NASEO
National Association of State Energy Officials

# NASEO's 2026 State Transmission Summit

## *Powering Progress: State Leadership and the Future of America's Grid*

Day 2: March 25, 2026

# Welcome and Day 2 Overview

## Kirsten Verclas

- Senior Managing Director, Electricity, National Association of State Energy Officials

# Day 1: Wednesday, March 25, 2026

| | |
|---|---|
| 9:00 – 10:00 a.m. | **Innovative Approaches to Siting and Permitting** |
| 10:00 – 10:15 a.m. | **Overview of Federal Financing Opportunities for Transmission** |
| 10:15 – 11:15 a.m. | **Interactive Deep Dives** |
| 11:15 – 11:30 a.m. | **Break** |
| 11:30 – 12:30 p.m. | **Interactive Deep Dives** |

# Concurrent Breakout Sessions: Interactive Deep Dives

## 10:15 – 11:15 a.m.

### Breakout 1: The Role of Independent Transmission Monitors

*This session will explore longstanding concerns that local transmission asset-condition projects often proceed with limited comparative review, while larger, regional and interregional projects often proceed with heightened scrutiny. Discussants will examine emerging state-led approaches to improve transparency, the role of regional entities, and how Congress is engaging on this issue.*

### Breakout 2: The Role of Transmission for Resource Adequacy

*This session will explore the implications of electric transmission for resource adequacy, including approaches to valuation of transmission lines in regional and interregional planning and aligning resource and transmission planning.*

# Concurrent Breakout Sessions: Interactive Deep Dives

## 11:30 – 12:30 p.m.

### Breakout 1: Transmission Planning Tools

*This session will explore several tools that have been developed to assist in planning for transmission. Experts will be providing an overview of two distinct analytical tools: the U.S. Transmission System Utilization Study and the Reconductoring Economic and Financial Analysis Tool.*

### Breakout 2: The Role of State Transmission Authorities

*State transmission authorities are emerging as key players in advancing critical grid infrastructure. This session will explore how these entities are structured, the goals they are designed to achieve, and the unique role they play in accelerating transmission development. Speakers will share insights on progress to date, highlight lessons learned, and discuss how state-led approaches are shaping the future of energy planning and deployment.*

# Day 1: Wednesday, March 25, 2026

| | |
|---|---|
| 12:30 – 1:30 p.m. | **Networking Lunch** |
| 1:30 – 1:45 p.m. | **NASEO Grid Optimization Task Force Introduction** |
| 1:45 – 2:45 p.m. | **Grid Optimization: The Path to Policy** |
| 2:45 – 3:00 p.m. | **Break** |
| 3:00 – 4:00 p.m. | **Grid Optimization: The Path to Implementation** |
| 4:00 – 4:55 p.m. | **State Leaders Roundtable** |

# Innovative Approaches to Siting and Permitting

Brandi Frazier Bestpitch

- Director of Reliability, Virginia Department of Energy

Matt Prorok

- Policy Director, Great Plains Institute

Allie Kelly

- Executive Director, The Ray

Jay Caspary

- Principal, TransGrid Advisors, LLC


# Innovative Approaches to Siting & Permitting

## NASEO Transmission Summit

Matt Prorok, Policy Director

March 26, 2026


# Energy Needs Are Growing

- AI / data centers
- Advanced manufacturing
- Electrification
  - Transportation
  - Building/home heating

Climate change and extreme weather require a more resilient power system

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Our Grid Future
ourgridfuture.org
Our Grid Future Electric transmission planning in the United States
Planned Transmission Projects
ISOs & RTOs
Transmission Regions
US BLM Lands
States & Counties
Planned transmission by voltage: < 230 kV ≥ 230 kV ≥ 345 kV ≥ 500 kV ≥ 765 kV
Basemap
WestTEC 10-Yr Plan
Electric Transmission
Electric Substations
Electric Utilities
Electric Generation
Natural Lands
Communities
Other Infrastructure
Created by Horizon Energy Systems, 2025

## Maine transmission line is stalled despite court victories

Legal fights and permitting problems have delayed a project that is supposed to help New England lower its emissions. It might mark a national trend.


## Law will help wealthy Louisiana landowner in dispute with power line builder


DEPT. OF ENERGY

## THE HOLDOUTS IN THE QUEST FOR A BETTER POWER GRID

*Farmers in Missouri are opposing the Grain Belt Express, a transmission line that will connect wind farms in Kansas with cities in the East.*

## Legal Challenges Continue for SunZia Transmission Line

Southern Arizona tribes and San Pedro Valley residents continue their legal challenges to halt construction of the largest renewable energy project in U.S. history.

## An Epic Battle Over 1 Mile of Land in Wisconsin Is Tearing Environmentalists Apart

*Conservationists and green energy developers square off, with big consequences for the climate.*


## Montana transmission lines draw opposition from all sides

## Battle Lines: Fighting the Power

## Landowners Concerned About LCRA's Hill Country CREZ Lines

## Eastern Oregon residents oppose energy transmission line project: 'Absolute disaster for ecosystem'

The Boardman-to-Hemingway line could move enough clean electricity to power 150,000 homes, but opponents say the environmental tradeoffs aren't worth it.


## Need a power line? That'll be $3B and 18 years.

By ARIANNA SKIBELL | 06/21/2023 05:59 PM EDT

## Conservation groups sue to stop a transmission line from crossing a Mississippi River refuge

102-mile line linking WI, IA projected to cost more than half a billion dollars

Associated Press


## Environmentalists continue fight against planned power line crossing the Mississippi River

Power companies say the transmission project would improve reliability and hook more clean energy to the electricity grid.

## Now You Know: Our push to stop new high-voltage electric lines

Ryan Nawrocki and Kathy Szeliga Mar 19, 2025 0

## High Voltage, Higher Stakes: Residents Protest Dominion Energy's Power Expansion

*Residents of the Loudoun Valley community fight against Dominion Energy's proposal to build power lines on the campuses of Rosa Lee Carter and Rock Ridge High School.*

## A New York power line divided environmentalists. Here's what it says about the larger climate fight.

States waited too long to decarbonize, and now they have to make tough choices.


NORTH DAKOTA | *Brief*

## Landowners, local governments lose power struggle over power lines

## Tribes, environmental groups ask US court to block $10B energy transmission project in Arizona

## Concerns grow over proposed power lines

By Betty Williamson and Ron Warnick Eastern New Mexico News Feb 21, 2025

## A Power Line Debate Pits Environmental Allies Against Each Other in the Upper Midwest

The transmission line project on the Iowa-Wisconsin border has been halted by the latest in a series of legal challenges.



## Residents, Parents Protest Transmission Lines on School Grounds

## State appeals court tosses proposal for new transmission line in central Illinois

Advocates say the controversial project is necessary to meet renewable energy needs

## Angry Carroll County residents plan to fight proposed transmission line project

## Stop R-Project powerline from traversing Sandhills

News | Feb 16, 2024


## Maine Gov. Mills, 2 Environmental Groups Back Controversial $1 Billion Transmission Project

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# Lessons Along the Road to Transmission Deployment


Figure 1. Geographic scope of GPI's grassroots research

- In-person interviewee
- Virtual interviewee
- Prior in-person research
- Transmission projects studied

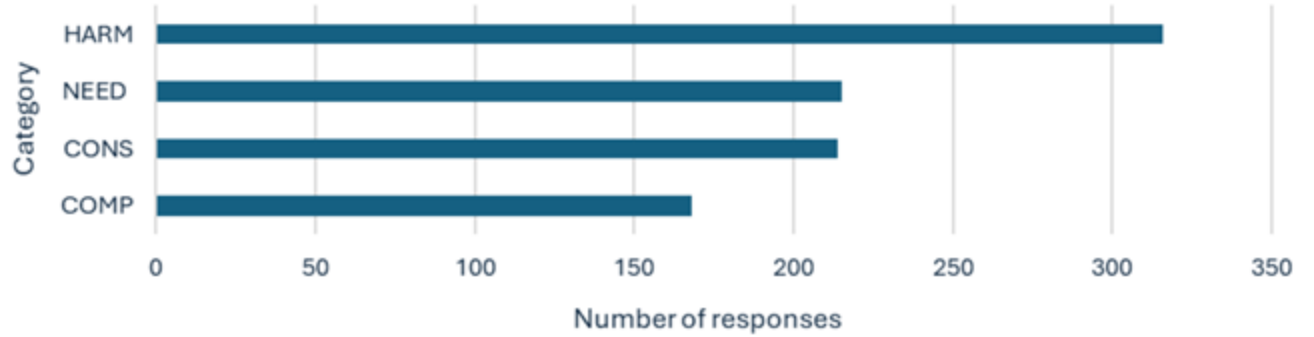
Note: Multi-color regions on the map represent transmission planning regions.

Sources: Figure by Aime Bita, Great Plains Institute, and Esther Ramsay, Horizon Climate Group, based on data from Joshua Rogers, Great Plains Institute, and transmission planning regions by Elizabeth Abramson, Horizon Climate Group, and Aparna Narang, Clean Grid Initiative, 2025, adapted from Federal Energy Regulatory Commission (FERC) Order 1000 Regions shapefile, December 2024.

- 150 Interviews
- 5 public meetings
- 6 months on the road
- 13 states in-person
- 15 HVTLs
- 37 distinct drivers
- 910 responses

# How to understand opposition

Figure 2. Opposition framework: Interview responses




1. How will this negatively impact my life?
2. Why is this project even needed?
3. How will I be consulted on this project?
4. How will I be compensated for any potential harms caused by this project?

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# How do we build support?

