

# Multiday Iron air Demonstration (MIND)

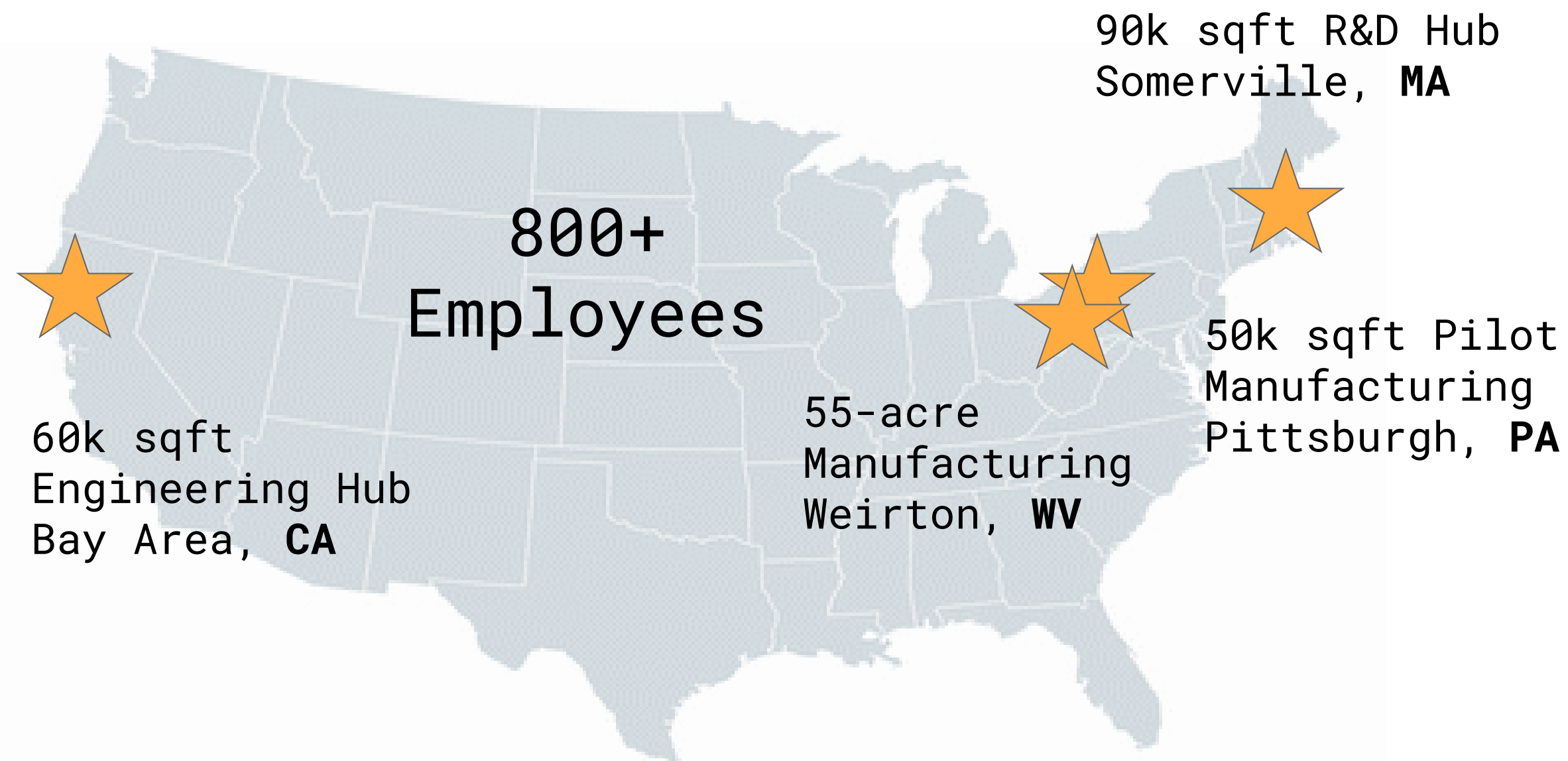
Steven Christensen, Xcel Energy  
Jeffrey Stephens, Xcel Energy  
Scott Burger, Form Energy

