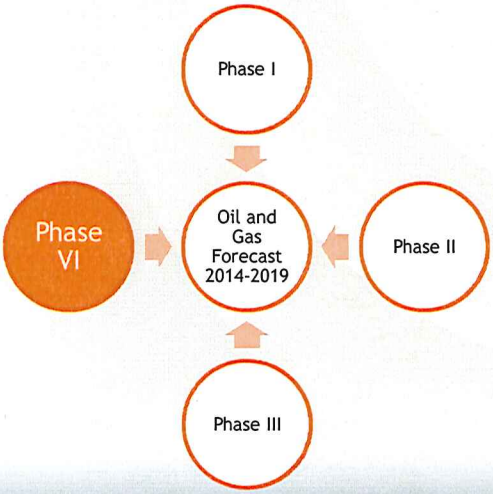
Scope Review



- Phase IV Scope
  - Final data updates
  - Finalize report
  - Final presentation

KLJ

Forecast Trends 2014-2019

- Drilling levels will remain stable over the five-year study period
- Production could reach 2 Mmbd
- Oil prices will average $70-$100 per barrel (2014 USD)
- US shale oil will compete for market
- Global need will absorb US shale oil

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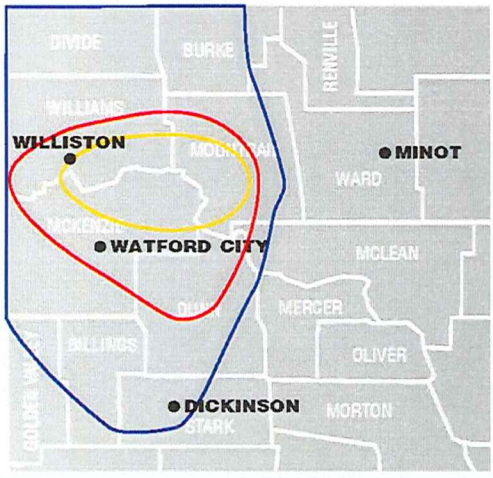
Bakken Three/Forks Drilling Target Boundaries



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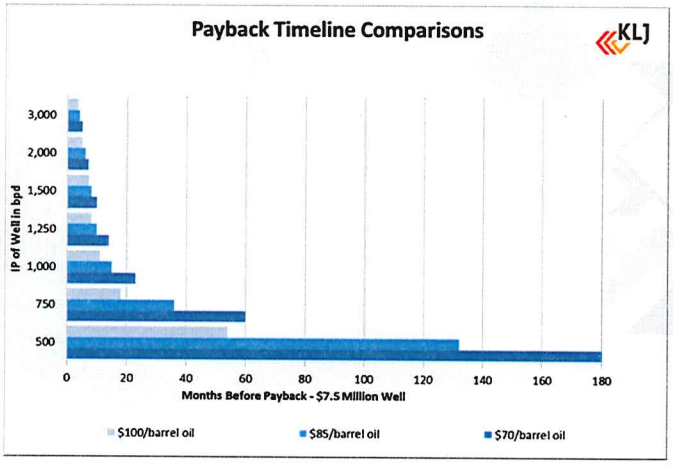
Bakken Production Payback



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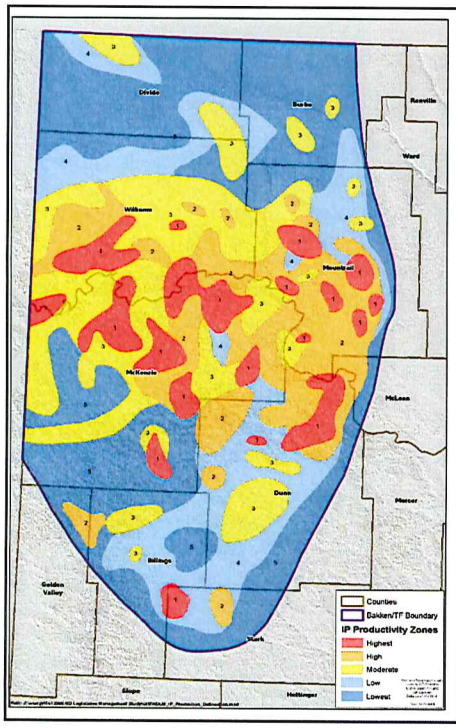

Local & Global Economics

- Drilling will remain concentrated in areas of high productivity potential
- Changes in federal policies may lead to increased drilling
- Operation costs may slow drilling in areas with lower productivity potential

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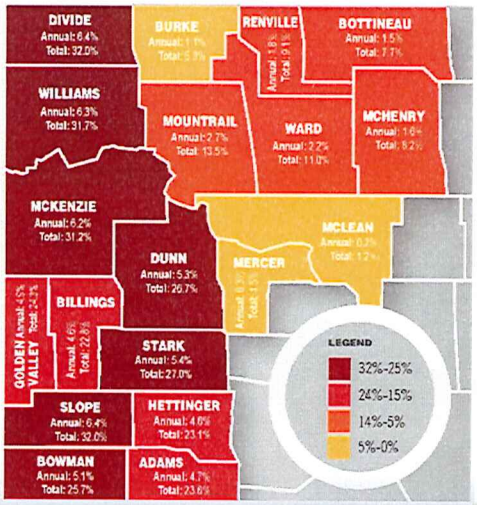
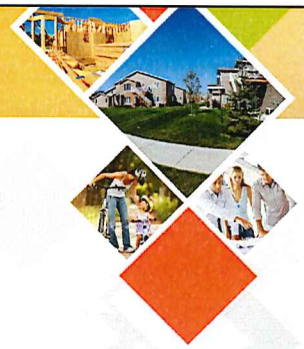
Population Growth Potential





- Growth forecast does not include restrictions.