- **Report addresses 15 categories including**

- Agricultural concerns
- Environmental concerns
- Property values
- Cultural concerns
- Early & Often Engagement
- Renewable energy
- Transmission Alternatives
- EMFs
- Micro-Siting
- Eminent Domain
- Collective action
- Local tax revenues
- Monetary incentives

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Planned transmission by voltage: < 230 kV ≥ 230 kV ≥ 345 kV ≥ 500 kV ≥ 765 kV
Basemap
WestTEC 10-Yr Plan
Electric Transmission
Electric Substations
Electric Utilities
Electric Generation
Natural Lands
Communities
Other Infrastructure
Created by Horizon Energy Systems, 2025

# The Co-Location Opportunity

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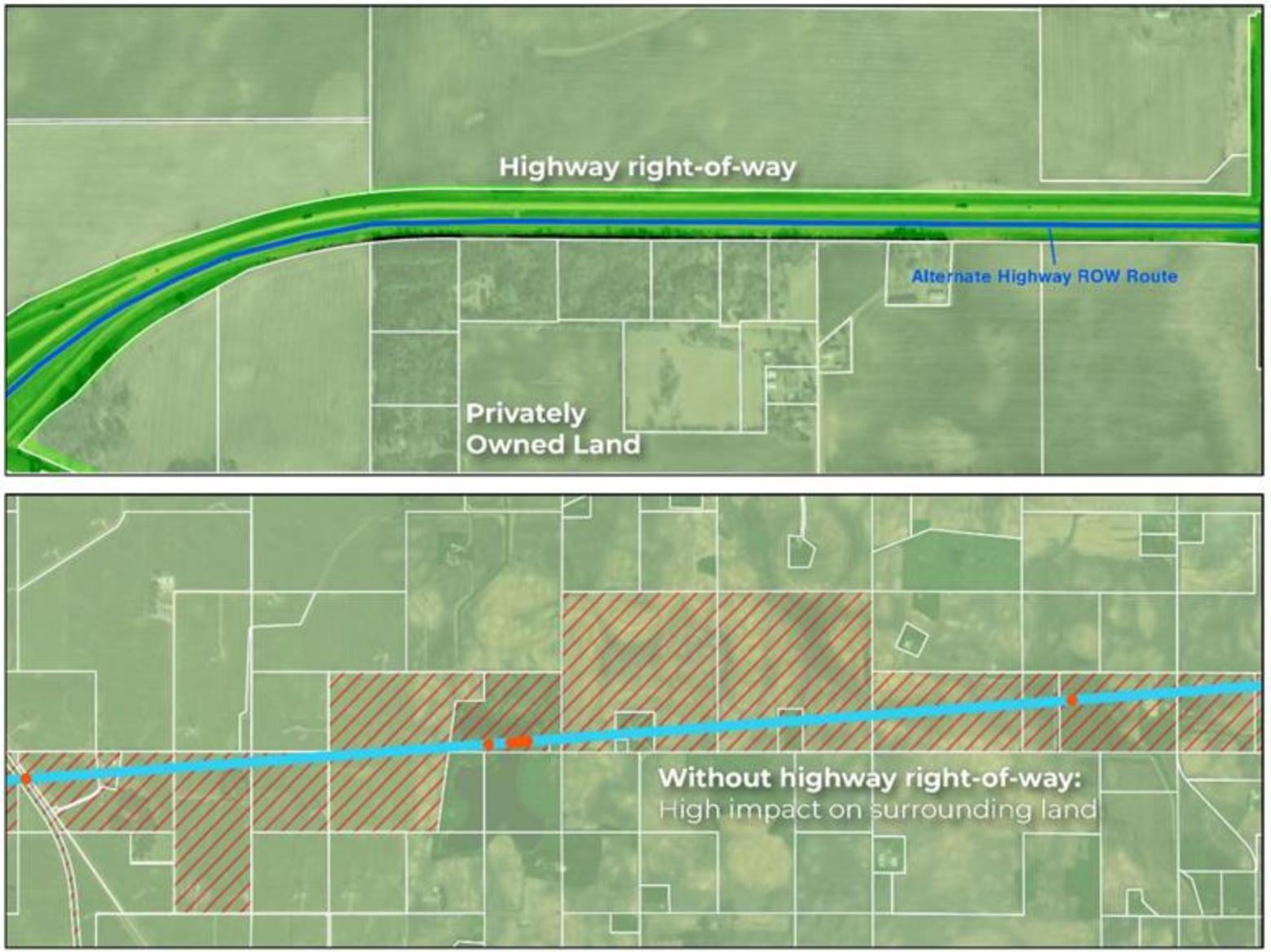
## I-90 Highway ROW Alternate Route

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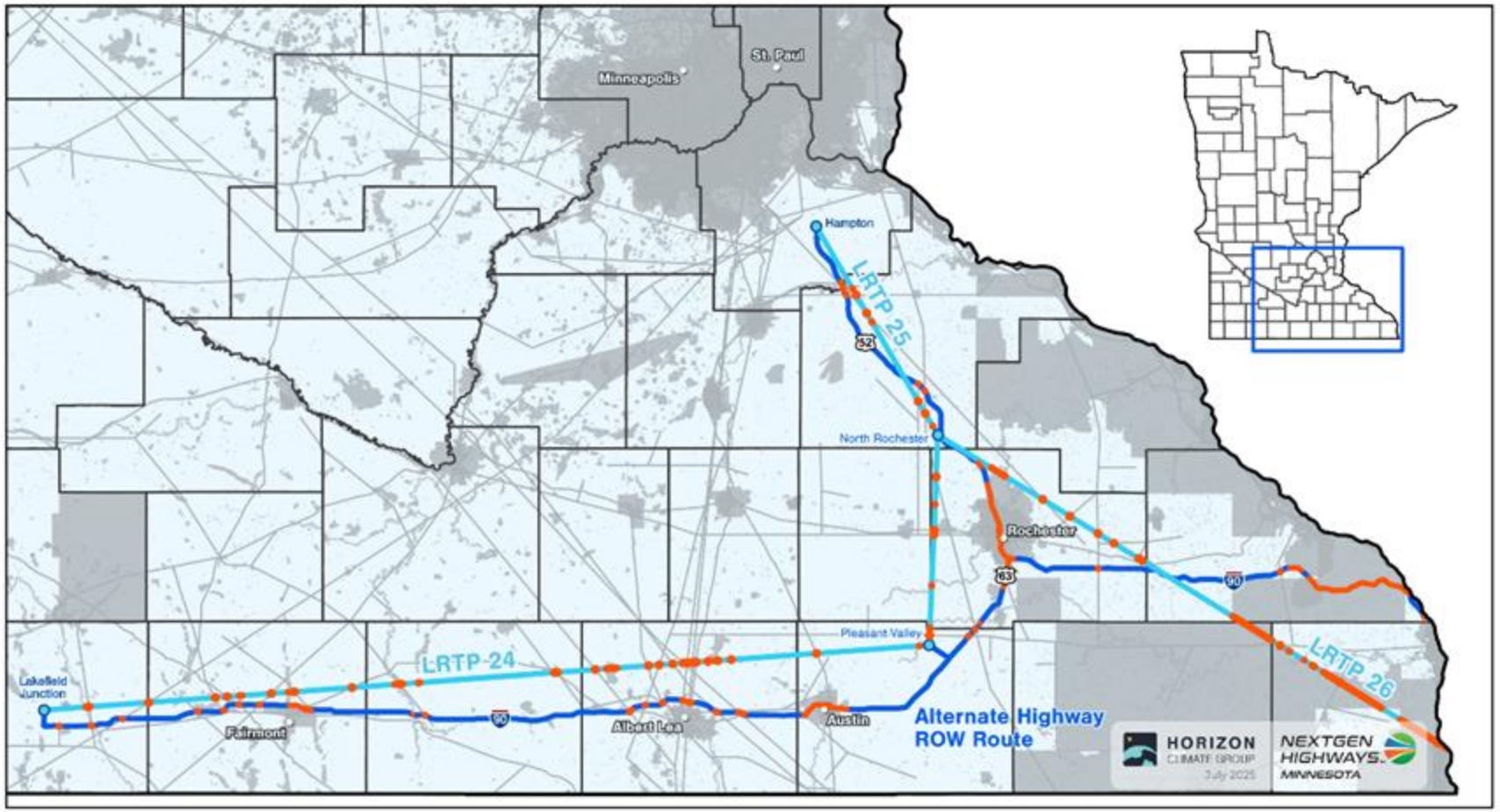


## Planned MISO LRTP Transmission Projects vs. Alternate Highway ROW Route

This map displays common physical barriers that transmission projects would need to route around, including: crude oil pipelines, hydrocarbon gas liquids pipeline, natural gas pipelines, petroleum product pipelines, railroads, critical wildlife habitats, hydrological features, urban areas, disadvantaged communities, tribal lands, registered historic places, US federal land, and national or state parks.

| Private land and barrier crossings by route: | LRTP Straight-Line Planning | Alternate Highway ROW Route |
|---|---|---|
| Private land parcels | 1,397 | 22 |
| Physical barriers | 85 | 59 |

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# Barriers to Co-Locating Transmission

- 40+ state DOTs prohibit or restrict co-location in interstate highways
- Utilities/transmission providers do not consider highway ROW for transmission siting
- Utilities and state DOTs typically do not proactively collaborate
- Culture issues, rooted in experience

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# National Coalition Members

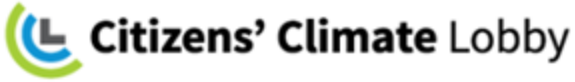



American Clean
Power Association


















The Nature
Conservancy



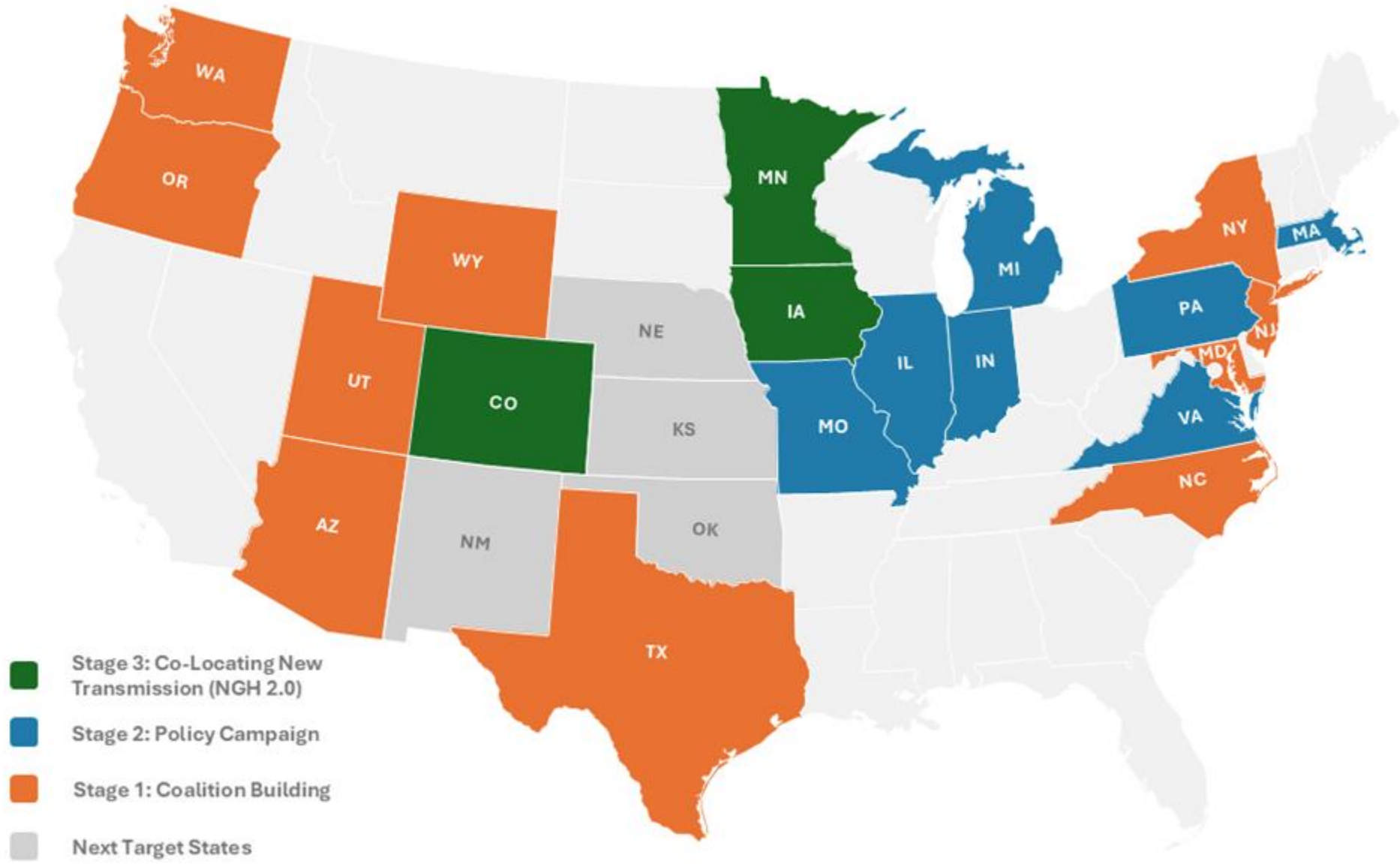




Solar Energy
Industries Association




# Where Else Are We Working?



# Role of State Energy Offices

- Champion co-location as an option for common sense siting
- Engage and convene discussions within state government
  - Governor's office, state DOT, PUC
  - Policy makers
- Engage with other stakeholders on the barriers and opportunities for co-location
  - Utility, transportation, RTO, clean energy and other stakeholders
- Leverage NASEO/NGH right-of-way policy paper, states' activities to address transmission co-location, and Wisconsin's success

