2014 Dickinson Region Shale Projections

About this information This handout summarizes regional webinars containing the most recent development projections of employment, housing, and population projections prepared by Dean Bangsund and Dr. Nancy Hodur with North Dakota State University. Lynn Helms of the ND Dept. of Mineral Resources and Justin Kringstad of the ND Pipeline Authority, together with Dr. Dick Gardner of the Center for Rural Entrepreneurship, Deb Nelson of DLN Consulting and The Strom Center at Dickinson State University were part of the collaborative team that worked on model revision. See http://www.visionwestnd.com/webinars.asp for the webinar and related materials.

Western North Dakota Energy Development

The pace of technology development has far exceeded the assumptions built into the 2013 model. Better geologic knowledge leading to denser well spacings on up to five shale layers, improved fracing technology, and improved drilling efficiencies have led to projections of the Bakken development of greater intensity and longer duration. Lynn Helms asks us to imagine a cone going underground with its deepest part under McKenzie County with five pay zones. Drilling becomes less dense going outward from the center.

Spacing Units	Wells per Unit	Total Wells
1,000	19	19,000
1,000	15	15,000
2,000	11	22,000
2,000	7	14,000
2,000	2	4,000
8,000		74,000

2013 Model		2014 Model
1,800 - 3,000 wells/year = 2,000 expected		2,300 – 2,900 wells/year = 2,500 expected
150-250 rigs = 12,000 – 30,000 jobs		~180 rigs = 20-25,000 jobs
120 employees/rig phased down to 100		110 employees/rig phased down to 93
Another 10,000-15,000 jobs building infrastructure		Another 3,400 jobs building gathering systems
10 wells/rig/yr increasing to 12 by 2015		12.4 wells/rig/yr increasing to 13 by 2016 to 14.1 by 2022
200 rigs can drill the wells needed to develop spacing units in 18 years		May take over 25 years to fully develop the 8,000 spacing units
40,000-45,000 total Bakken wells		45,000 – 74,000 total Bakken wells
Recoverable oil = 7.5 Bbl USGS w 3ThreeForks		Recoverable oil =10-14 Bbl Helms, 32-36 Bbl Continental Oil

The table on the left summarizes the changes in assumptions between 2013 and 2014 models caused by the fast-changing dynamics of unconventional oil. The scenarios now model 45,000, 65,000, and 74,000 wells. The completion of pipeline projects over 14 years move up to 75% of oil and recycle up to 50% of brine. The labor needs of each well are now aged over its 45 year life.

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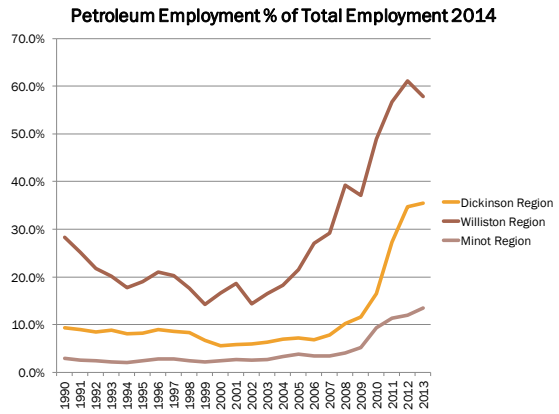
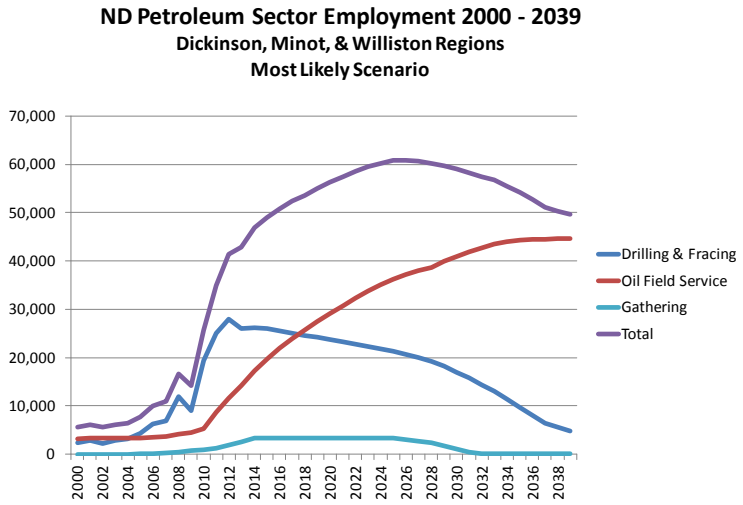