24.08.08





# Rising to the grid's challenges with a team that will deliver



## SCALING TO THE MOMENT

- Decades of cumulative experience in energy storage
- 100's of MW of storage deployed
- 56.5 gigawatt-hours of multi-day storage contracted
- Thousands of hours of field testing
- Third-party engineering validation

**OUR INVESTORS:** Long-term and impact focused

**\$900M+** in venture capital from top investors: Breakthrough Energy Ventures (BEV), TPG's Climate Rise Fund, Coatue Management, GIC, NGP Energy Technology Partners III, ArcelorMittal, Temasek, Energy Impact Partners, Prelude Ventures, MIT's The Engine, Capricorn Investment Group, Eni Next, Macquarie Capital, Canada Pension Plan Investment Board, and other long-term, impact oriented investors

**FORM FACTORY 1:** 500 MW/yr in Weirton, WV



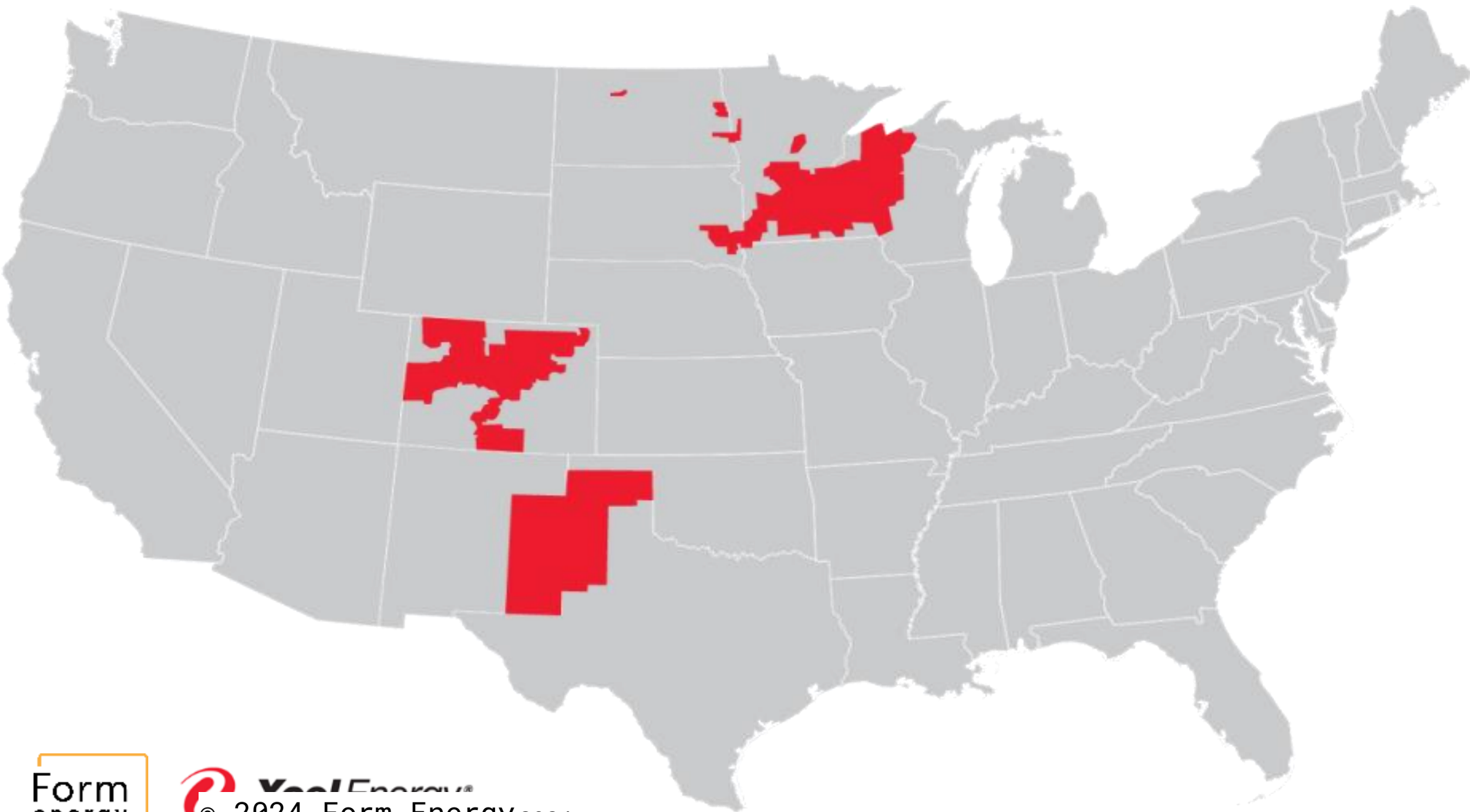


# Xcel Energy Overview

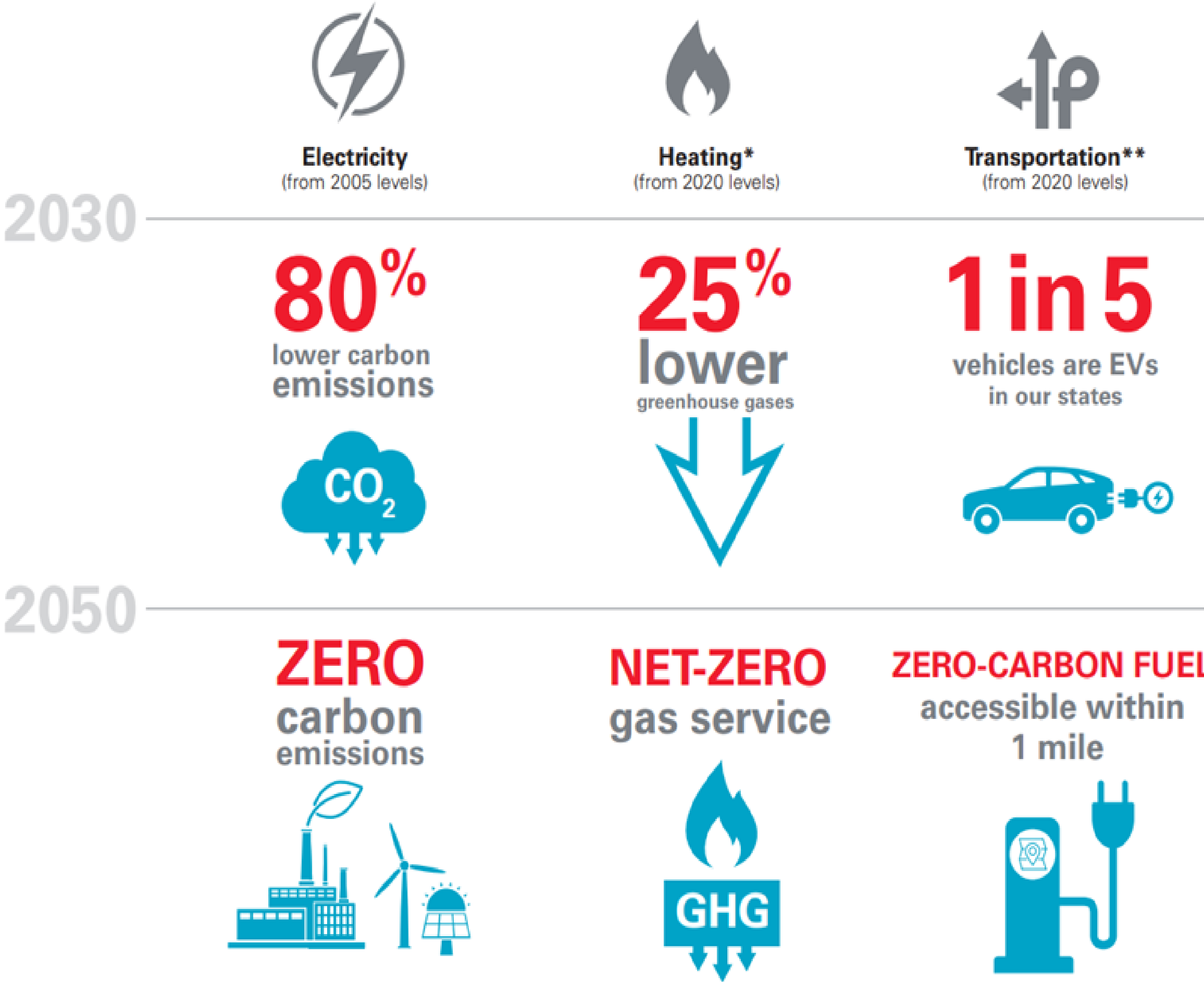
## Fully Regulated and Vertically Integrated Utility