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# THANK YOU

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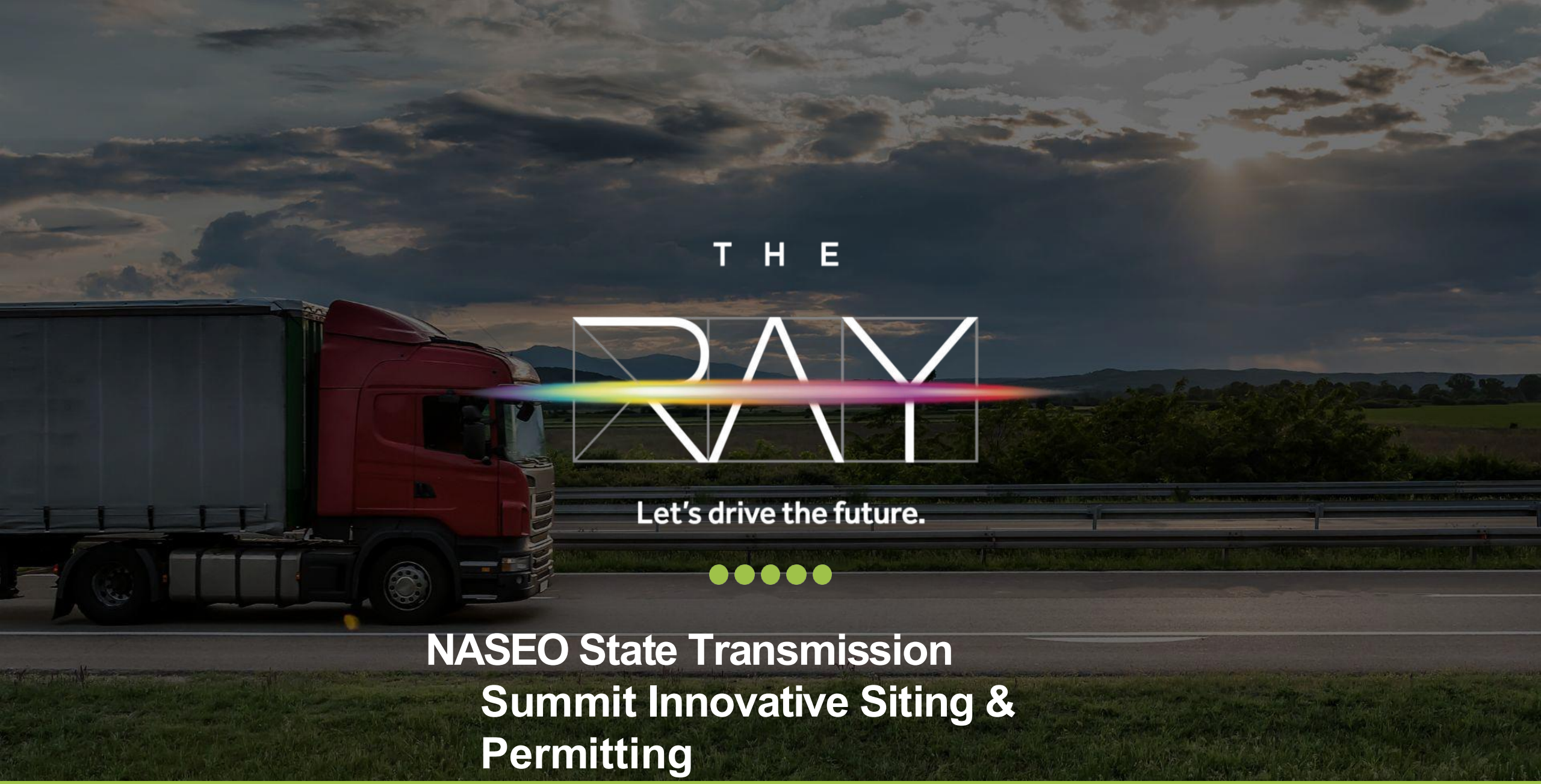
**Matt Prorok**

mprorok@gpisd.net




# NASEO State Transmission Summit Innovative Siting & Permitting

# ROW COLOCATION

**NLSTR Rights-of-Way Energy Resources (ROWER) Project**

- Solar suitability analysis for all ROW of National Highway System (April 2026)

**National Academies / Joint Office of Energy & Transportation**

National Convening, "Reinventing the Right-of-Way" (April 2025)

TRB Workshop, "Siting Energy Infrastructure in Corridors" (January 2026)

**National Governors Association**

Transmission Summit (October 2025)

Transmission & Linear Infrastructure in ROW Roundtable (November 2025)

**PNNL / Volpe Center (USDOT)**

"Electric Transmission in Transportation ROW" study (under review)