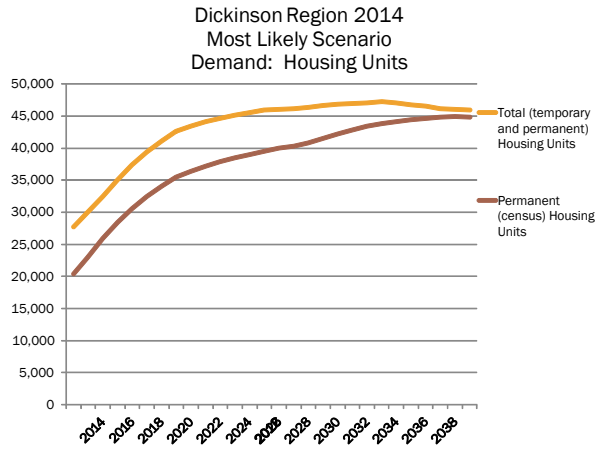
NDSU Projections

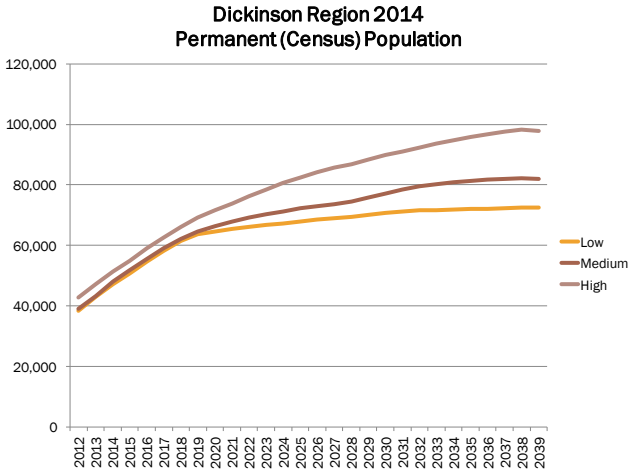
The graph on the left makes an important point about variations in the dependency of regions on the oil industry. All regions have seen an uptick in energy jobs. Minot has 13.5% oil jobs, up from 11% in 2011; Dickinson has risen slightly to 35.5%, and Williston to 58%. Crowding out is an issue in the Dickinson and Williston regions. The graph on the following page shows that total direct employment in the petroleum sector for the three regions is now projected to peak at 61,000 in 2025, compared to 53,000 in 2020 as projected in 2013.



Gathering system jobs taper in 2028. Permanent oilfield service jobs grow to nearly 45,000 by 2039. Drilling and fracing jobs taper by 2028, but some of these temporary jobs continue past 2039. The Dickinson total regional economy now peaks at about 47,000 workers in 2032, a 10,000 job increase.

The next two graphs show the demand for housing in the Dickinson region. Permanent housing rises from ~~some~~ 23,000 in 2014 to roughly 46,000 by 2039 in the most likely scenario. Temporary housing for transient workers adds another 7,000 – 9,000 units.





The Dickinson region is expected to grow rapidly over the next 6 years in all scenarios, as the graph on the right shows. The region faces extremely rapid population growth of 6.4% in the next six years.

Conclusions This development makes the 1980s spike look like a minor and short-term blip. The region is in the midst of a protracted increase in employment and population that will change the region for decades. These projections are the latest comprehensive scenarios for the future given by the most knowledgeable local experts. Western North Dakota is changing so fast that the medium scenario presented in 2013 is similar to this year's low. The purpose of this handout and webinar is to spark a conversation among local leaders. It is provided as a guide to help determine strategies to manage growth in the community and how to sustain quality of life during the sustained development of the Bakken.

	2013	2020	2039
Permanent Housing Units	23,020	36,410	44,830
% Ave Annual Growth		7.0%	1.1%
Permanent Population	43,310	66,410	82,010
% Ave Annual Growth		2012-2020 6.4%	2020-2039 1.1%

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