



LEGISLATIVE AGRICULTURE CHAIRS SUMMIT

Presentation by Dennis Hill

June 8, 2013—Vancouver, BC

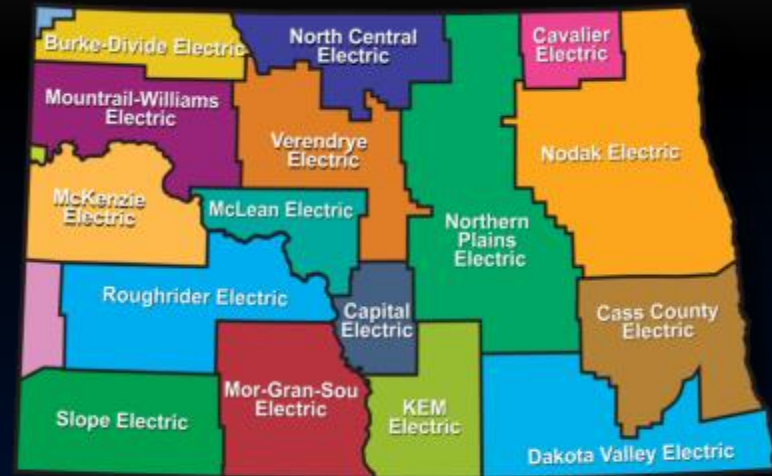
NDARECs

North Dakota Association of Rural Electric Cooperatives

Your Touchstone Energy® Partner 

MEET THE REC NETWORK IN NORTH DAKOTA

- **16** distribution cooperatives—selling more than half of all electricity in the state
- Invested more than **\$1 billion** in facilities—62,000 miles of distribution and transmission lines
- Serve **160,000** meters—farm, ranch, residential, commercial and industrial



MEET THE REC NETWORK IN NORTH DAKOTA

- Power supply is home-grown
- Co-ops own and operate **90%** of the coal based generation in the state
- Invested about **\$5 billion** in coal conversion facilities
- Own or purchase output of **1,300 MW of wind** generation
- Purchase output of hydro facilities—dams along the Missouri River

NORTH DAKOTA'S IN THE NEWS

State ranked #1 in economic performance

The *Enterprising State* report placed North Dakota in the top spot, with #1 rankings for:

- Long-term and short-term job growth,
- Per capita income growth
- Gross state product growth.
- State personal income growth ranged from -.02 in South Dakota to 12.4 percent in North Dakota.



Which led Teddy Roosevelt to proclaim:



HERE'S WHAT'S MAKING MUCH
OF THE NEWS:

Rockin'
the **Bakkken**®
Will!ston

NORTH DAKOTA'S IN THE NEWS

The New Bakken Energy Boom
(even National Geographic gave us 30 pages)

- Texas – 2,295,000 barrels per day (February 2013)
- North Dakota – 783,000 barrels per day (March 2013)
- Alaska - 541,000 barrels per day (February 2013)
- California – 529,000 barrels per day (February 2013)



NORTH DAKOTA'S IN THE NEWS

Let's not forget the basics:

The Enduring Importance of the Ag Economy

- Always **1st or 2nd** in wheat production
- **1st** in pinto beans, canola, flaxseed
- **43%** of sunflowers; **35%** of barley raised here
- Let's not forget sugar beets and explosive growth in corn, soybeans and pulse crops
- Any given Sunday, **1.7 million cattle**



ENERGY FOUNDATION IS STRONG—BLESSED WITH ABUNDANT NATURAL RESOURCES

North Dakota ranks:

- 15th** in total energy production
- 2nd** in crude oil production
- 18th** in natural gas production
- 9th** in coal production
- 11th** in installed wind capacity
- 37th** in total electricity generation





NORTH DAKOTA'S OIL ENERGY FUTURE

- New USGS survey—Double the potential for oil recovery

“How long will it last?” & When are you leaving”

