6 - \$8 Million



*Due to confidential status, the target production zone for many wells is unknown.



Contact Information

Justin J. Kringstad, Director
North Dakota Pipeline Authority

600 E. Boulevard Ave. Dept. 405
Bismarck, ND 58505-0840

Phone: (701)220-6227

Fax: (701)328-2820

E-mail: jjkringstad@ndpipelines.com

Websites:

www.pipeline.nd.gov

www.northdakotapipelines.com



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