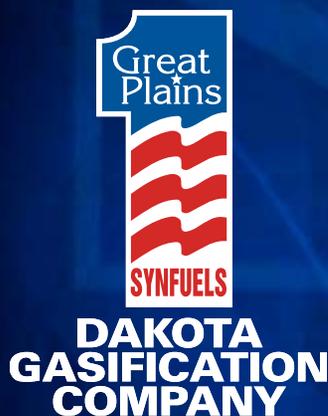


# Carbon Capture and Transportation

## Energy Development & Transmission Committee



July 31, 2013

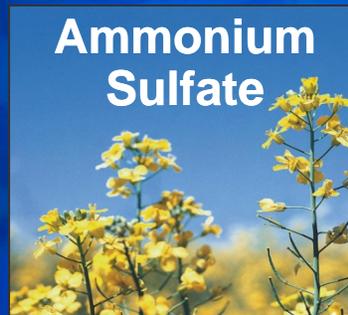
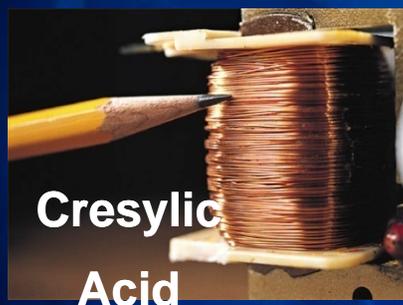
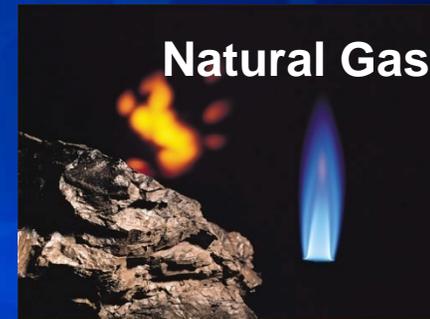
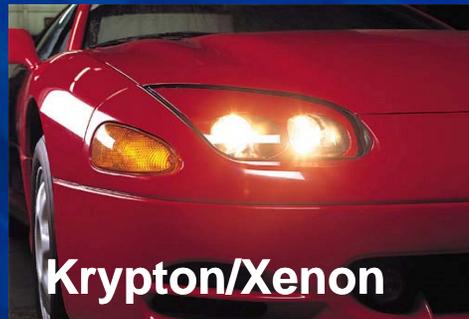
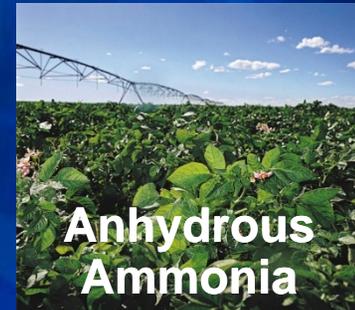
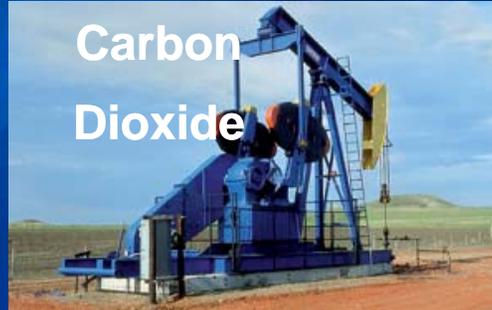
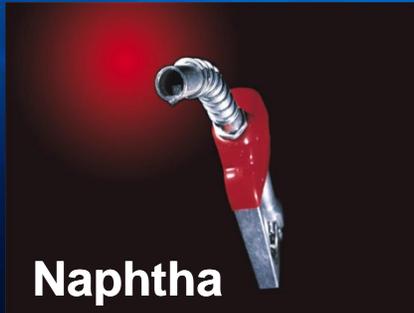




# **DGC's Great Plains Synfuels Plant A Unique Facility**

- **Only commercial coal gasification facility producing synthetic natural gas**
- **Liquid chemicals production**
- **Fertilizer production**
- **CO<sub>2</sub> capture & transportation**