**USDOT "America's Great Corridors of Commerce" announcement**

# ROW COLOCATION

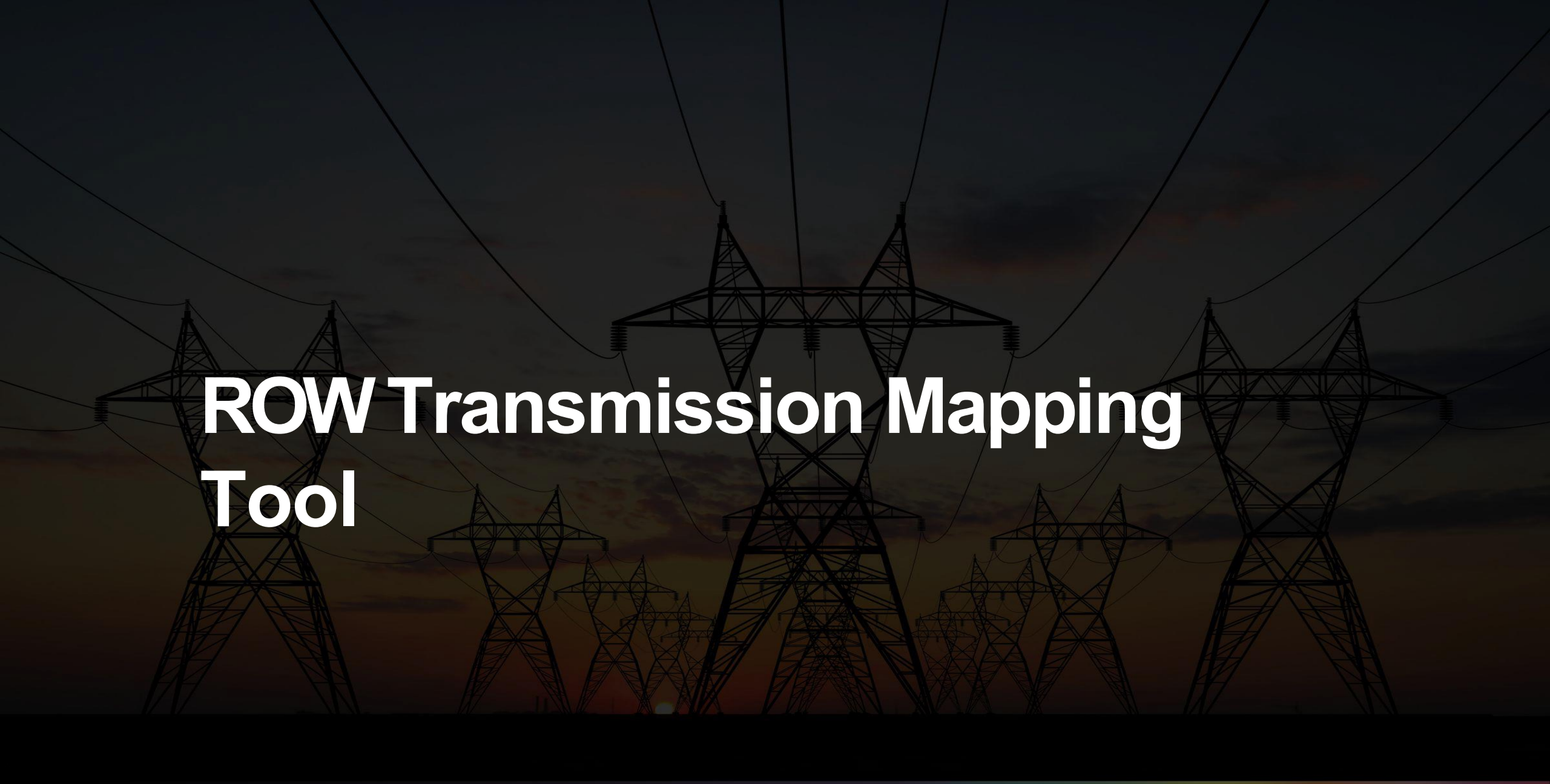
**ROW Transmission Tribe**

AASHTO Moonshot on ROW Transmission - Minnesota & Missouri DOTs

**ROW Solar**

AASHTO Moonshot on ROW Solar - Michigan & Missouri DOTs

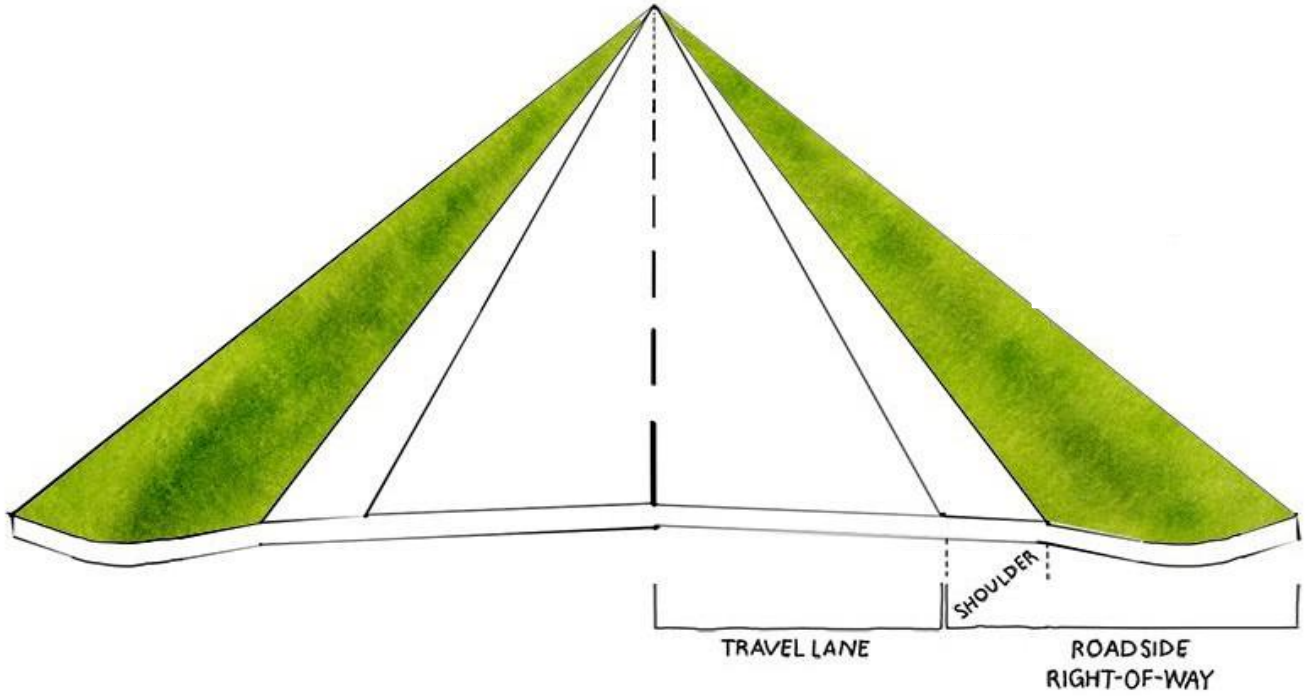
| | |
|---|---|
| 2020-2025 | Georgia DOT (The Ray Highway) |
| | Maine DOT (Augusta) |
| | Central Florida Expressway (Orlando) |
| | Pennsylvania Turnpike |
| | Maryland DOT (statewide) |



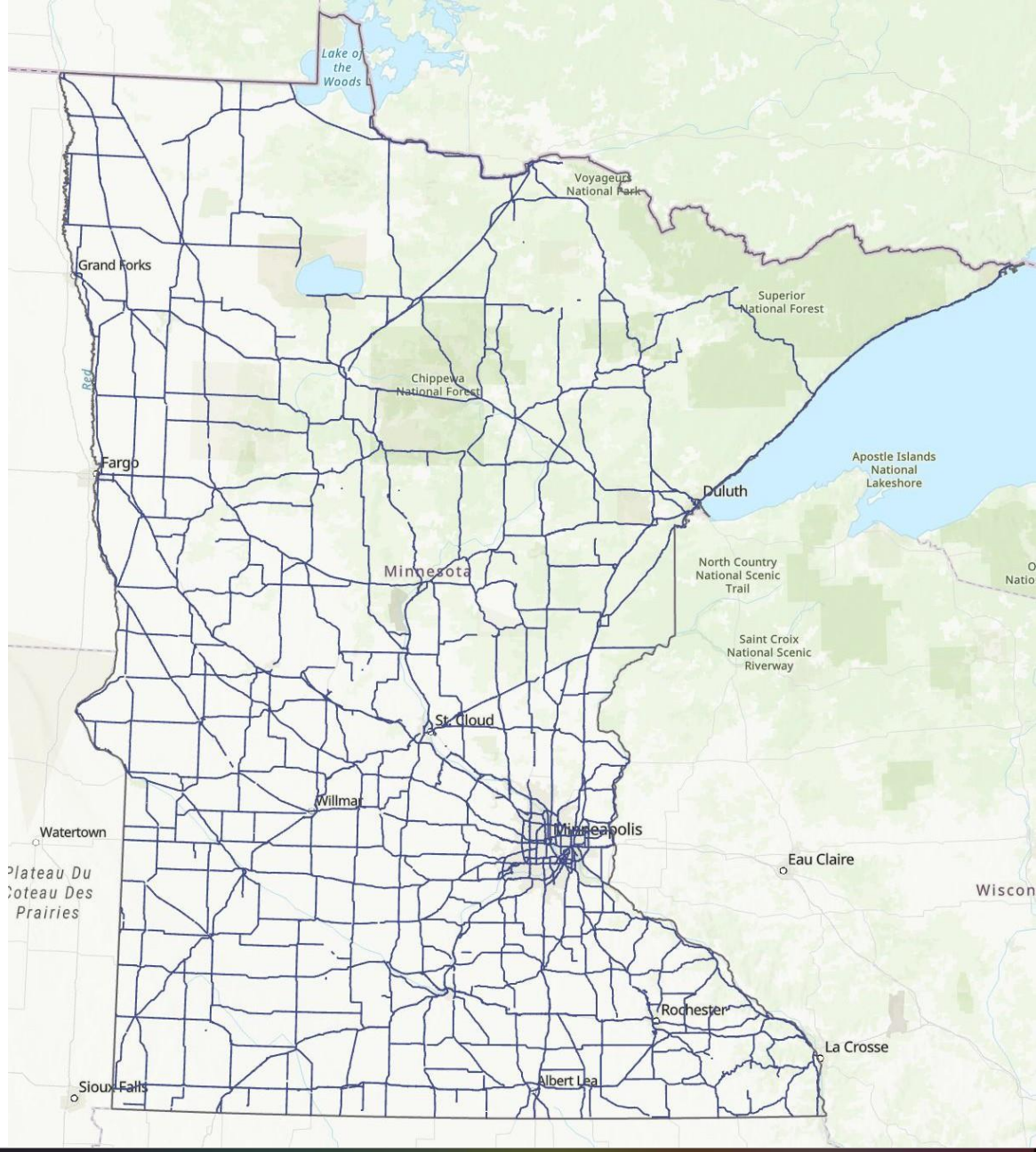
# ROW Transmission Mapping Tool

# RIGHT-OF-WAY (ROW)

Land, property, or interest acquired for or devoted to transportation infrastructure