Four Operating Companies      3.8 Million Electric Customers

Eight States      2.1 Million Natural Gas Customers



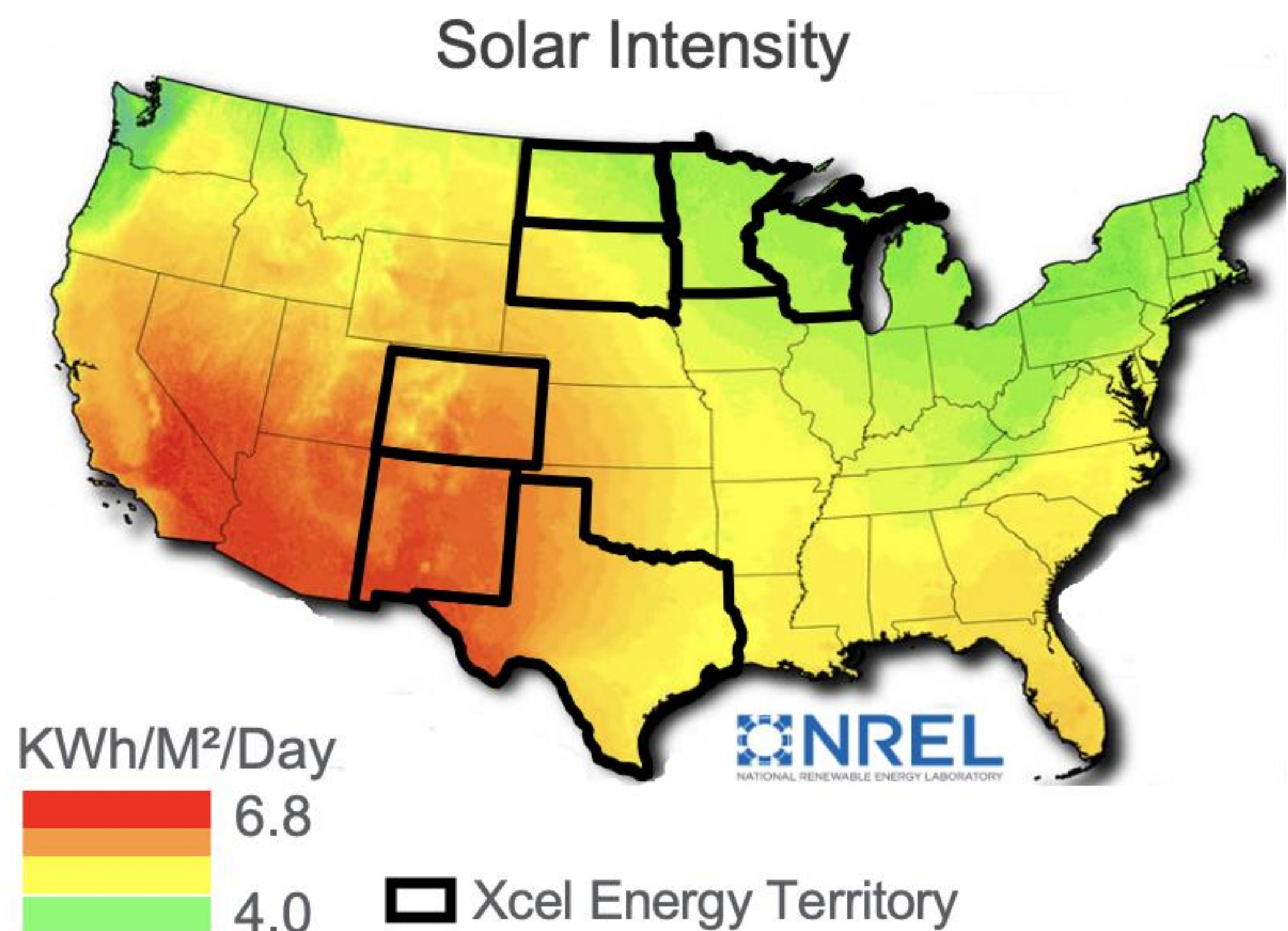
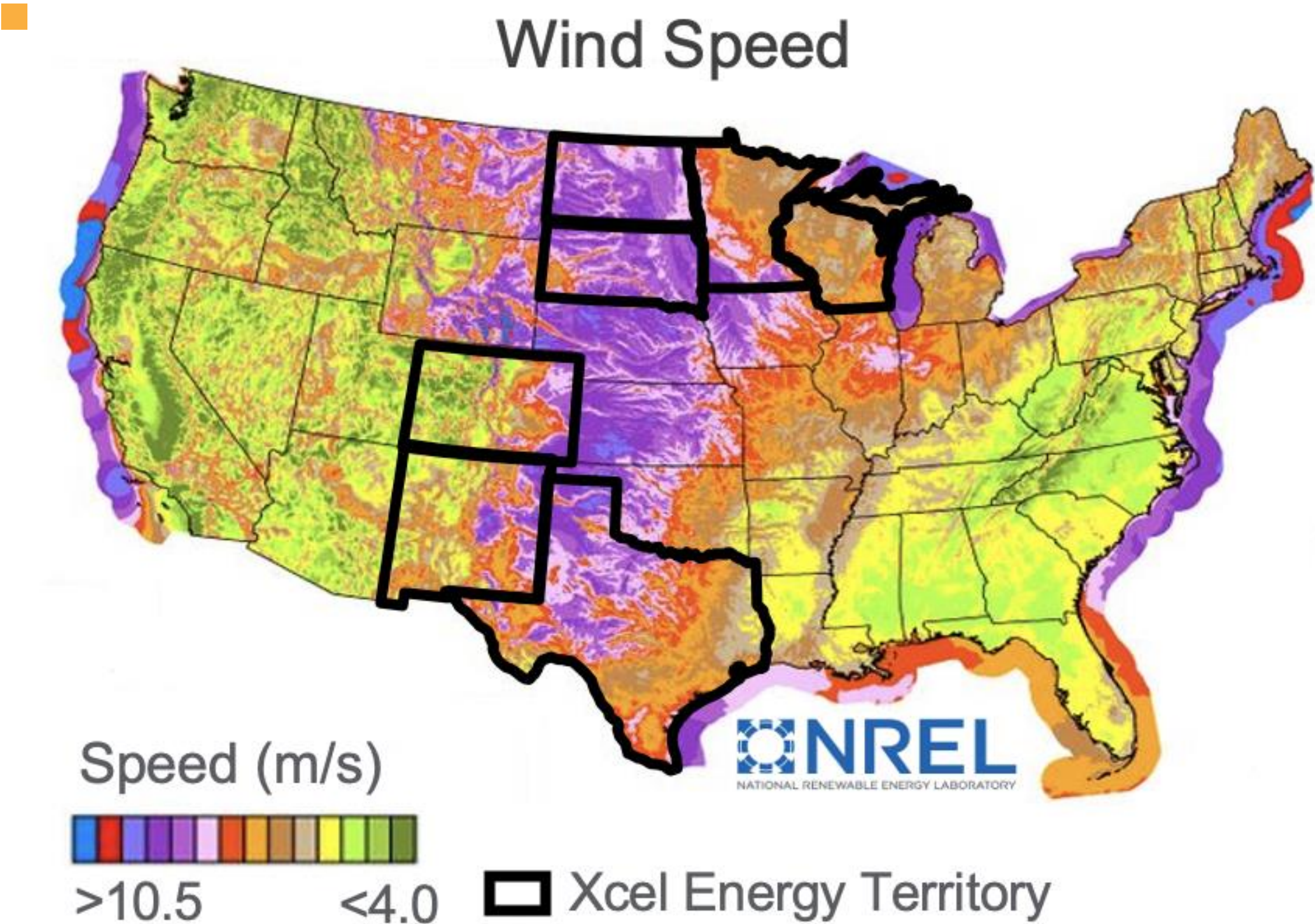
## Comprehensive Sustainability Goals