# Products

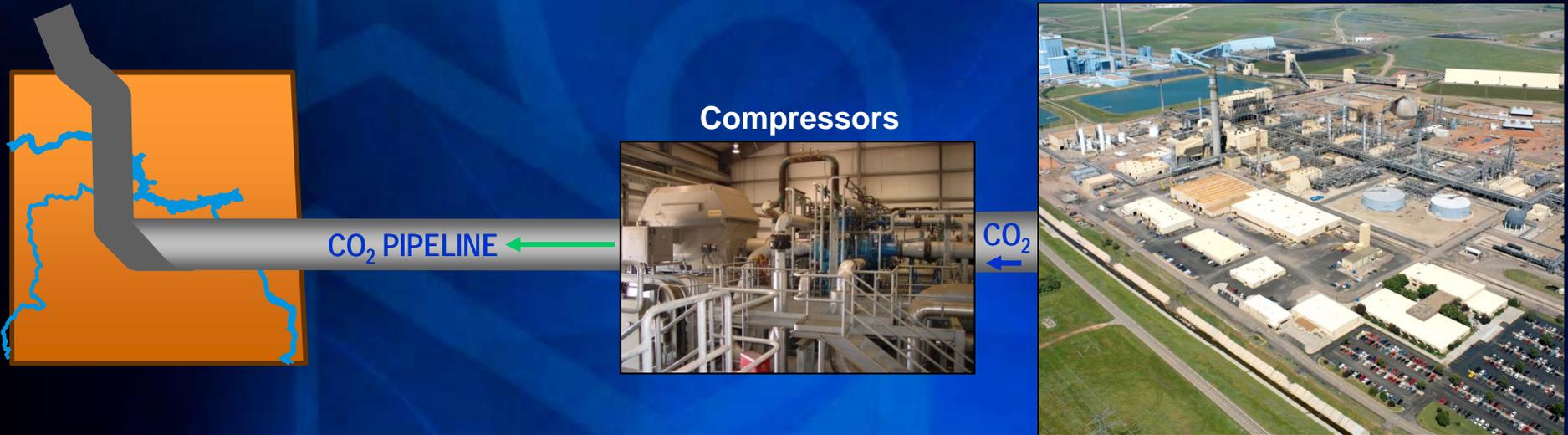


# Great Plains Synfuels Plant Today

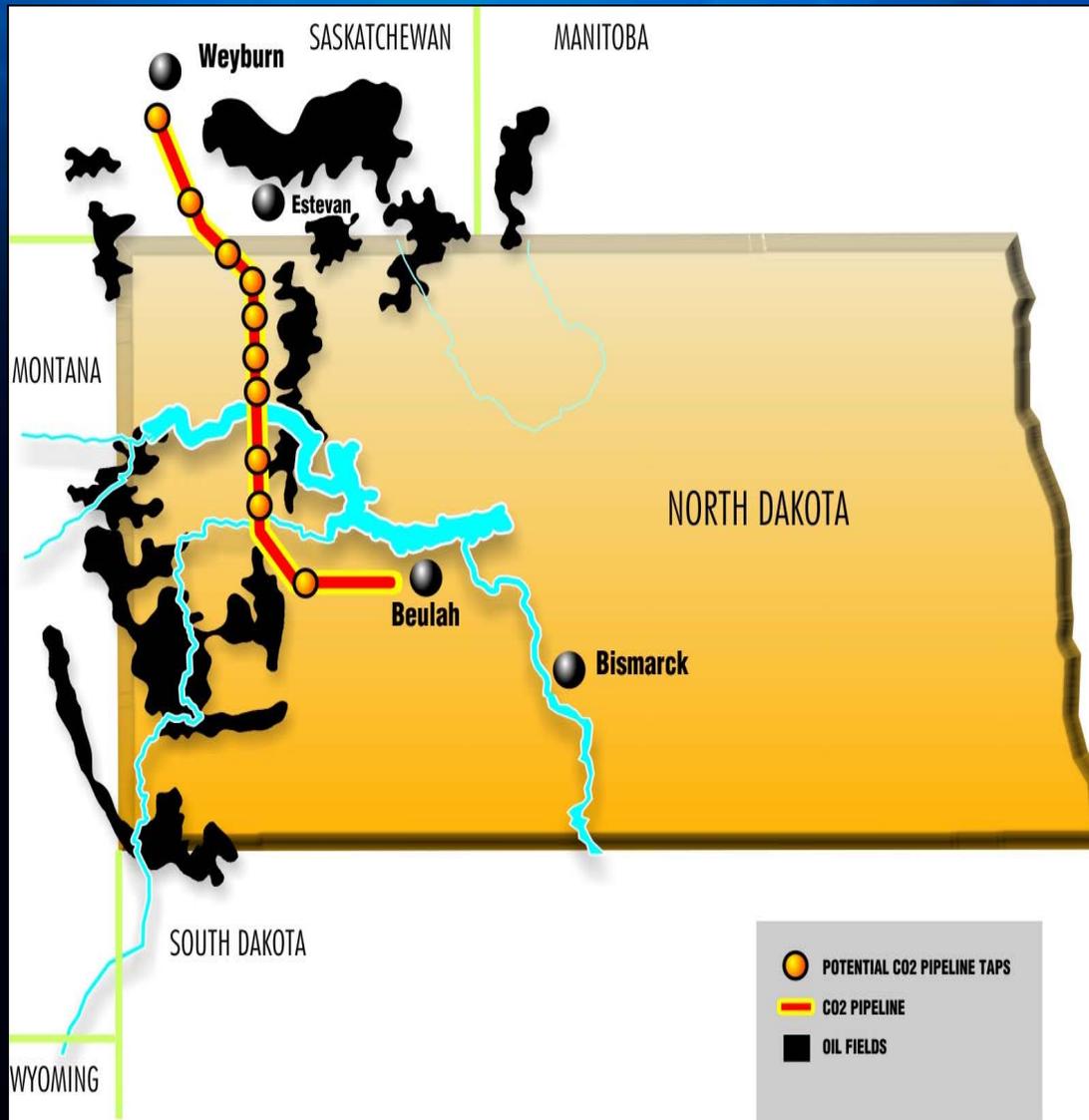
- Work Force: about 700 people
- Coal Usage: about 18,000 tons daily
- Daily Production Capacity: 150 mmscfd SNG, along with many byproducts
- Annual Plant Loading Factor: 90-92%
- Environmentally Compliant
- Reduced CO<sub>2</sub> Emissions by 42% to 54% Since 1999

# CO<sub>2</sub> Capture & Transportation

Part of the World's Largest Anthropogenic  
Carbon Capture & Sequestration Project



# CO<sub>2</sub> Pipeline



- 205 miles
- 14" & 12" carbon steel pipe
- Strategically routed through Williston Basin oil fields

# DGC CO<sub>2</sub> Capture

- BEPC's subsidiary, Dakota Gasification, began capturing & transporting CO<sub>2</sub> in 2000
- On February 24<sup>th</sup> DGC delivered its 25 millionth metric ton of CO<sub>2</sub> to Saskatchewan, Canada
- DGC captures approximately 3 million tons of CO<sub>2</sub> per year, 7,000-8,000 metric tons per day.

# ND CO2 Capture Tax Credit

- **2009 Legislature Bill**
- **20% reduction in coal conversion taxes for a 20% reduction in CO2 emissions**
  - **An additional 1% tax reduction can be obtained for each additional 2% reduction of CO2.**
  - **Maximum 50% reduction in Coal Conversion Tax**
  - **10 year life**