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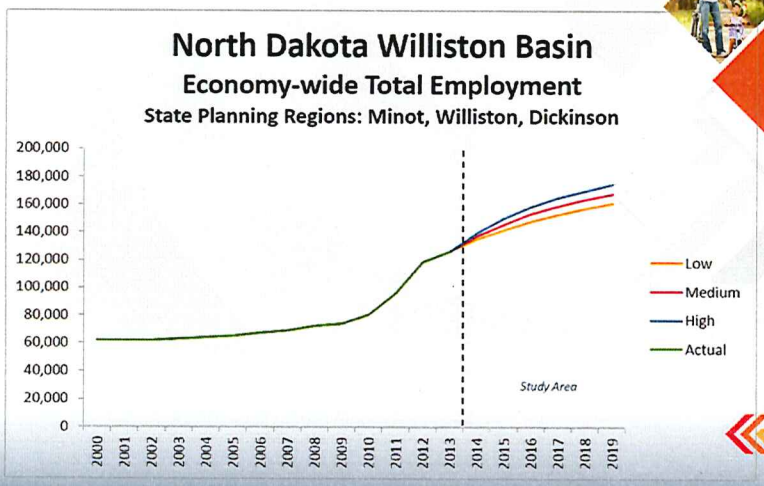
Employment Projections



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Williston Region-Housing Needs

Housing Needs[1], in Total Units, by Scenario, Williston Region, North Dakota, 2014-2019

Year	Low Scenario	Medium Scenario	High Scenario
2014	41,063	42,353	45,100
2015	44,397	46,622	50,737
2016	47,770	50,660	55,754
2017	50,173	53,778	59,190
2018	52,069	55,916	61,307
2019	54,071	58,037	63,420

[1] *Includes traditional permanent housing units (single family houses, apartments) and non-traditional temporary workforce accommodations (crew camps, conditional use permits).*

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Minot Region-Housing Needs

Housing Needs, Total Units, by Scenario, Minot Region, North Dakota, 2014-2019

Year	Low Scenario	Medium Scenario	High Scenario
2014	54,903	55,312	55,873
2015	56,170	56,796	57,458
2016	57,401	58,175	58,808
2017	58,361	59,334	59,934
2018	59,564	60,656	61,312
2019	60,476	61,741	62,372

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Dickinson Region-Housing Needs

Housing Needs, Total Units, by Scenario, Dickinson Region, North Dakota, 2014-2019			
Year	**Low Scenario**	**Medium Scenario**	**High Scenario**
2014	31,908	32,439	33,311
2015	34,358	35,111	36,117
2016	36,560	37,408	38,467
2017	38,549	39,410	40,672
2018	40,406	41,140	42,921
2019	41,573	42,606	45,016

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CO_2 Enhanced Oil Recovery

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Technology Changes that could affect Production 2014-2019

- 3 Dimensional Field development
- Batch development
- Adequately sized gathering systems
- Reliable systems to move product to market
- Field consolidation
- Automation

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Environmental Changes that could affect Production 2014-2019

- State regulations in border states
- Tribal regulations and development requirements
- Flaring regulations
- Local regulation of crude oil trains

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Policy Issues that could affect Production 2014-2019

- Crude export rule changes
- Tightening of crude supply due to international conflict
- Federal regulator change regarding depletion allowances

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Infrastructure Needs 2014-2019 Base Assumptions

- 2013 and 2014 are the norm in the Oil Patch
- Infrastructure deteriorates when used at design standards
- We are increasing our infrastructure inventory

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Private Infrastructure

- Rail at all levels
- Pipelines and storage
- Operation hubs
- Power

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Public Infrastructure Needs

- Williston will require 16,000 housing units in the study period
  - $480 million in subdivision infrastructure
  - $200 million in support infrastructure for storm water systems, major collectors, ect.
  - Increased water and wastewater capacity of around 4.0 million gallons per day
- Dickinson 10,000 units so $300 million in subdivision infrastructure
- Minot 6,000 units so $180 million in subdivision infrastructure

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Public Infrastructure Summary

- Funding levels for infrastructure will remain constant over the 5 year period
- Infrastructure demands in the field will be more concentrated around high profit areas
- There will be significant need for O&M funding
- Infrastructure needs will evolve
- Social infrastructure must be strongly supported or we will not achieve labor goals

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Phase IV Update

Questions?

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