# Xcel Energy: Geographic Abundance of Renewables

Operating > 11 GW of renewables, +4 – 8 GW by 2030



**Business Case: MDS for Firm generating capacity, renewables integration, reduce curtailment & carbon**



# First multiday storage battery connected to the Bulk Power System



## Project:

- Two **10 MW x 100-hour** batteries at retiring coal plants.
- Connected to **Bulk Power System** (transmission grid)
- Total energy capacity: **2 GWh**

## Team:

- Form Energy, Technology Developer
- Xcel Energy, Regulated/Investor-Owned Utility
- Argonne National Laboratory, Technology Liftoff

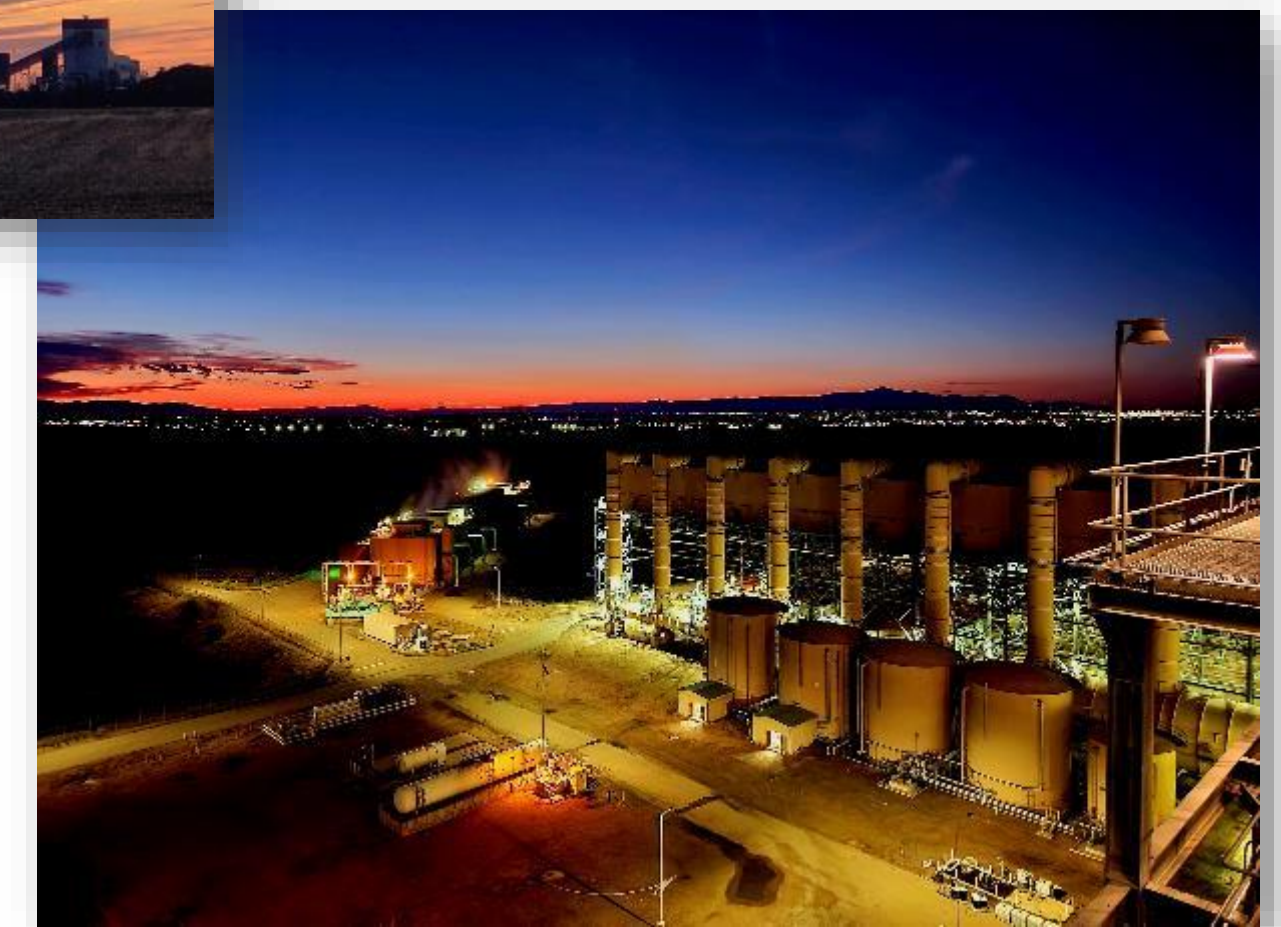
## Grant Award Commitment Partners

- DOE, OCED, up to \$70M
- Breakthrough Energy, up to \$10M

## Renewable energy & storage at transitioning coal plants



Sherburne County  
Generating Station,  
“Sherco” (Becker, MN)