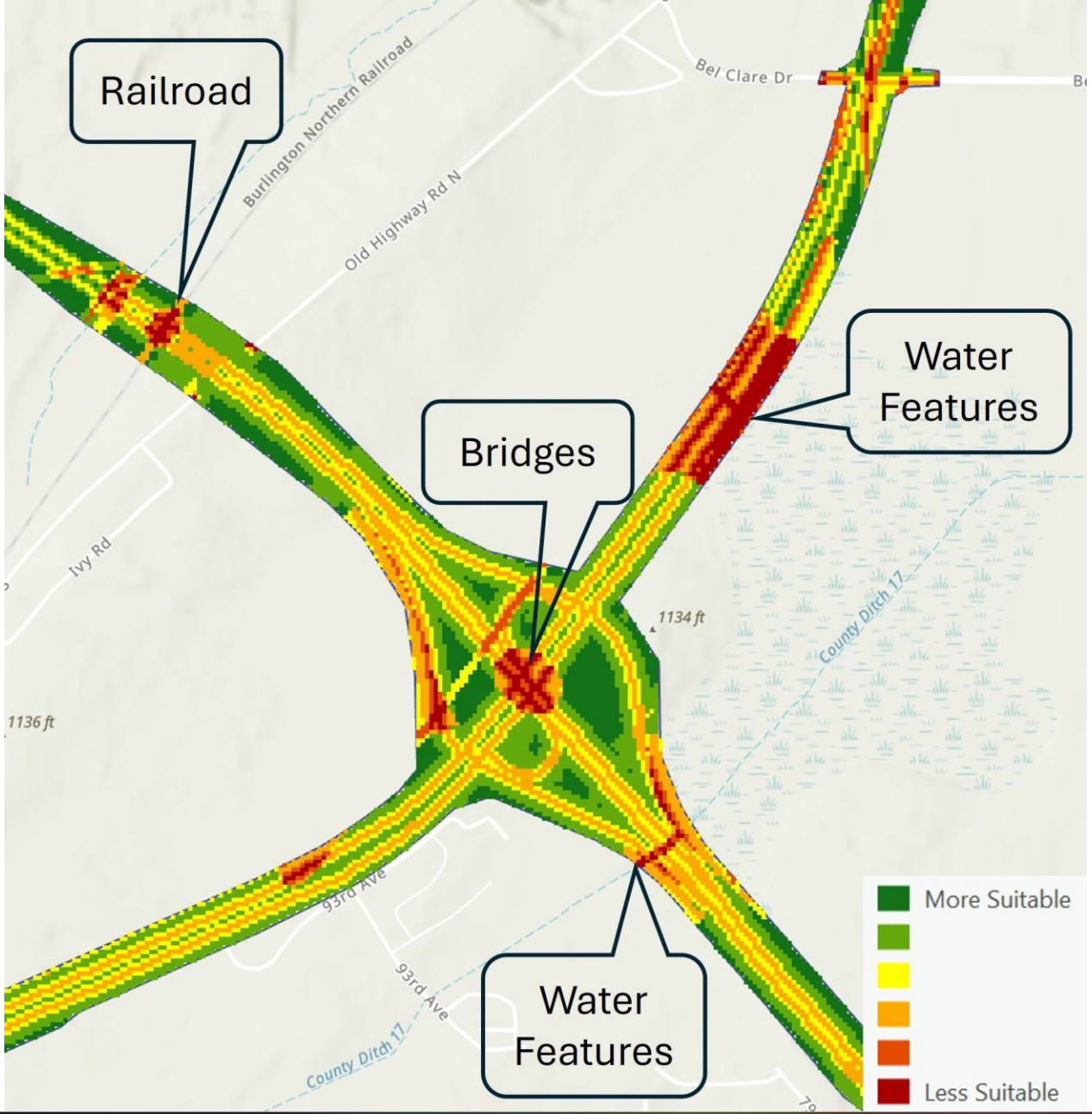



# MNDOT UNDERGROUND TRANSMISSION ANALYSIS

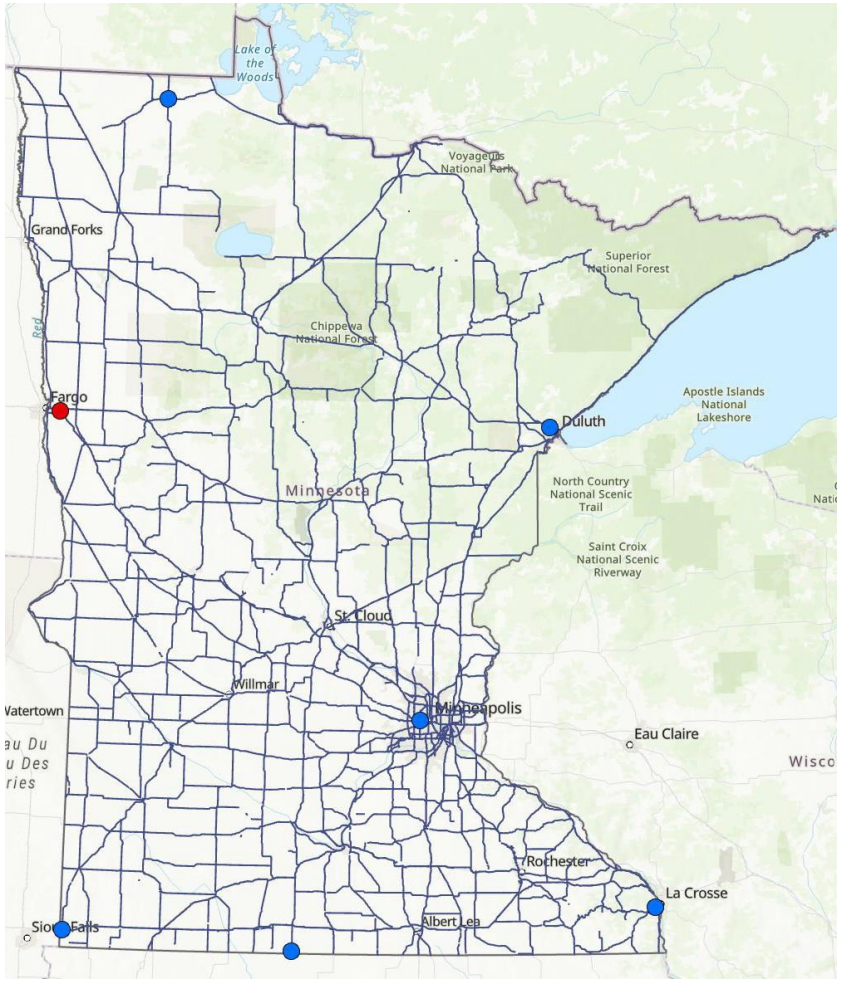


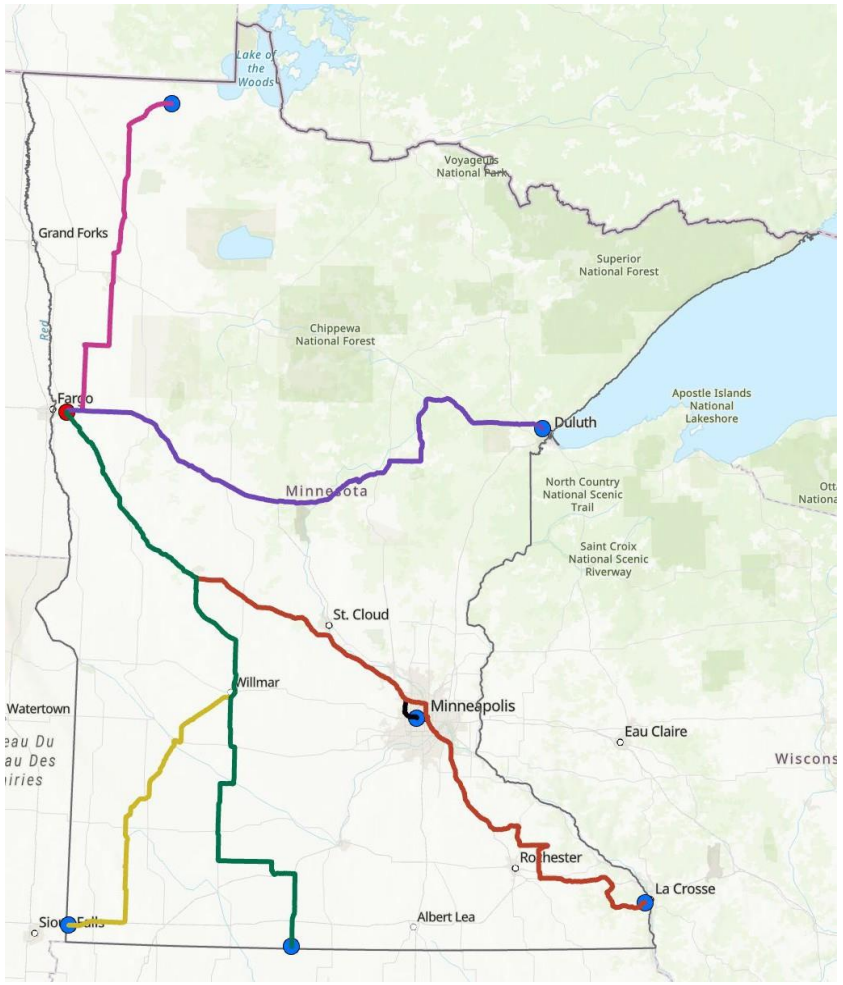
# SUITABLE AREAS

- Bedrock
- Elec_Trans_HighV
- Railroads
- Road_Bridges
- ROW_Too_Narrow_for_Construction
- Slope
- Soil_Peat_Histosols
- Trees
- Urban
- WaterFeatures



# OPTIMAL


Lake of the Woods
Voyageurs National Park
Grand Forks
Superior National Forest
Chippewa National Forest
Red
Fargo
Duluth
Apostle Islands National Lakeshore
Minnesota
North Country National Scenic Trail
Saint Croix National Scenic Riverway
St. Cloud
Willmar
Minneapolis
Eau Claire
Rochester
La Crosse
Albert Lea


Lake of the Woods
Voyageurs National Park
Grand Forks
Superior National Forest
Chippewa National Forest
Red
Fargo
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Apostle Islands National Lakeshore
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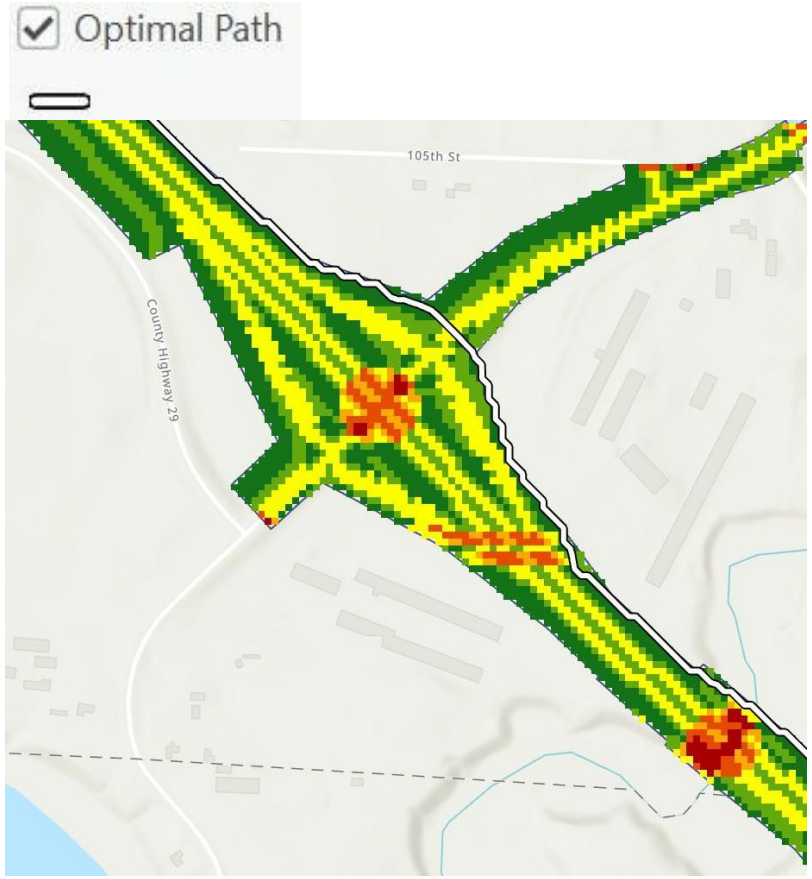
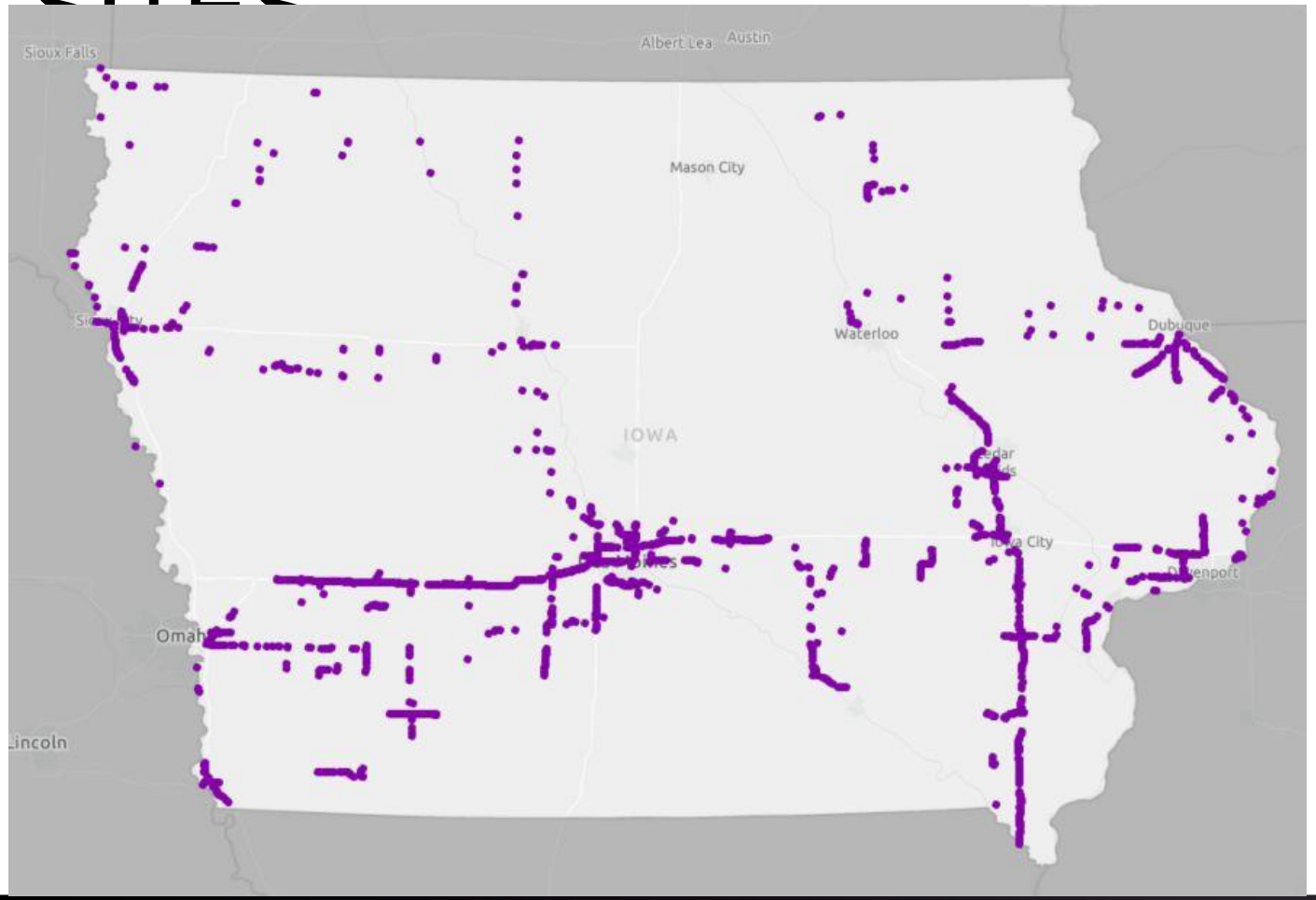