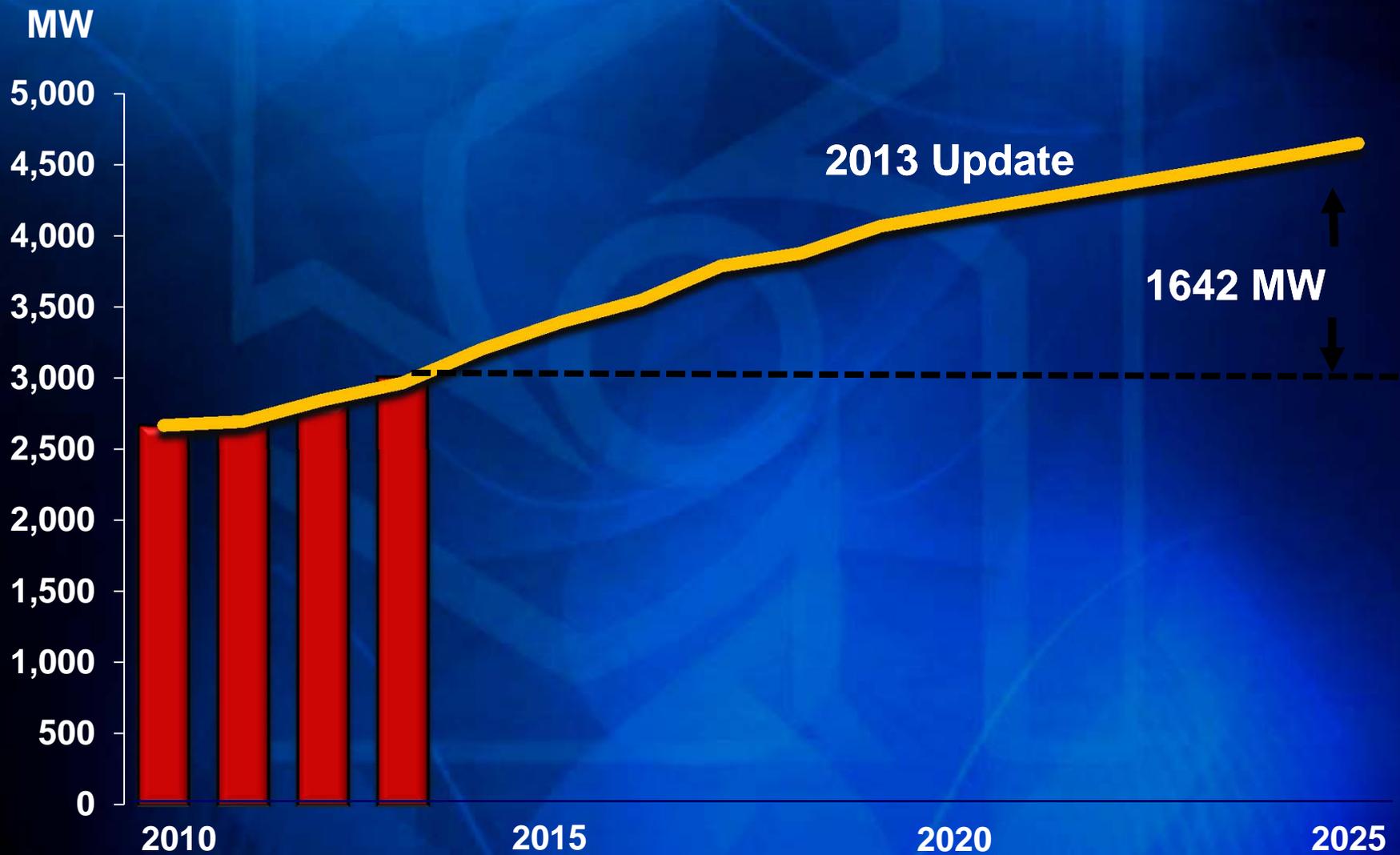
# ND CO2 Capture Incentive

- **DGC Incentive**
  - 2010 \$2.2 million
  - 2011 \$2.5 million
  - 2012 \$2.8 million
  - 2013 \$1.5 million January through June
- **DGC 2012 Coal conversion Taxes \$8.8 million**
- **DGC 2012 ND Taxes \$12.4 million**