- 💧 CLR’s estimate: 24 billion BOE recoverable reserves with current technology
- 💧 48,000 wells drilled on 320-acre spacing in Middle Bakken and Three Forks zones
- 💧 Three Forks 2—60,000-75,000 wells

NORTH DAKOTA'S OIL ENERGY FUTURE

- **8,600** producing wells (March 2013)
- **190** rigs
- Drill wells more quickly—some in 20 days; used to be 30 days
- Industry is moving to an “eco-pad” concept
- Dept. of Mineral Resources estimate: **2,000** additional wells will be drilled **per year for the next 18 years**

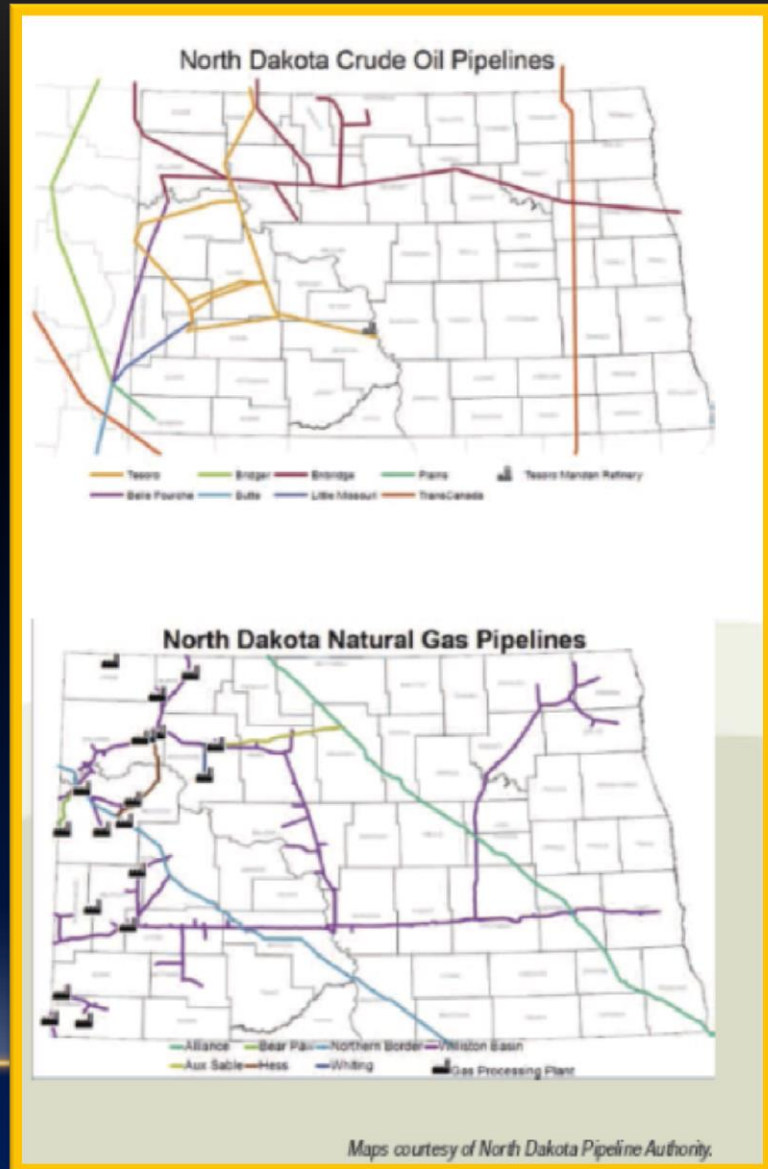


NORTH DAKOTA'S NATURAL GAS ENERGY FUTURE

- Currently, about **25%** is flared
- **18** processing plants operating
- Production could reach **2.0 – 2.4 billion cubic feet per day** by late 2020s—industry estimates \$4 billion more will be invested long term in gathering and processing infrastructure
- Processing capacity is about **1.2 billion cubic feet per day**, w/another 600 MMCFD under construction
- Dakota Gas makes synthetic natural gas—sends CO₂ into Weyburn for oil recovery