Optimal Path
105th St
County Highway 29

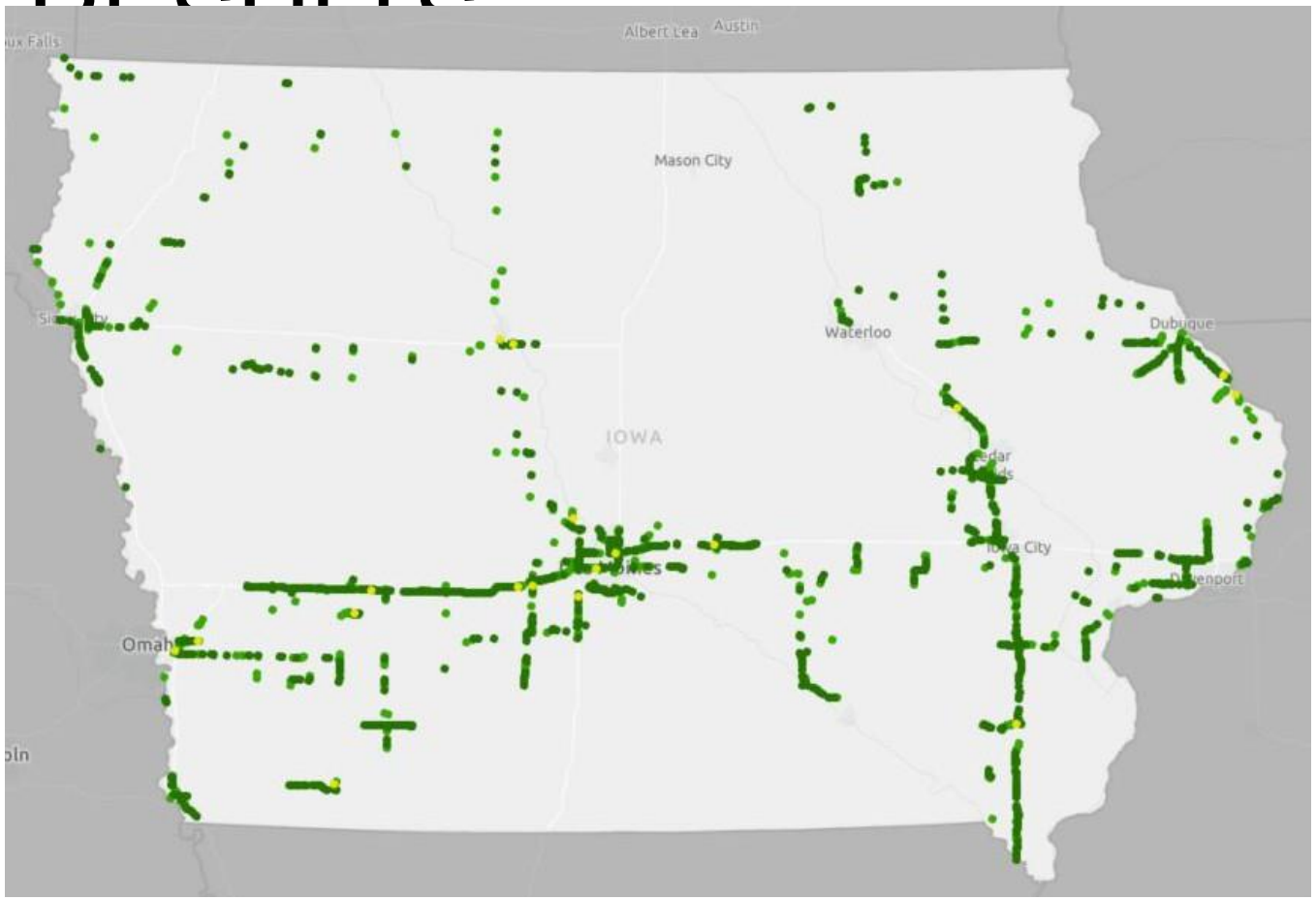
# ROW Solar Deployment Tool

# AVAILABLE ROW SOLAR SITES




- Total suitable land: 12,632 ac
- System capacity: 2.5 GW
- Electricity value: $369.4 M/yr

# SUITABILITY ANALYSIS RESULTS




# 3D MODELING

This area has **50,064** solar panels (6258 points) on **9.89 ac** that can generate 300 watts each.

The total system size capacity is **15.02 MW**.

This system has the potential to generate **22,307 MWH/Yr** of electricity valued at **$2,538,559/Yr**.

| | |
|---|---|
| Homes powered for 1 yr | **2,065** homes |
| Electric cars powered for 1 yr | **4,541** electric cars |

## Equivalencies

Based on the EPA Greenhouse Gas Equivalencies Calculator

Carbon reduction from 22,307 MWH/Yr of solar electricity:

**15,584**

Metric tons of CO2 avoided

| | |
|---|---|
| Reduction in pounds of coal burned | **17,219,412** pounds |
| Reduction in passenger vehicles driven for 1 yr | **3,388** cars |
| Reduction in gallons of gasoline consumed | **1,753,524** gallons |
| Carbon sequestered by acres of US forests in 1 yr | **19,004** acres |

THE RAY

Facebook / X / Insta / LIn:

@TheRayHighway

#TheRayHighway

#DriveTheFuture

theray.org

# Rail – Grid Collaborative

NASEO State Transmission Summit

Jay Caspary, Principal, TransGrid Advisors LLC

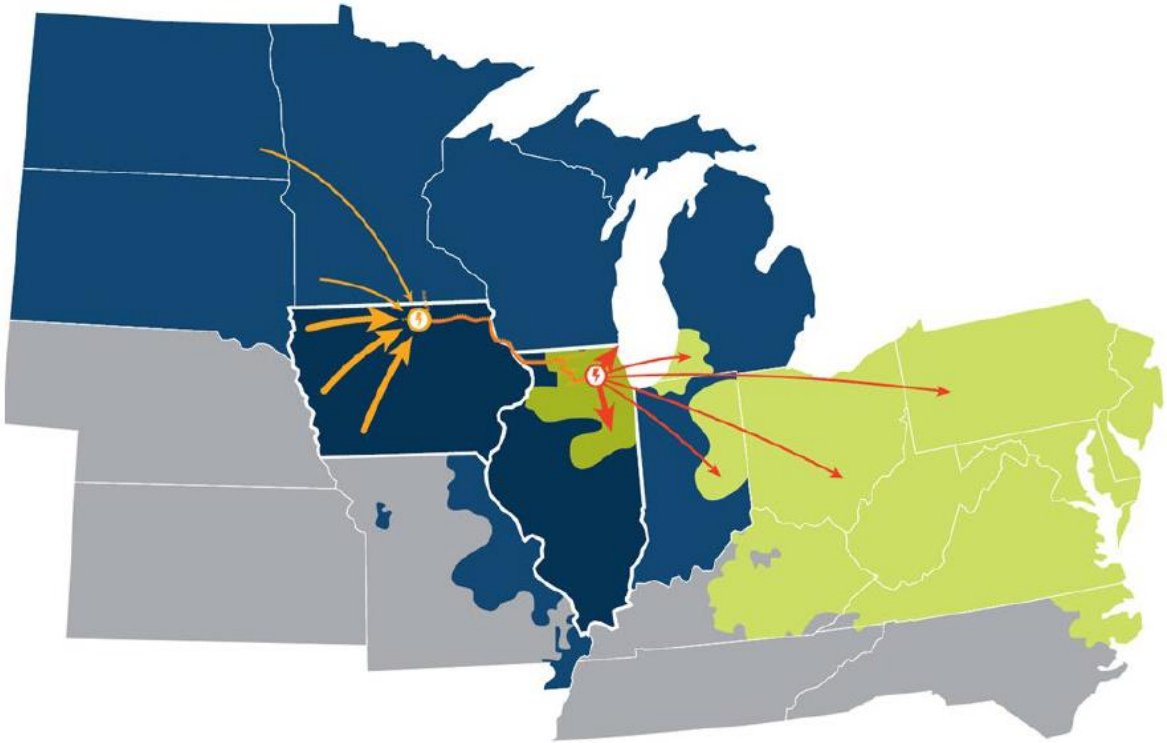
March 25, 2026

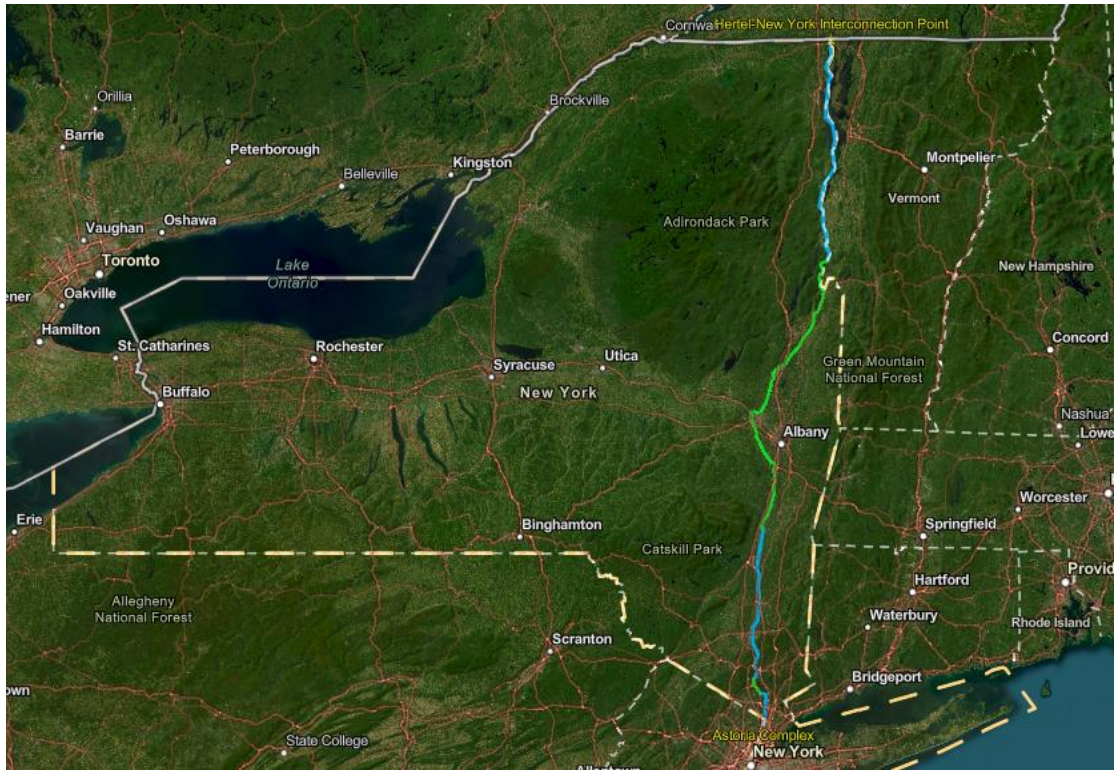
# The Rail-Grid Collaborative

The RGC is a non-profit organization founded to promote and enable **technical collaboration, joint action, research** and **mutual goal setting** to modernize both rail and electric transmission, pillars of a competitive U.S. economy.