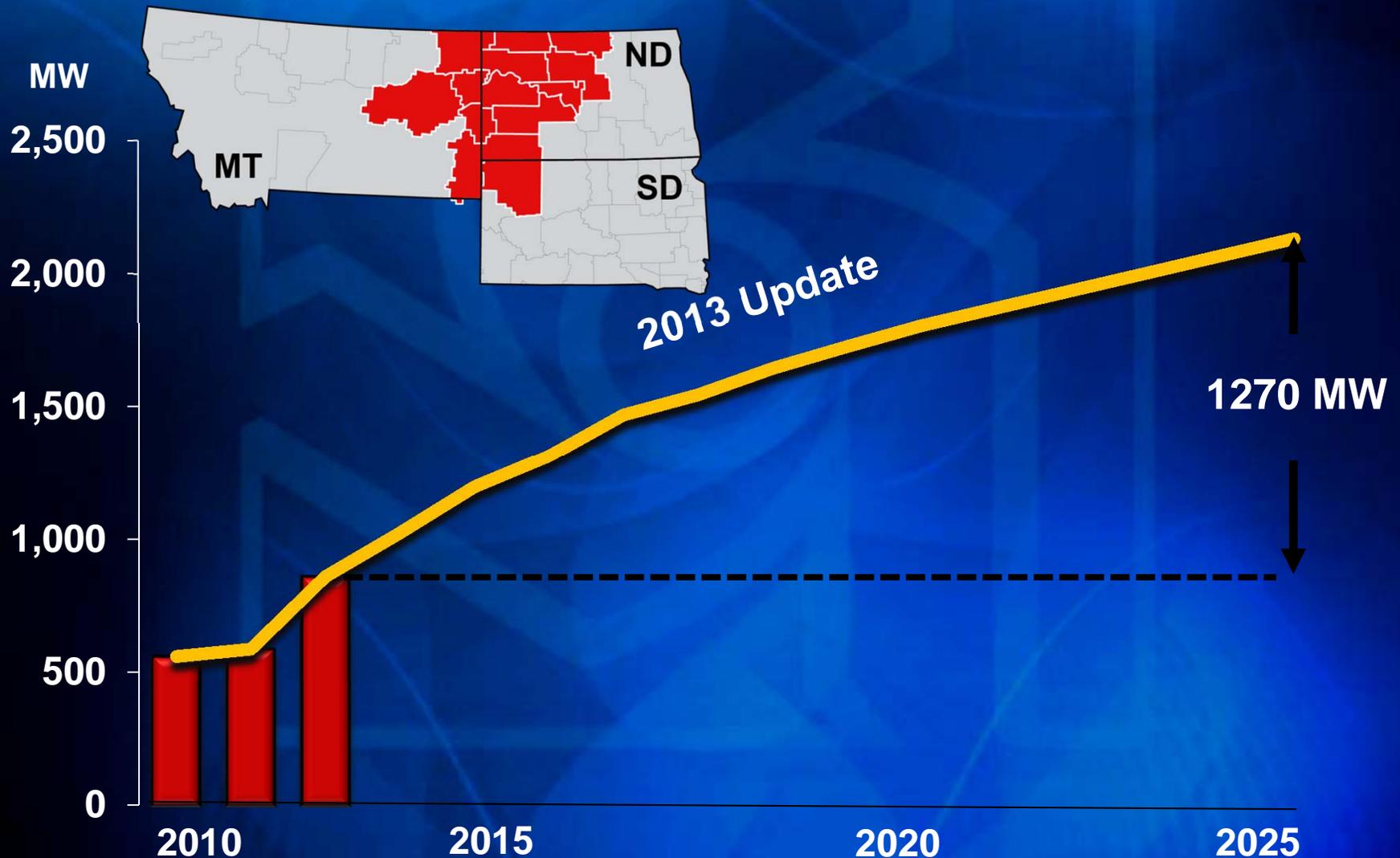


**Basin Electric's  
Response to  
the Bakken**

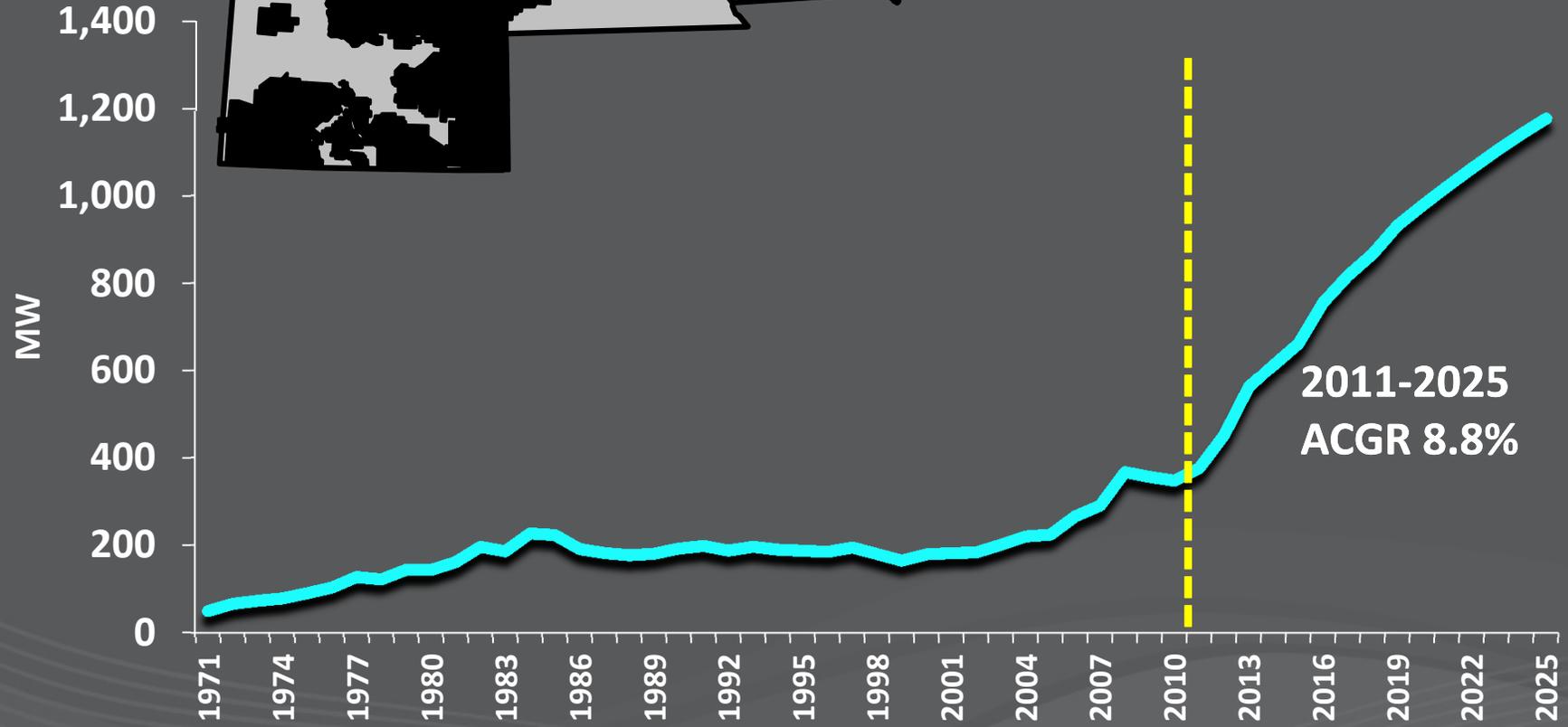
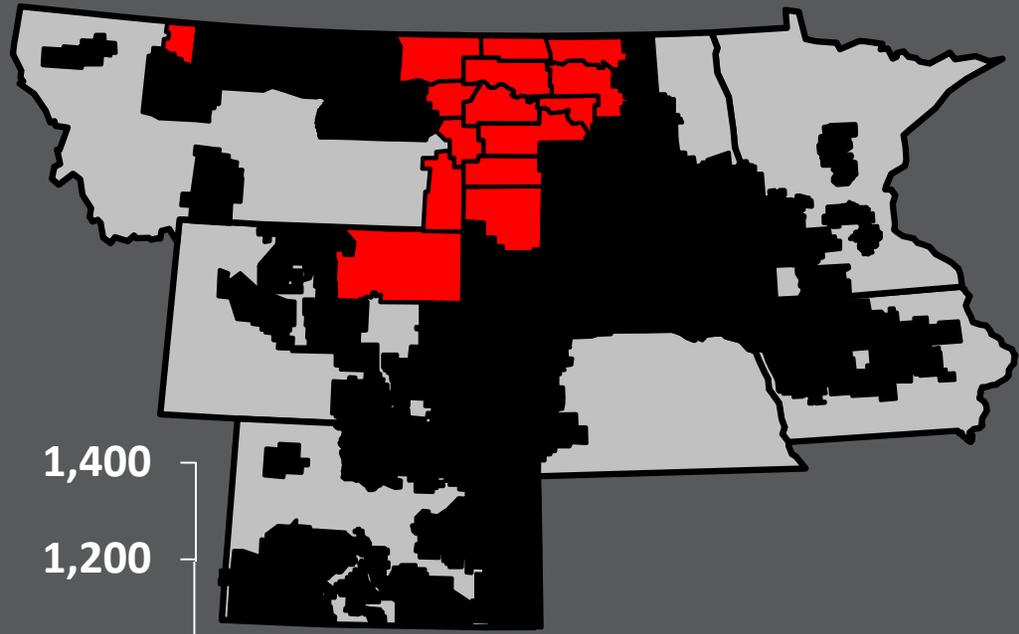
# Total BEPC Load Growth