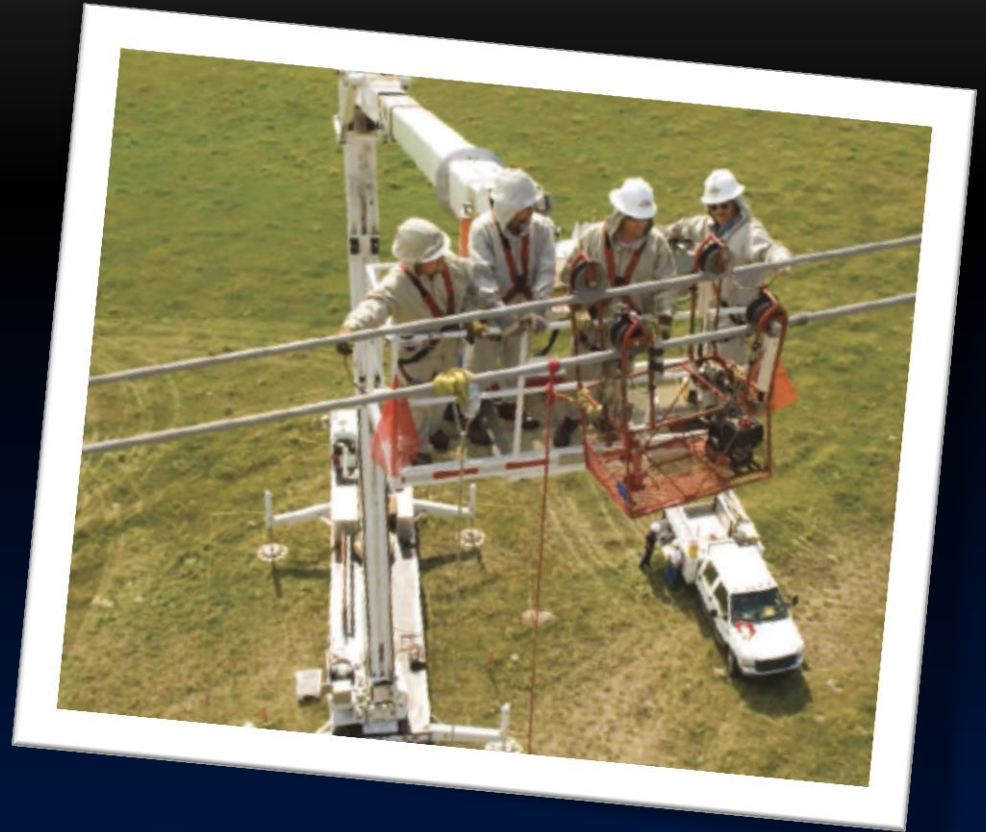
PIPELINES NEEDED FOR OIL/GAS

- **7,000** miles of distribution and transportation pipelines operating in and through North Dakota
- **4** product, **7** major crude oil, **5** major natural gas, and **1** CO2 pipeline
- Rail has emerged as major competitor for oil delivery to markets outside North Dakota



“WE’VE ONLY JUST BEGUN”

KLJ’s study results projected a **208% increase** in electrical demand through 2032. Specifically for North Dakota, the forecast indicated electrical demand would reach **3,030 megawatts (MW) by 2032**, nearly tripling current demand..