SOO Green HVDC LINK

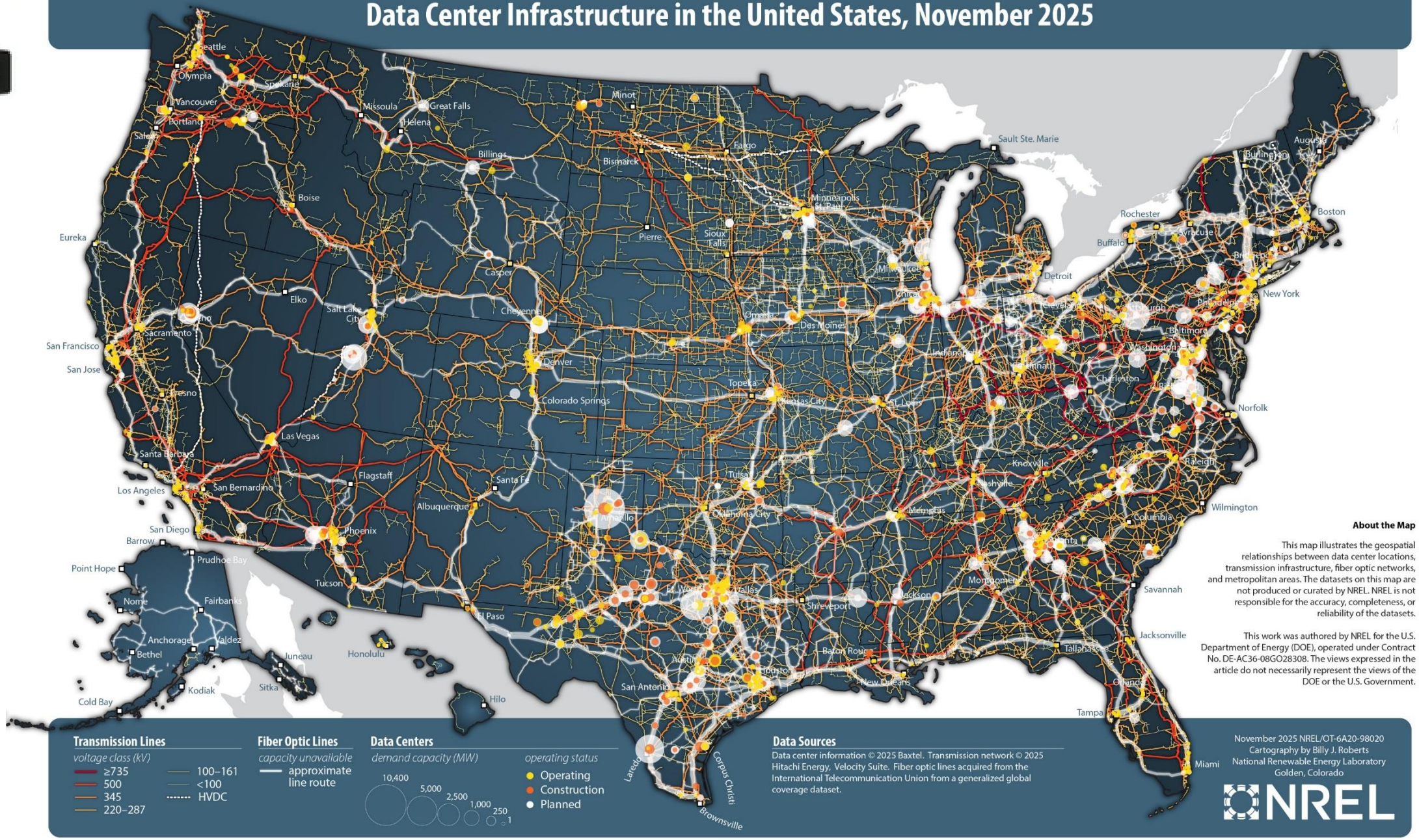
CHPE Champlain Hudson Power Express






THE RAIL-GRID COLLABORATIVE

# Data Center Infrastructure in the United States, November 2025




**About the Map**

This map illustrates the geospatial relationships between data center locations, transmission infrastructure, fiber optic networks, and metropolitan areas. The datasets on this map are not produced or curated by NREL. NREL is not responsible for the accuracy, completeness, or reliability of the datasets.

This work was authored by NREL for the U.S. Department of Energy (DOE), operated under Contract No. DE-AC36-08GO28308. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government.

**Transmission Lines**

*voltage class (kV)*

- ≥735
- 500
- 345
- 220–287
- 100–161
- <100
- HVDC

**Fiber Optic Lines**

*capacity unavailable*

- approximate line route

**Data Centers**

*demand capacity (MW)*

10,400 · 5,000 · 2,500 · 1,000 · 250 · 1

*operating status*

- Operating
- Construction
- Planned

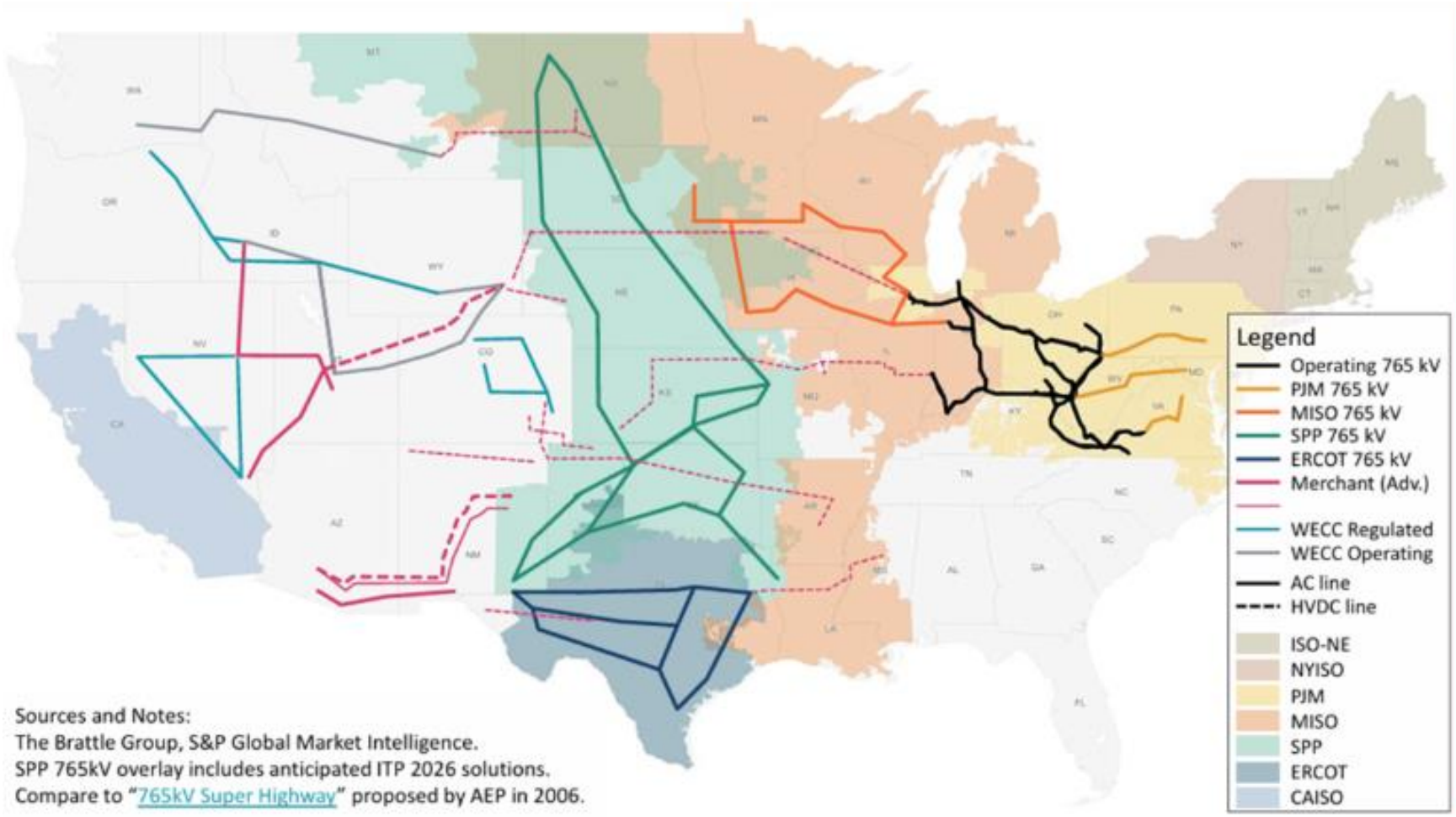
**Data Sources**

Data center information © 2025 Baxtel. Transmission network © 2025 Hitachi Energy, Velocity Suite. Fiber optic lines acquired from the International Telecommunication Union from a generalized global coverage dataset.

November 2025 NREL/OT-6A20-98020
Cartography by Billy J. Roberts
National Renewable Energy Laboratory
Golden, Colorado

NREL

# Regional 765kV plans and merchant projects




Sources and Notes:
The Brattle Group, S&P Global Market Intelligence.
SPP 765kV overlay includes anticipated ITP 2026 solutions.
Compare to "765kV Super Highway" proposed by AEP in 2006.