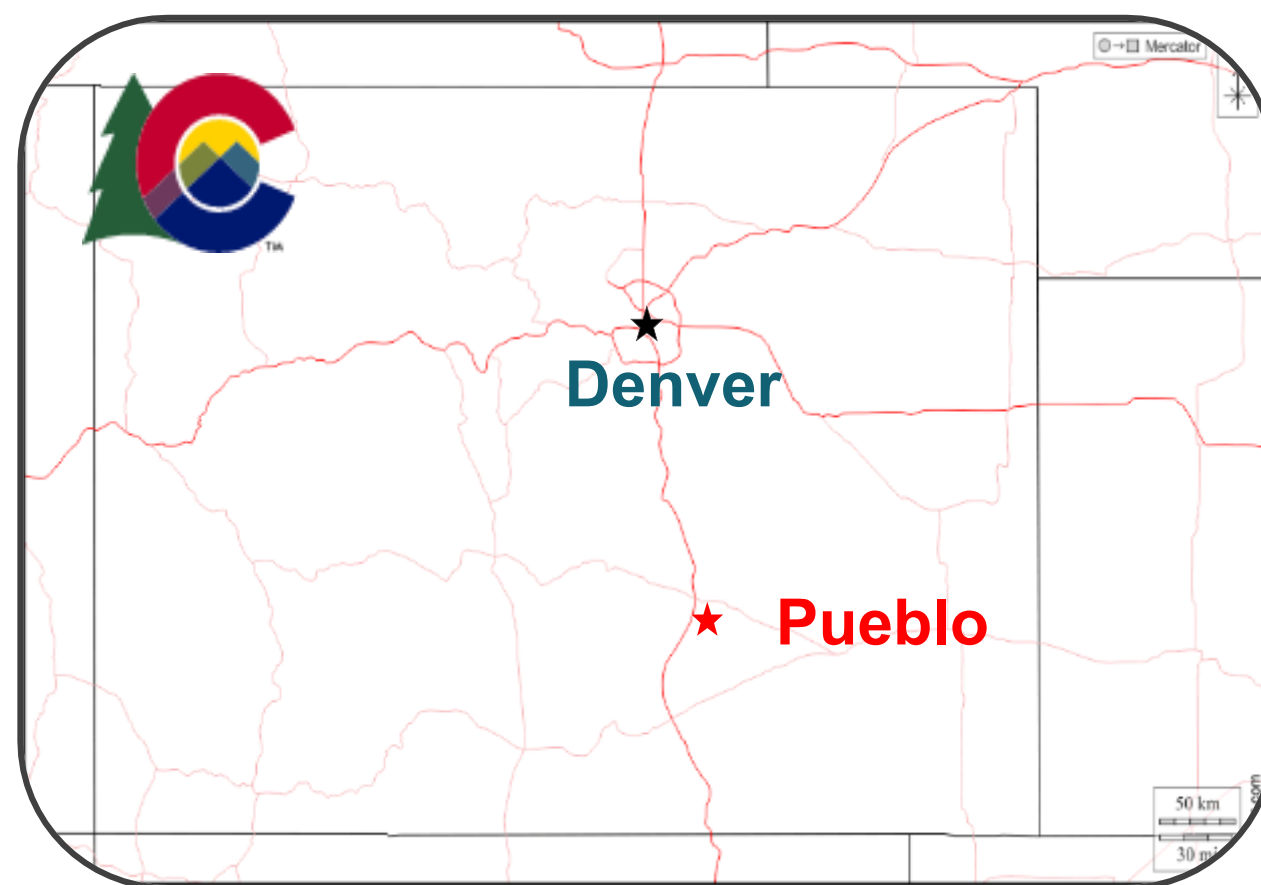


Comanche Generating  
Station (Pueblo, CO)

# Community Project Locations

## ■ Pueblo, Colorado

- Population: 111,000
- Comanche 1100 MW coal generation plant retires 2030
- +5000 MW of wind & solar by 2030
- Designated as a DAC
- Pueblo Generation Study & Advisory Group



## ■ Becker, Minnesota

- Population: 5,000
- Sherco 2200 MW coal generation plant retires 2030
- +2800 MW of wind & solar by 2030
- Master Plan – framework & vision for future economic development in Becker