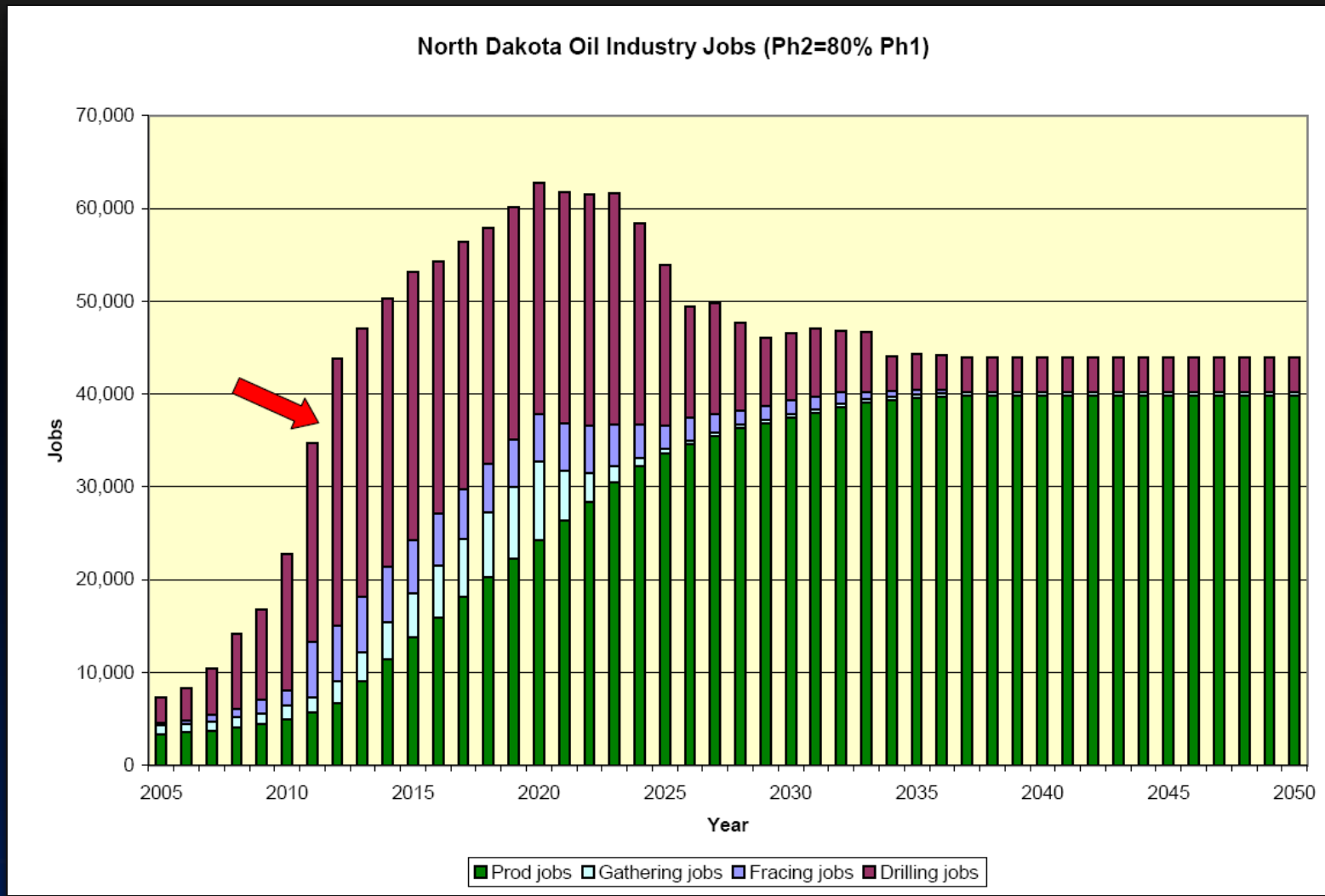


“WE’VE ONLY JUST BEGUN”

- Need transmission to get it there
- Coal—restrained; so likely natural gas, wind generation and market purchases might get us through



WHAT WILL BE THE NEW NORMAL?



N.D. energy: a potent mix

By JESSICA HOLDMAN
Bismarck Tribune

New wind farms, natural gas power plants and a transmission line are bracing the energy mix in North Dakota.

Five new wind farms are seeking permits from the North Dakota Public Service Commission. Basin Electric Power Cooperative and MDU Resources, Inc., are building gas-fired turbines and transmission lines to deliver power to the northwestern part of the state.

Public Service Commissioner Brian Kalk said 80 percent of North Dakota's electricity is coal-generated. Most of the energy portfolios of power companies in the state contain 3 percent to 5 percent renewable energy sources.