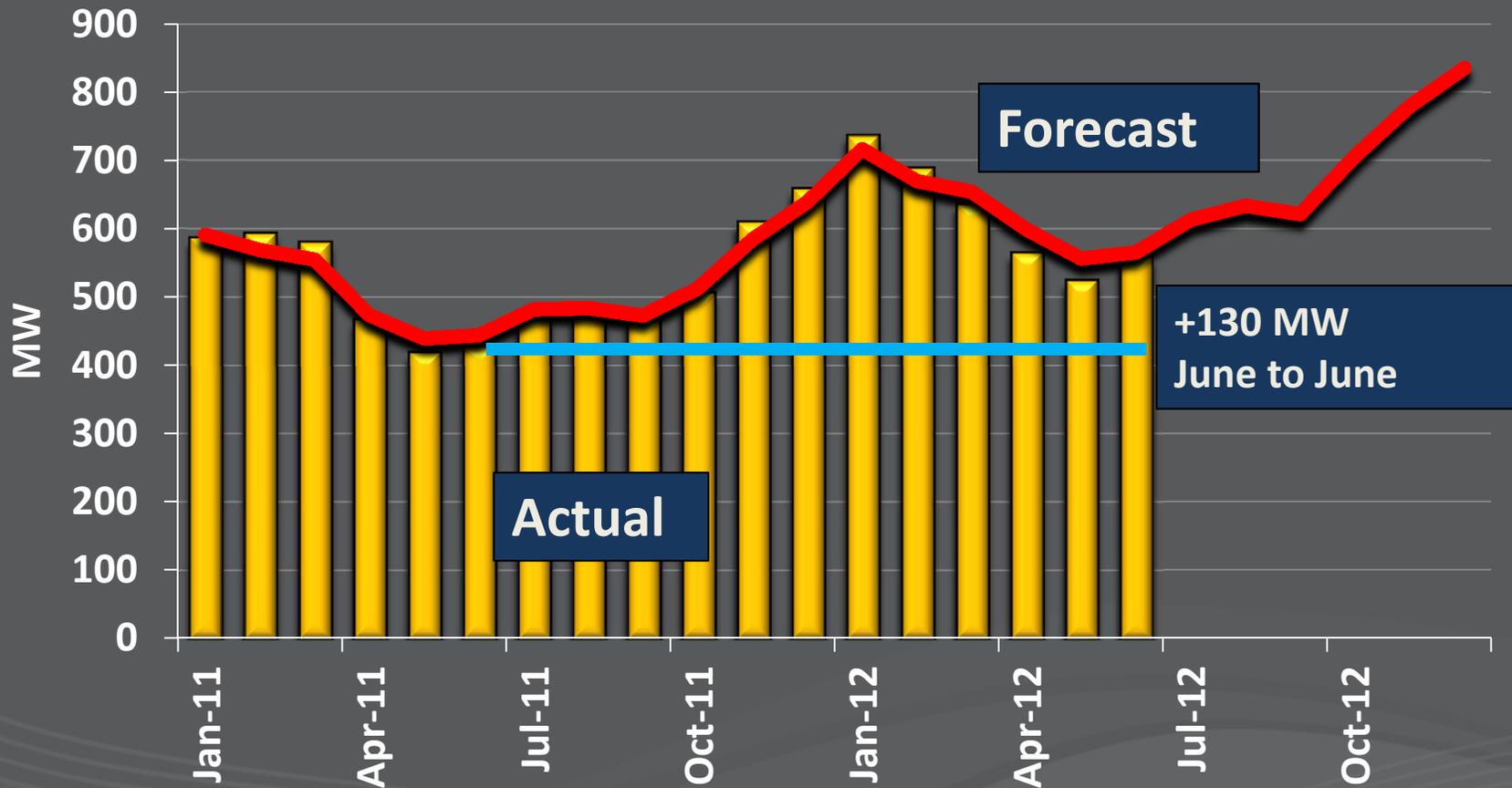
# Total BEPC Williston Basin Total Load Growth Load Growth



# Oil Related Commercial



# Williston Basin Loads



# Options to Meet Growth

- **Build Transmission Lines**
- **Build Generation Facilities**
- **Enter into Power Supply Contracts**
- **Investigate Joining a Regional Transmission Organization**

