



Empower people  
Improve lives  
Inspire success

NORTH  
**Dakota** Be Legendary.

# NORTH DAKOTA CURRENT STATUS....

## Overview

- **Goal – Carbon Neutral by 2030**
  - Set by Governor in 2020
  - Innovation over Regulation
- **Sources of Carbon**
  - North Dakota is an Energy Exporter!
  - 93% of produced oil is exported
  - 85% of natural gas is exported
  - 50% of electricity is exported



# GOAL SET----- WHAT NEXT?

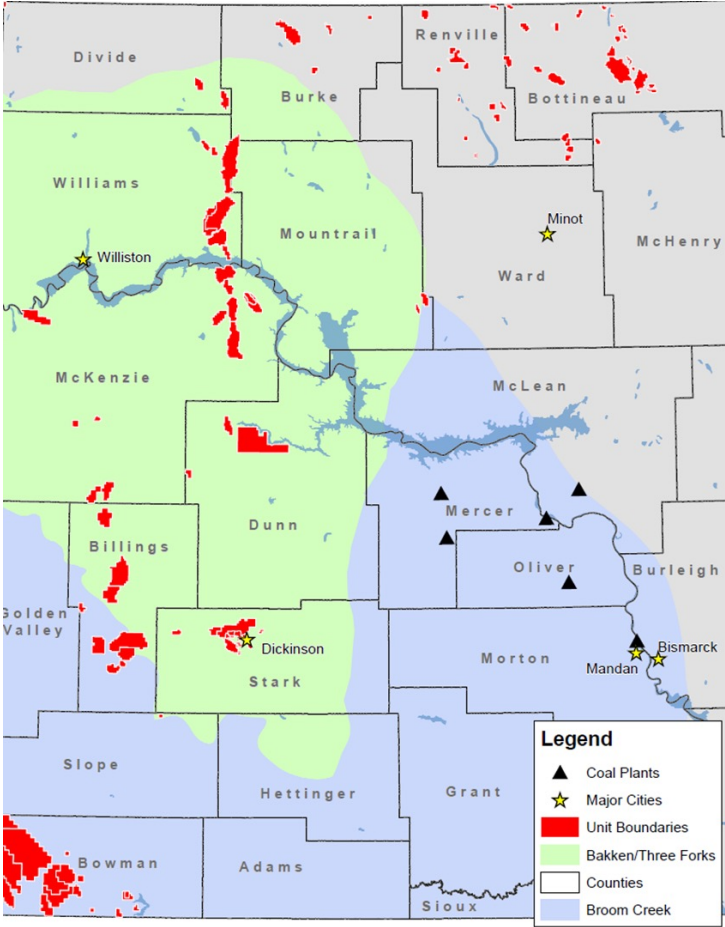
**Carbon Neutrality** “is a state of net zero carbon dioxide emissions. This can be achieved by balancing emissions of carbon dioxide with its removal (often through carbon offsetting) or by eliminating emissions from society (the transition to the “post carbon economy”). The term is used in context of carbon dioxide-releasing processes associated with transportation, energy production, agriculture, and industry.” Wikipedia

- How to reach the goal?
  - Renewable Energy – In 2021 ND produced 35% of megawatt-hours from renewable sources (WIND). The state exported as much electricity as produced!
  - Renewable energy resources will continue production and development throughout the state
  - Carbon Capture
    - Existing fossil fuel plants are actively working on carbon capture and utilization or storage
  - Carbon Utilization
    - Enhanced oil recovery -consider a carbon-negative barrel of oil
- North Dakota is the first to receive Class VI Primacy
  - Carbon sequestration is advantageous in ND due to natural Geology

# CARBON SEQUESTRATION



Source: <https://www.usgs.gov/media/images/co2-sequestration-assessment-interactive-map>