The current wind farm development is spurred by the renewal of the production tax credit in January, said Jerry Lein, a staff engineer for the PSC. Developers have to start construction by the end of this year to qualify.

Rolette Power Development, LLC filed a letter of intent with the PSC for a 50-megawatt Rolette Wind Project in Rolette County. One megawatt is enough to power 800 homes.

A letter of intent and application were filed for Courtenay Wind Farm, a 200.5-megawatt project in Sully County. And Alesia Inc. filed a letter of intent to build a 210-megawatt Bison 4 Wind Project in Oliver, Morton and Mercer counties.

The Grand Forks Herald reported on two more projects: M-Power One, southwest of Finley in Steele County, with an initial phase of about 50 turbines with a total capacity of 75.2 megawatts; and the Thunder Spirit Project in Adams County near Hettinger, with up to 75 turbines with a total capacity of 150 megawatts.

Several letters of intent have been filed and permits have been

companies haven't started construction.

"They file to get the clock started," Kalk said. Still, he sees the current proposals as significant.

Before the tax credit renewal, development was mostly at a standstill in late 2012. The uncertainty over the credit's future causes a sort of boom and bust in the development cycle.

"Without those tax credits, it might be a real challenge to put up a wind farm," said Daryl Hill, a spokesman for Basin Electric, which owns or buys electricity from six wind farms in North Dakota and South Dakota.

One wind turbine costs \$2 million or more, Hill said. The payoff period is 20 years.

Many wind farms are trying to find a buyer for their power, but power use in other states has shrunk along with the economy. Two-thirds of the power produced in North Dakota is exported.

As the economy rebounds, demand will return elsewhere, Kalk said.

From the time construction starts, a wind farm can be completed in a matter of months, and North Dakota is one of the more effective places to build one, Lein said.

North Dakota ranks third in the nation in the amount of electric power generated by wind. Based on U.S. Energy Information Administration data, wind energy accounted for 15 percent of North Dakota's electricity in 2011.

PSC data shows 991 wind turbines in service in the state, with a capacity of 1,672 megawatts. Most of the wind farms in the state run at 40 percent to 50 percent of their capacity, Lein said.

"Wind can be valuable when available because it displaces fuel costs," Hill said.

Renewable sources, mostly wind, make up 14 percent of Basin Electric's energy portfolio, Hill said. Coal is Basin's main power source.



ABOVE: Wind energy accounts for 15 percent of North Dakota's electricity generated in 2011.

LEFT: Wind turbines are shown in 2007 at the Wilton Wind Farm north of Bismarck. (From Tribune files)

tion March 15 for a transmission line from its Anzelope Valley Station to Williston and Watford City. Hill said the line will provide "backbone support to our transmission system in that area."

"We're anticipating an operational date for this line in 2015-16," he said.

In the meantime, two natural gas-fired turbines, producing 45 megawatts each, will be operational by this summer: Pioneer Station near Williston and Loavesome Creek Station near Watford City.

The turbines will be fueled by the Williston Basin Pipeline and Northern Border Pipeline. They will run as needed during peak electricity use hours.

On Tuesday, the North Dakota Health Department will hold a public hearing for an air quality

site, for a total of six.

"The whole oil industry arrives pretty fast," Hill said. "It takes time for this stuff to catch up."

Mack Hanson, a spokesman for Montana-Dakota Utilities Co. said his company found itself 120 to 130 megawatts short of its power demand.

The company has seen 1 percent growth of its entire service area but 9 percent growth in the oil patch. To keep up with demand, MDU is building an \$85 million natural gas-fired power plant near its coal-fired Heskett Plant in Mandan to serve about 86,000 customers.