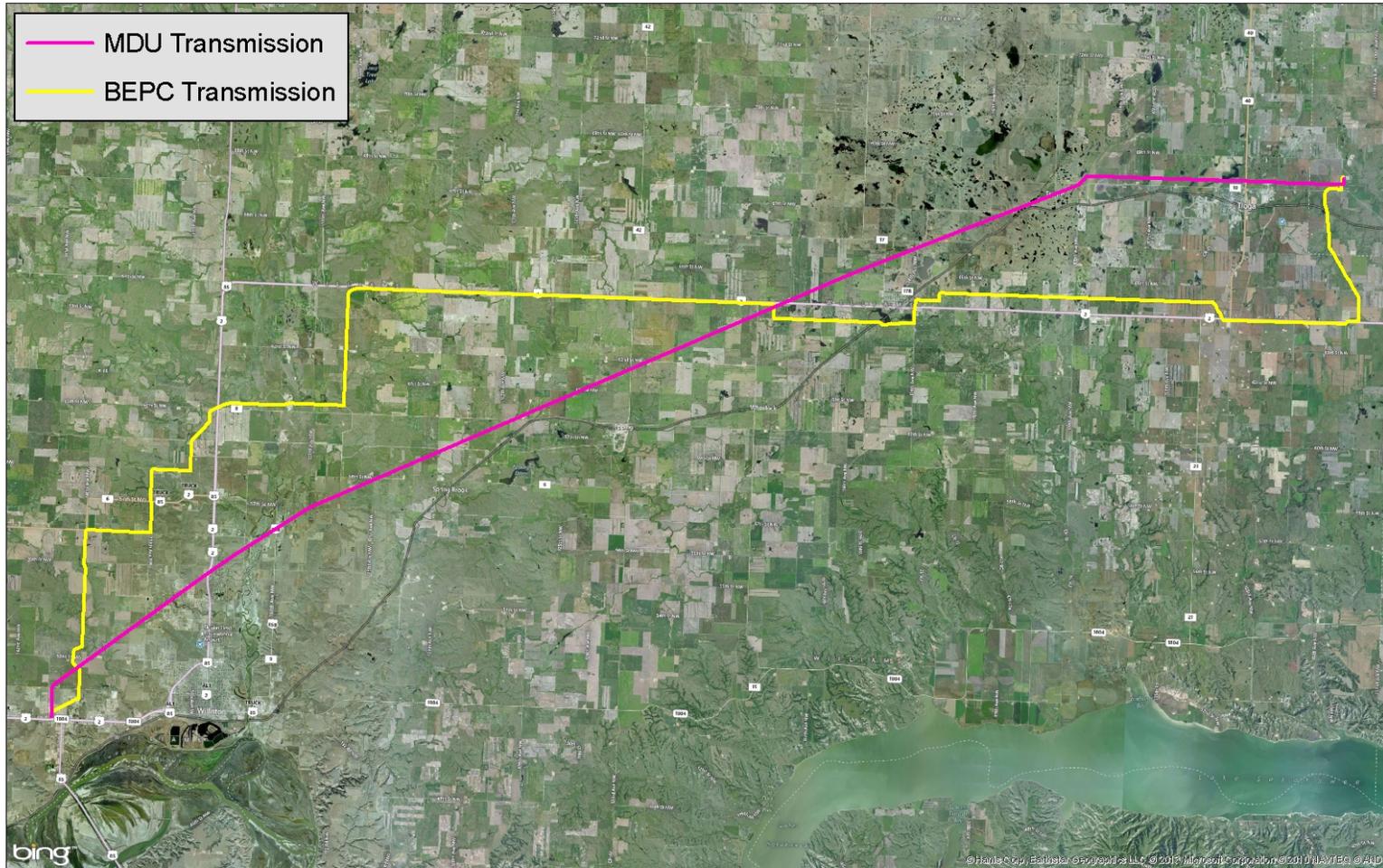


# Construction

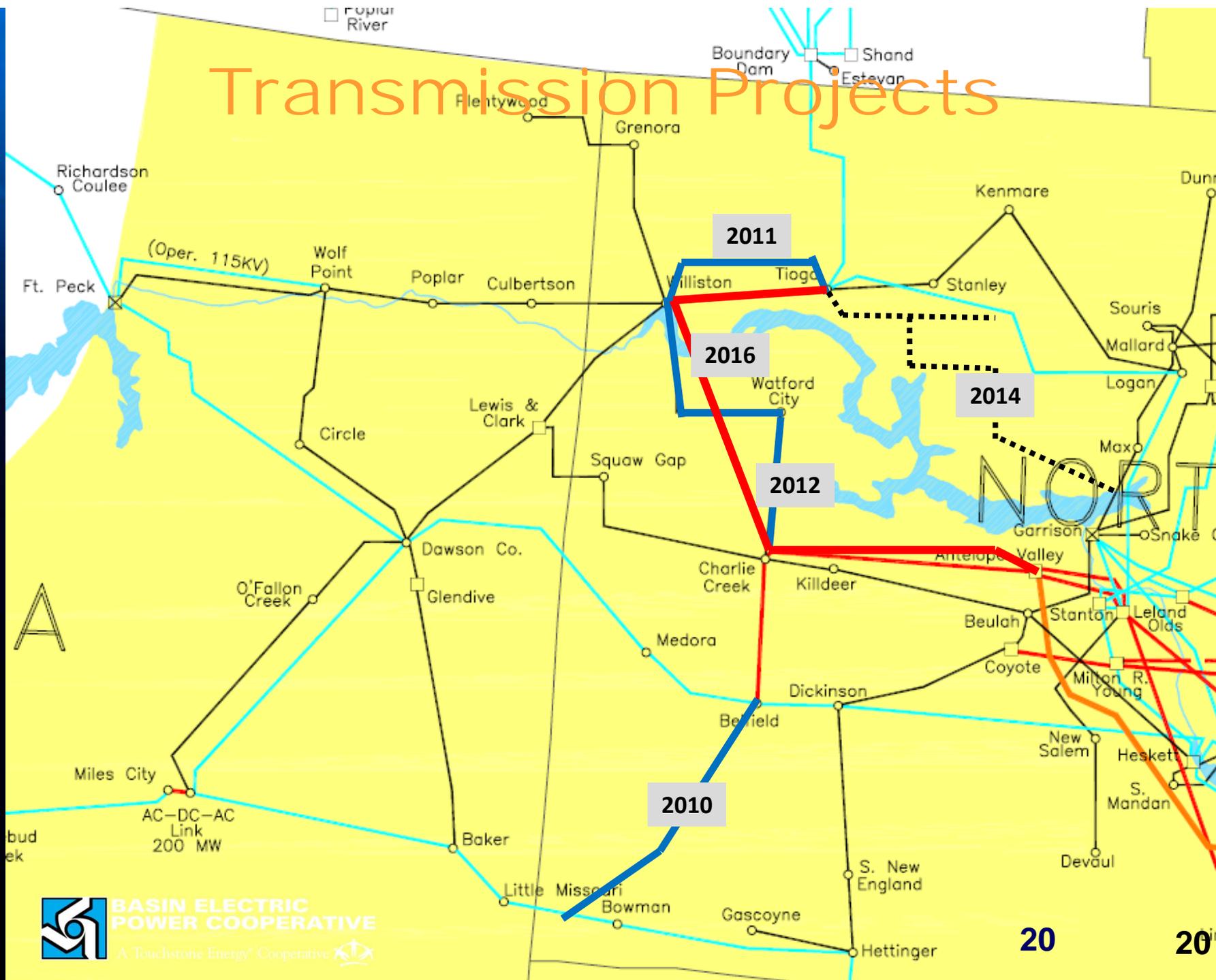
# Structure Changes



# Routing Changes



# Transmission Projects



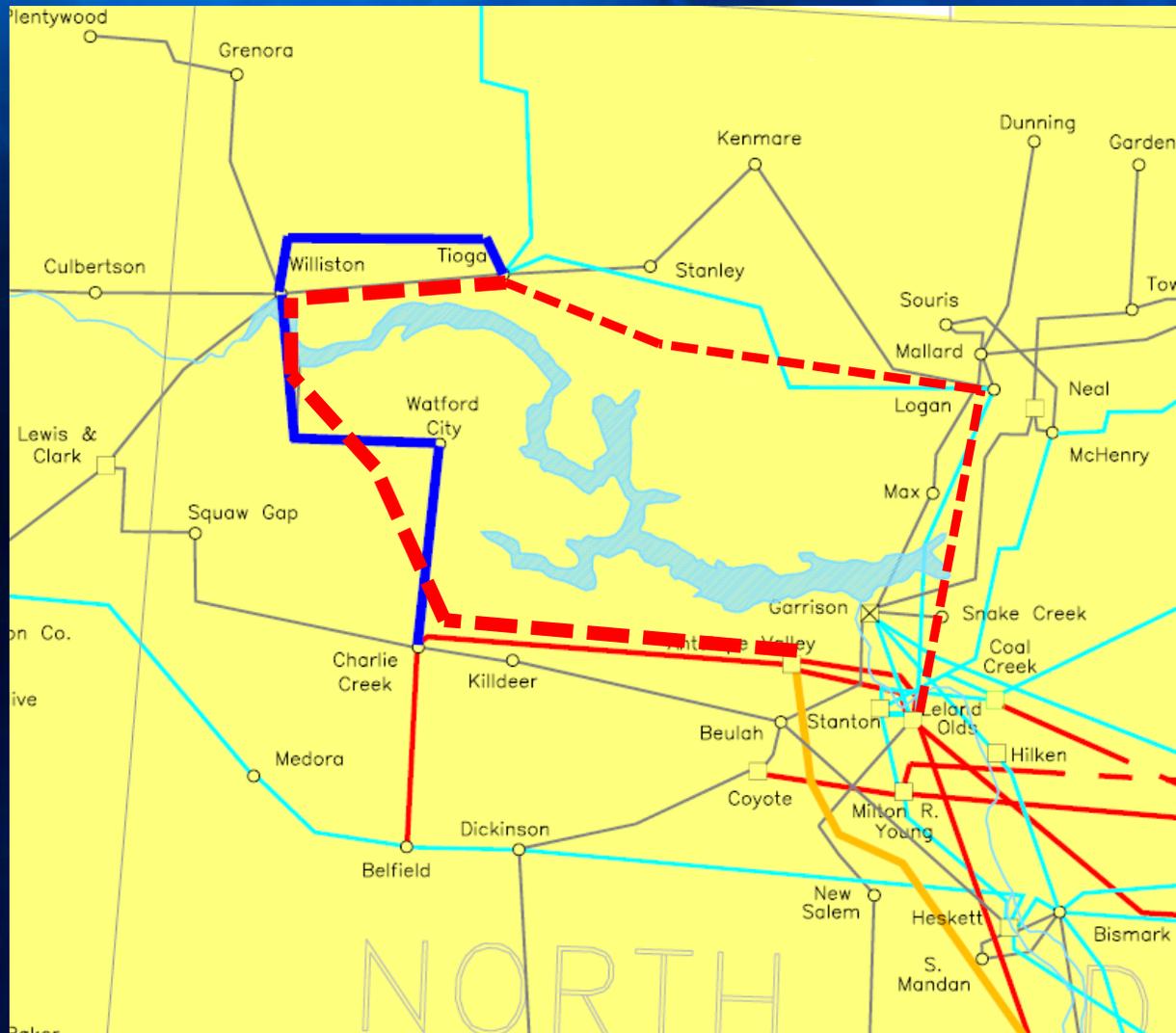
**BASIN ELECTRIC  
POWER COOPERATIVE**

A Touchstone Energy Cooperative

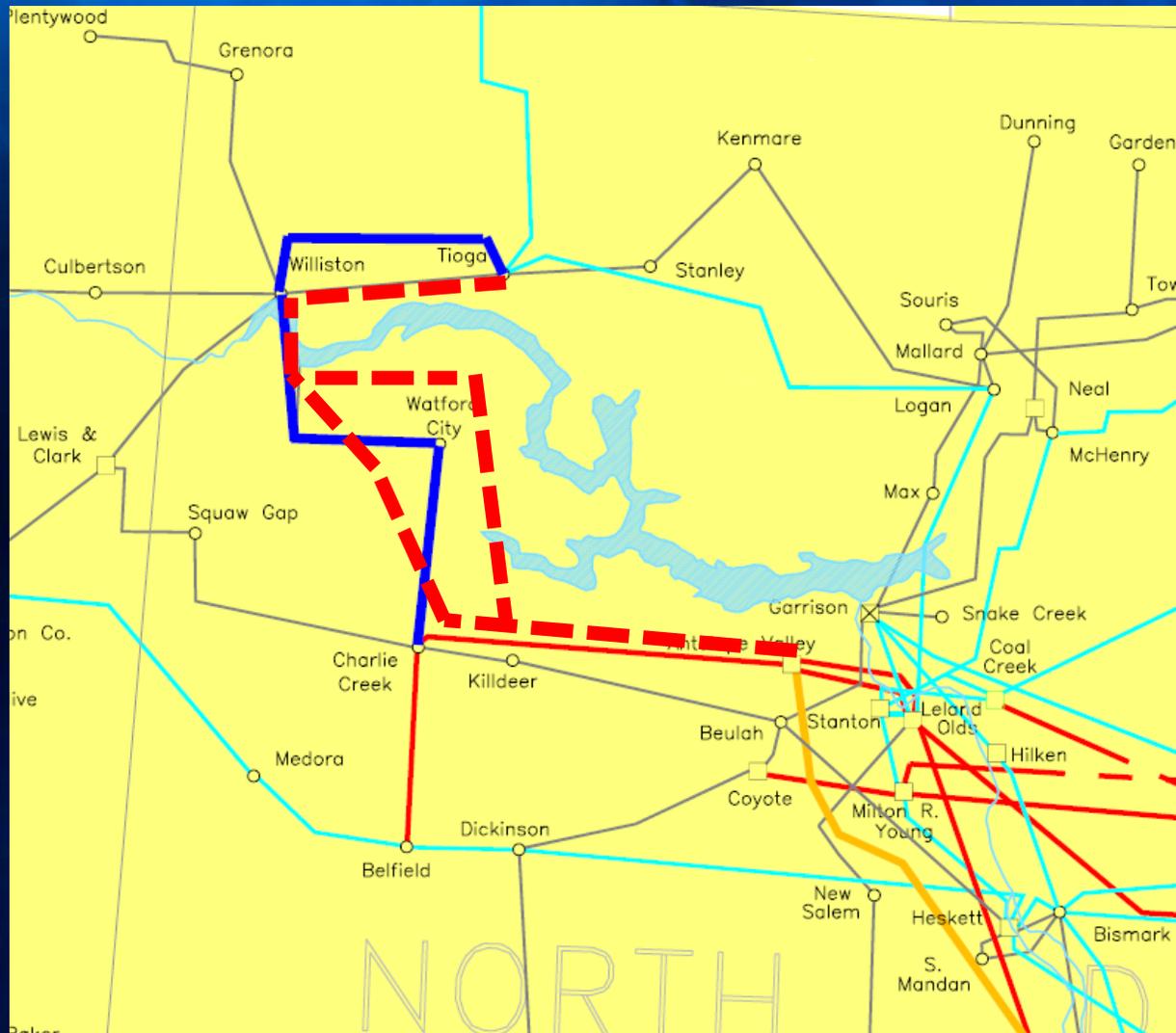
20

20

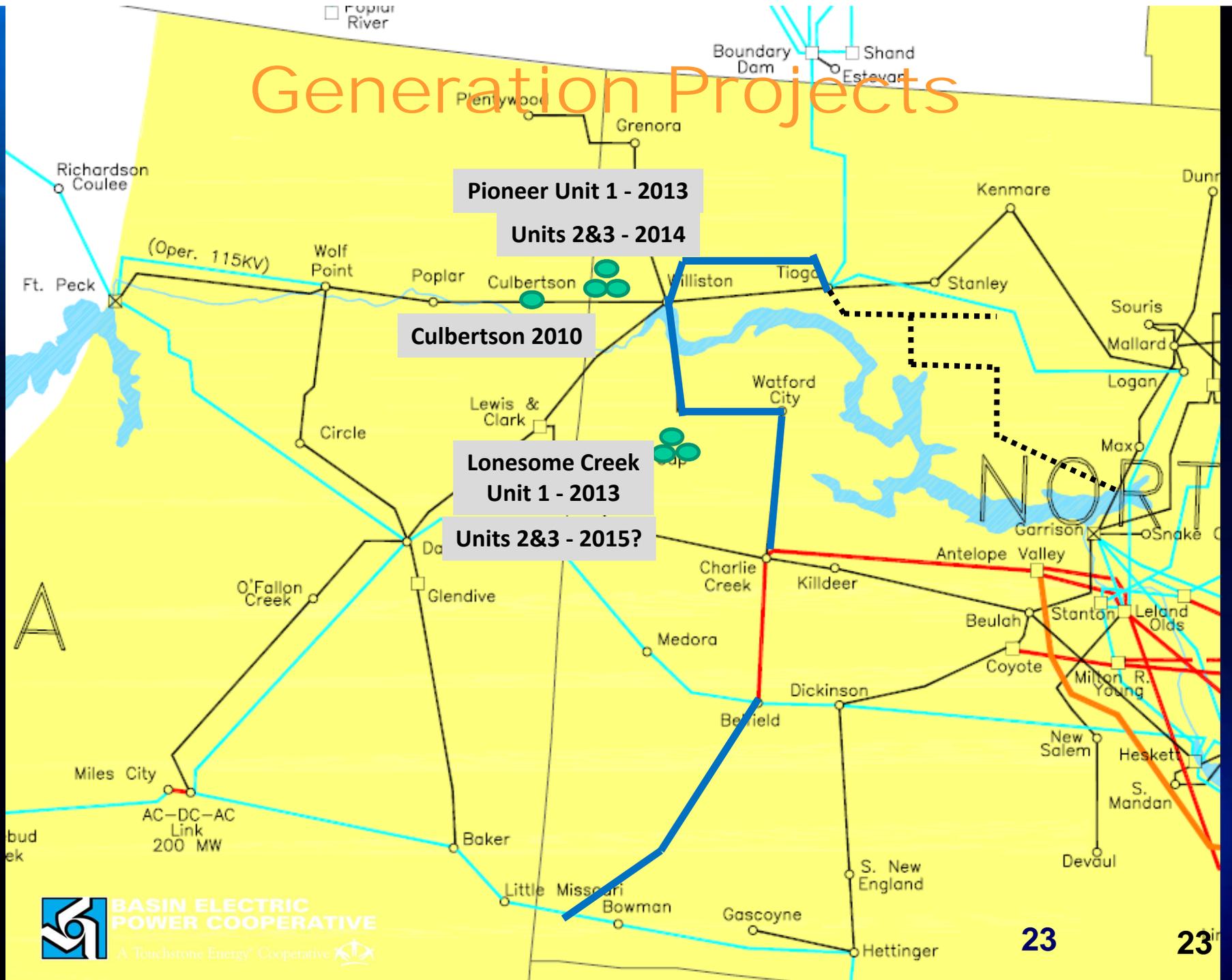
# Considered Projects



# Considered Projects cont.



# Generation Projects



# Pioneer Generation Station

3-45 MEGAWATT GE TURBINES - 135 MW

A wide-angle photograph of a large industrial construction site under an overcast sky. In the foreground, a dirt road with tire tracks leads towards the site. To the right, a chain-link fence runs across the frame, with several large stacks of grey pipes bundled together behind it. In the middle ground, a yellow wheel loader and an orange scissor lift are parked on the dirt. The background features various industrial structures, including a tall, dark cylindrical tower with a platform, a large white cylindrical tank, and several blue and white buildings. The overall scene depicts an active construction site for a power generation facility.

Operational in 2013 and 2014

# Lonesome Creek Station

3-45 MEGAWATT GE TURBINES - 135 MW



Operational in 2013 and 2014

# Pioneer Station

UNIT #3 CONSTRUCTION BEGINNING



Operational in 2014

# Request for Purchase

- **Megawatt Daily – June 21, 2013**
- **Bids were Due July 19, 2013**

## **Basin Electric RFP seeks up to 800 MW**

Basin Electric is seeking proposals for up to 800 MW of baseload, intermediate and peaking resources, in both the eastern and western interconnections, according to a request for proposals issued Friday.

Basin Electric will consider both power purchase agreements and direct power plant ownership, the Bismarck, North Dakota-based wholesale generation and transmission cooperative said. The cooperative intends to compare bids against possible self-build options.



**Questions**