# CARBON SEQUESTRATION CONTINUED

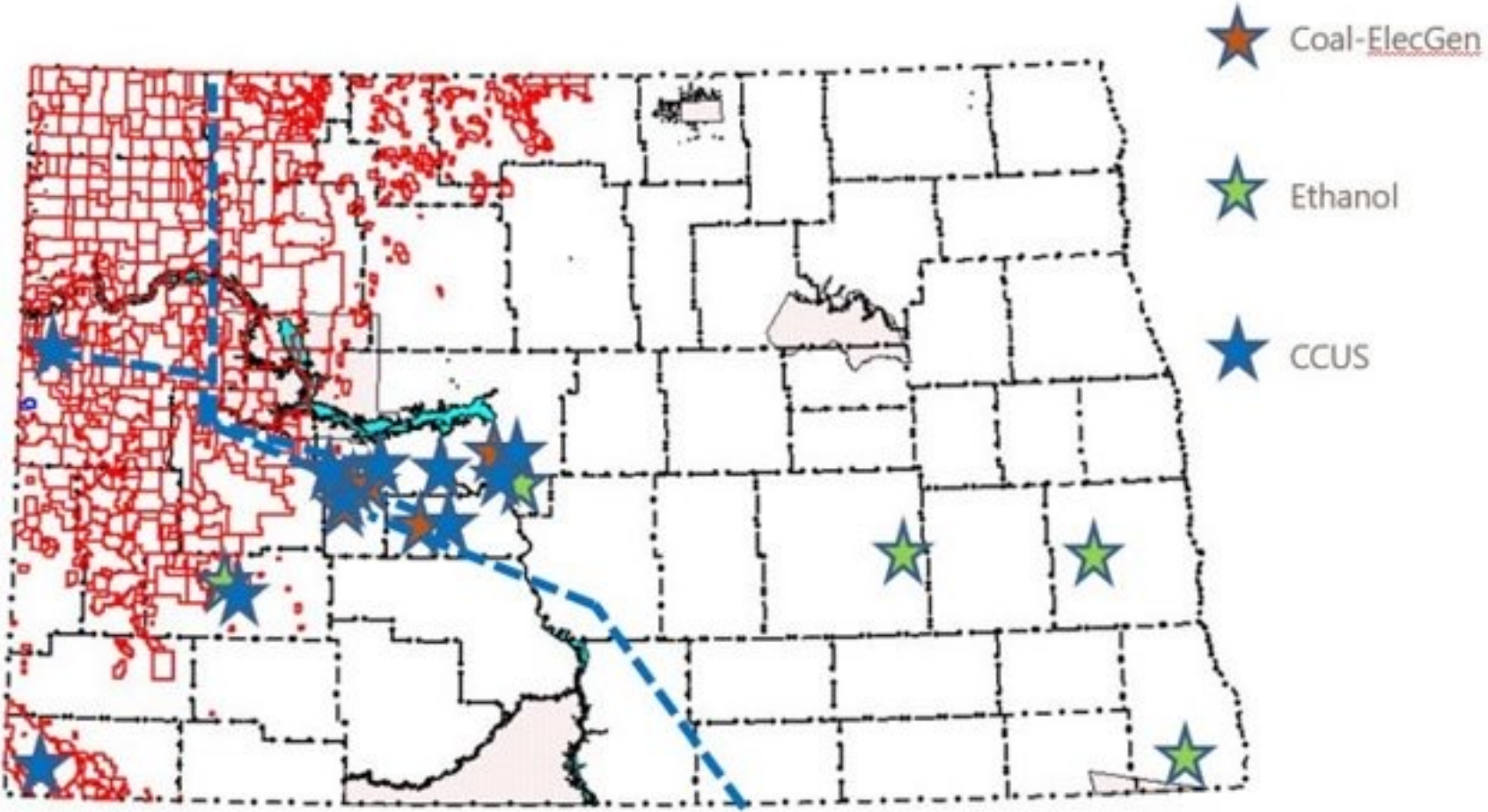
## ND has the potential to store over 100 GIGATONS

Enough for over 1,600 years of the North Dakota's current output.

### TIMELINE

- **2002** - IOGCC Carbon Geologic Storage (CGS) Task Force was established in 2002 to study the potential for Geologic Storage of CO<sub>2</sub> and the role of States.
- **2007** - IOGCC Task Force created a model statute and model rules and regulations for States to adopt for geologic storage of CO<sub>2</sub> regulatory frameworks.
- **2008** - North Dakota formed the ND CO<sub>2</sub> Storage Workgroup
- **2009** - North Dakota legislation – Geologic Storage of Carbon Dioxide, pore space ownership, long-term liability (IOGCC model statute)
- **2010** - North Dakota administrative rulemaking – effective April 1, 2010 (IOGCC model rules) & EPA Class VI Rule – Effective December 10, 2010
- **2013** - North Dakota administrative rulemaking (meeting stringency of federal Class VI Rules) – effective April 1, 2013 & North Dakota submitted its Class VI Primacy application on June 21, 2013
- **2018** - North Dakota's Class VI Primacy application approved by EPA – effective April 24, 2018
- **2021** - North Dakota legislation – Geologic Storage of Carbon Dioxide fees

# CARBON SEQUESTRATION CONTINUED



ND CCUS Landscape + 10 years

# CARBON UTILIZATION AND MORE

## Uses for carbon versus only storage

- Enhanced oil recovery – oil coming out of southwest ND with a carbon negative footprint!
- Various uses in existing industry – food grade CO<sub>2</sub> shortage is a current issue
- Consider carbon as a substitute for cement in concrete
- Greenhouses and reduction in food deserts

## Additionally Direct Air Capture – valued at \$160/ton versus \$85/ton for capture (Currently \$60 for use)

- Multiple studies and projects ready for pilot testing for CO<sub>2</sub> capture and storage from direct air
- Projects must be located at the storage site, eliminating CO<sub>2</sub> transportation

# Innovation



# Regulation