MDU has 395 megawatts of coal-fired power. The company has 103 megawatts of power from gas turbines and 55 megawatts of renewable power, including 49.5 megawatts from wind genera-

WIND ENERGY'S FUTURE

- Current production: **1676.9 MW**
- **635 MW**—in 5 projects filed letters of intent with ND PSC

ETHANOL ENERGY'S FUTURE

- **400** million gallon capacity at four plants
- Consume **143** million bushels of corn, produce **1.1** million tons of DDGs
- We consume about **6%**, rest is shipped to the coasts



Blue Flint Ethanol

REFINING CAPACITY IN ND

- Tesoro Refinery, Mandan--68,000 bpd
- MDU/Calumet-- building 20,000 bpd plant near Dickinson
- Ground broken last month on Thunder Butte Refinery, owned by the Three Affiliated Tribes—also 20,000 bpd
- Diesel topping plant near Williston proposed—also 20,000 bpd



Tesoro Refinery, Mandan

AG/ENERGY: A WIN/WIN COMBINATION

- **Two fertilizer plants** announced—built on abundant supplies of natural gas and increasing demand for nitrogen for row crops in the region
- CHS: **\$1.25 billion plant** near Spiritwood will produce 2,200 tons of ammonia fertilizer daily -- distributed as anhydrous ammonia, urea and UAN liquid fertilizer
- **Northern Plains Nitrogen:** \$1.5 billion plant near Grand Forks will produce 600,000 tons of nitrogen each year

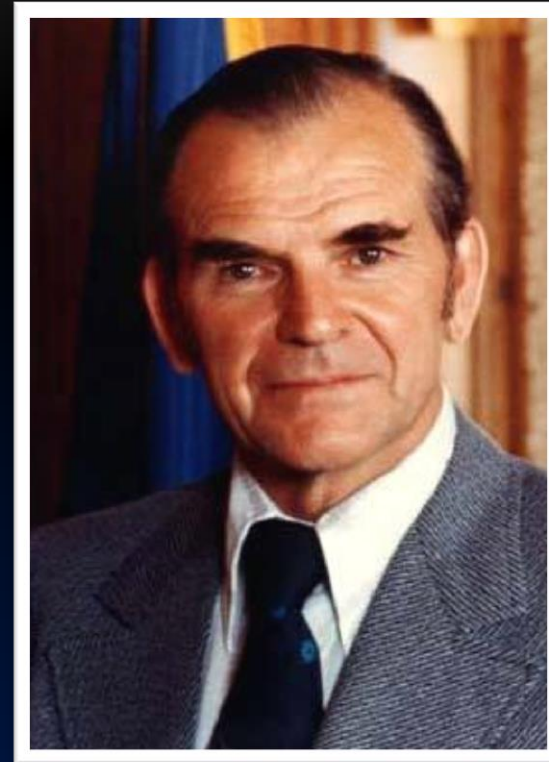
AGRICULTURE: ROW CROPS HERE TO STAY

- Corn acres -- **2.6 million** in 2012; **4.1 million** acres this year
- Soybean acres--record **4.9 million** acres this year (4.75 million last year)
- Better genetics in corn, and the strong ethanol market has driven corn acreage increase



WHAT'S NORTH DAKOTA RECIPE FOR SUCCESS?

- Blessed with abundant natural resources; farmland, coal, hydro, oil, natural gas, wind and biomass
- Responsible development mentality
- Some goes back to former Gov. Art Link, “When the landscape is quiet again”



Gov. Arthur Link

WHAT'S NORTH DAKOTA RECIPE FOR SUCCESS?

- We are not against development—we try to practice sensible, cost effective regulation
- There is “stress out west” from landowners who suffer from what we call “easement fatigue” and the feeling of being over-run by industry
- But overall, industry can expect timely regulatory decisions



WHAT'S THE NORTH DAKOTA RECIPE FOR SUCCESS?

We are not opposed to incentives

- Tax incentives include sales and use tax exemptions, property tax relief, income tax relief, and certain investment tax credits
- Support for industry research councils—both coal and oil
- Funding for workforce development
- Support/funding for infrastructure development
- Visit www.business.nd.gov/businessInformation/tax-incentives/ for complete listing of tax incentives available

QUESTIONS?

