

# the PIPELINE publication

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## INDUSTRIAL COMMISSION OF NORTH DAKOTA PIPELINE AUTHORITY

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The first step in developing a new pipeline or processing project is to understand the current and future demand for such a system. In an effort to better understand where future oil and gas production levels may be headed in the current low price environment, the Pipeline Authority has recently published two new video presentations to inform interested parties about topics of drilling, production, and economics. Both videos are available for replay on the "Presentations" page at [www.northdakotapipelines.com](http://www.northdakotapipelines.com)

### UNDERSTANDING 2015 OIL PRODUCTION

Released on August 20, 2015, this 40 minute video presentation takes an in-depth view at the first half of 2015 and proposes why oil and natural gas production levels did not decrease, even during a time of significant drilling rig reductions. One key takeaway is an appreciation for the time between when a drill bit begins turning (spud) and when the oil and gas are brought to the surface for sale. Data revealed that on average, it took between 170-180 days to bring a well into production. There are many factors that could decrease or increase that time span, but it does help explain why production in early 2015 seemed immune to the decreasing drilling rig fleet.

#### Key points from the presentation:

- ❖ In the first half of 2015, production was largely impacted by ND winter/spring conditions and drilling decisions made in 2014 (due to lag between well spud and initial production).
- ❖ The second half of 2015 is when the production impact of the rig reduction will be noticed most.
- ❖ Producers will offset rig reduction with higher producing wells, but it is unclear if it will be enough to prevent a statewide oil production drop.
- ❖ Drilled but uncompleted wells are ideally positioned in the Bakken and act as a wild card that allows some flexibility to "cherry pick" the most attractive producing locations for completion.

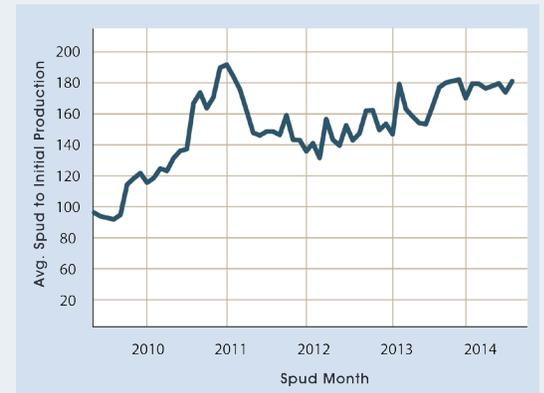


Chart showing how spud to initial production times have changed through time.

## NORTH DAKOTA — Production Numbers

❖ [www.pipeline.nd.gov](http://www.pipeline.nd.gov)

### Average Daily Oil Production, BOPD

May 2015	Jun. 2015	Jul. 2015
1,202,714	1,211,330	1,201,920

### Average Daily Gas Production, MMCFD

May 2015	Jun. 2015	Jul. 2015
1,630.3	1,652.0	1,657.4

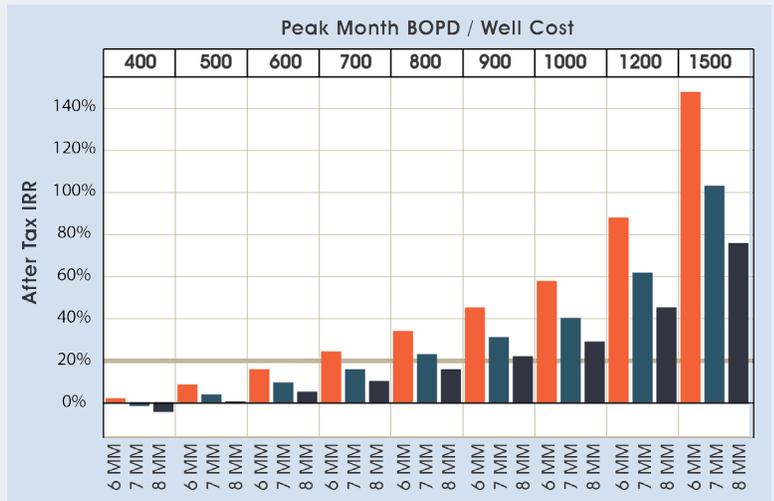
### Average Rig Count

May 2015	Jun. 2015	Jul. 2015
83	78	73

As of September 29, 2015, there are 69 active rigs in North Dakota.

## REVISITING DRILLING ECONOMICS

Released on September 10, 2015, this 13 minute video updates previous Pipeline Authority research on the economics of drilling wells in the Bakken/Three Forks. The work used existing well production data as an indicator to where drilling could remain economically attractive at low oil prices. Maps were created to separate the oilfield into several "baskets" based on well performance. Several different scenarios were examined to show how sensitive the economics are to changing drilling and completion costs.



Assuming \$40/bbl at the wellhead, the chart above provides a summary of after tax rate of return for various drilling/completion costs and a well's peak daily oil production. Each company has its own threshold, but 20% was chosen as baseline to show where a company may consider it attractive to drill.

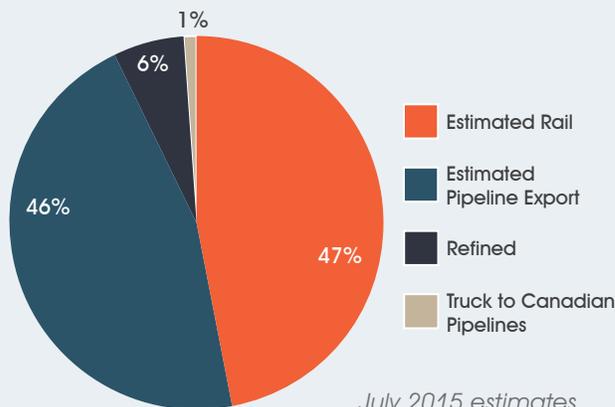
### North Dakota Pipeline Authority

State Capitol, 14<sup>th</sup> Floor  
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Bismarck, ND 58505-0840

## OILFIELD FACTOID

Drilling efficiency has continued to improve in North Dakota. Data now indicates that an average rig can spud 1.7 wells per month, up from 0.7 wells per month in 2011. Drilling efficiency is just one of the critical factors to consider when predicting North Dakota's future petroleum production and required pipeline infrastructure.

### Estimated Williston Basin Oil Transportation



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