**The 765 kV systems planned by PJM, MISO, SPP, and ERCOT are adjacent to each other!**

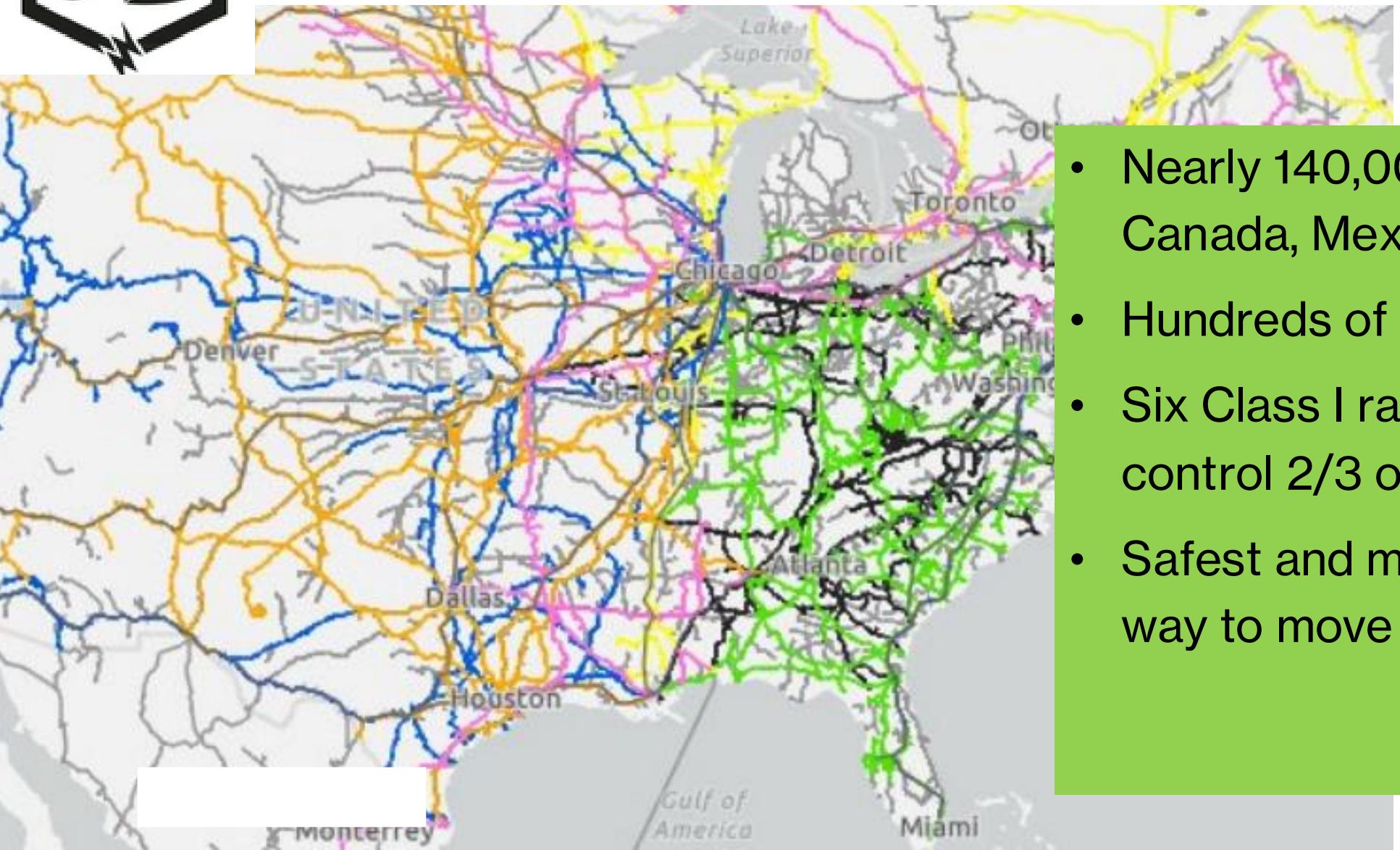
- They could (should?) be planned to be connected, which would create an interregional Macro Grid
- Then should also be integrated with HVDC lines, including into ERCOT and WECC

# Advantages of rail and transmission co-location

Using existing right-of-way for transmission can ---

- reduce the need to invoke eminent domain (lowering costs)
- decrease greenfield development
- reduce environmental impact
- shortened overall siting and permitting process
- facilitate industrial development & electrification

# Rail Networks: Operational and Abandoned




- Nearly 140,000-mile network in Canada, Mexico and the U.S.
- Hundreds of Short Lines
- Six Class I railroads own or control 2/3 of the rail ROW
- Safest and most fuel-efficient way to move freight over land

# Overview of Federal Financing Opportunities for Transmission

David Terry

- President, National Association of State Energy Officials

Tom Hucker

- Senior Advisor, Office of Energy Dominance Financing, U.S. Department of Energy

# Concurrent Breakout Sessions: Interactive Deep Dives

## Breakout 1: The Role of Independent Transmission Monitors

**Senate Ballroom, Second Floor**

*This session will explore longstanding concerns that local transmission asset-condition projects often proceed with limited comparative review, while larger, regional and interregional projects often proceed with heightened scrutiny. Discussants will examine emerging state-led approaches to improve transparency, the role of regional entities, and how Congress is engaging on this issue.*

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**Judiciary Hall, Lobby Level**

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Break
11:15 - 11:30 a.m.

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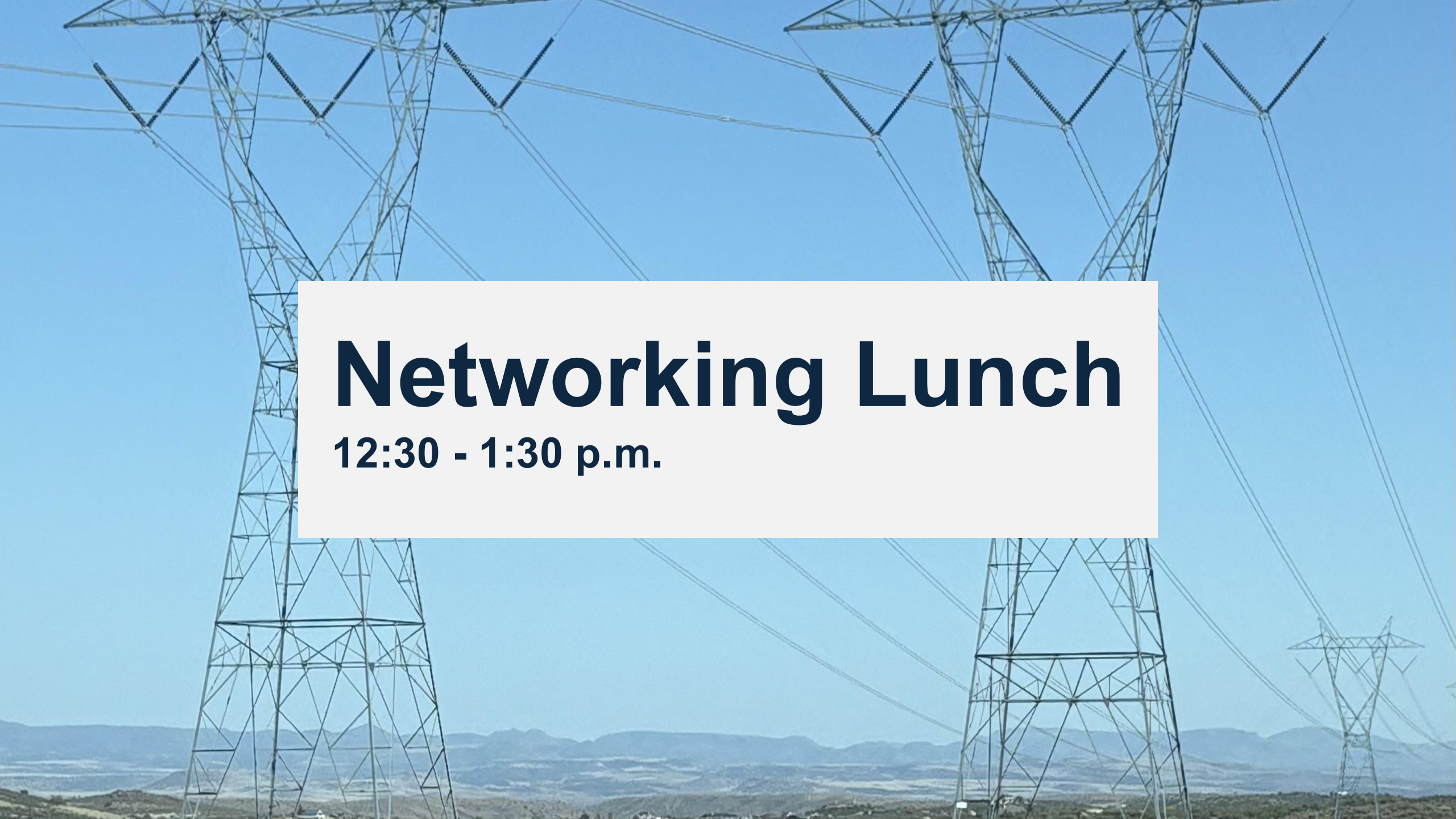


# Networking Lunch

**12:30 - 1:30 p.m.**

# NASEO Grid Optimization Task Force Introduction

## Catherine Reed

- Senior Program Director, Electricity, National Association of State Energy Officials

# Grid Optimization: The Path to Policy

Kirsten Verclas

- Senior Managing Director, Electricity, National Association of State Energy Officials

Colin Meehan

- Vice President of Grid Campaigns, American Council on Renewable Energy

Camille Norton

- Program Coordinator, Electricity, National Association of State Energy Officials

John Bernecker

- Director, Transmission Center of Excellence, New York State Energy Research and Development Authority

Lisa Salmore

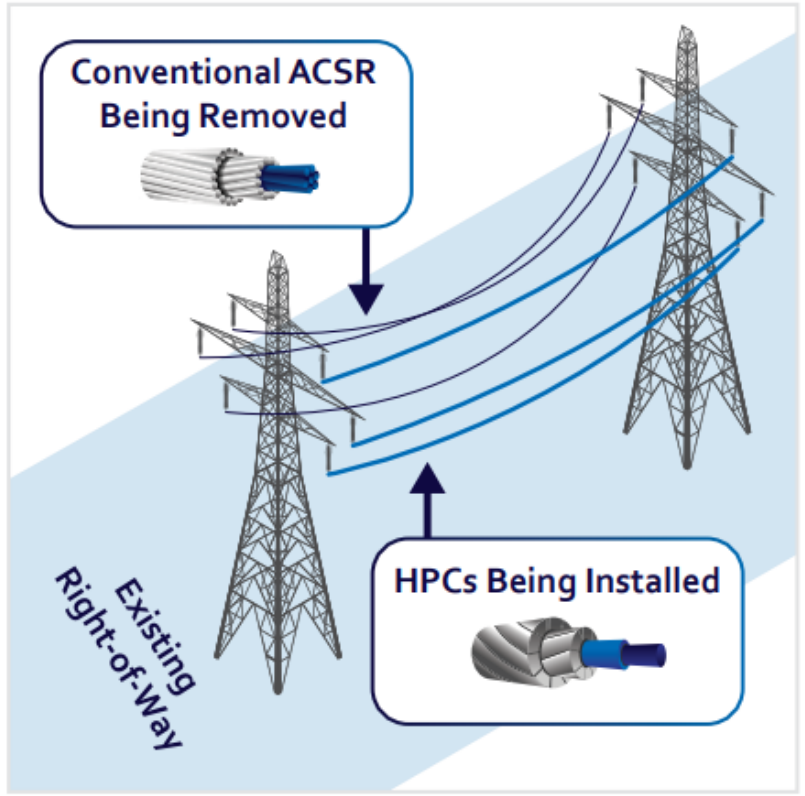
- Director, Transmission Strategy, National Grid

# Grid Optimization: The Path to Policy

Alisa Fox, Director of Grid Campaigns, ACORE
Afox@acore.org

# ATTs make the grid run more efficiently

## High Performance Conductors (HPC)




Source: HPC Playbook

## Grid Enhancing Technologies (GETs)

***Dynamic Line Ratings*** (DLR) measure and calculate the true carrying capacity of transmission lines.

***Advanced Power Flow Control*** (APFC) redirects power from overloaded to underutilized circuits

***Topology Optimization*** is software that finds ideal grid configurations to avoid constraints.

# ATTs can save consumers money in many ways

**Reduce congestion:** GETs can reduce grid congestion by 40%+, which would have saved $4-8 billion per year in the last five years[1].

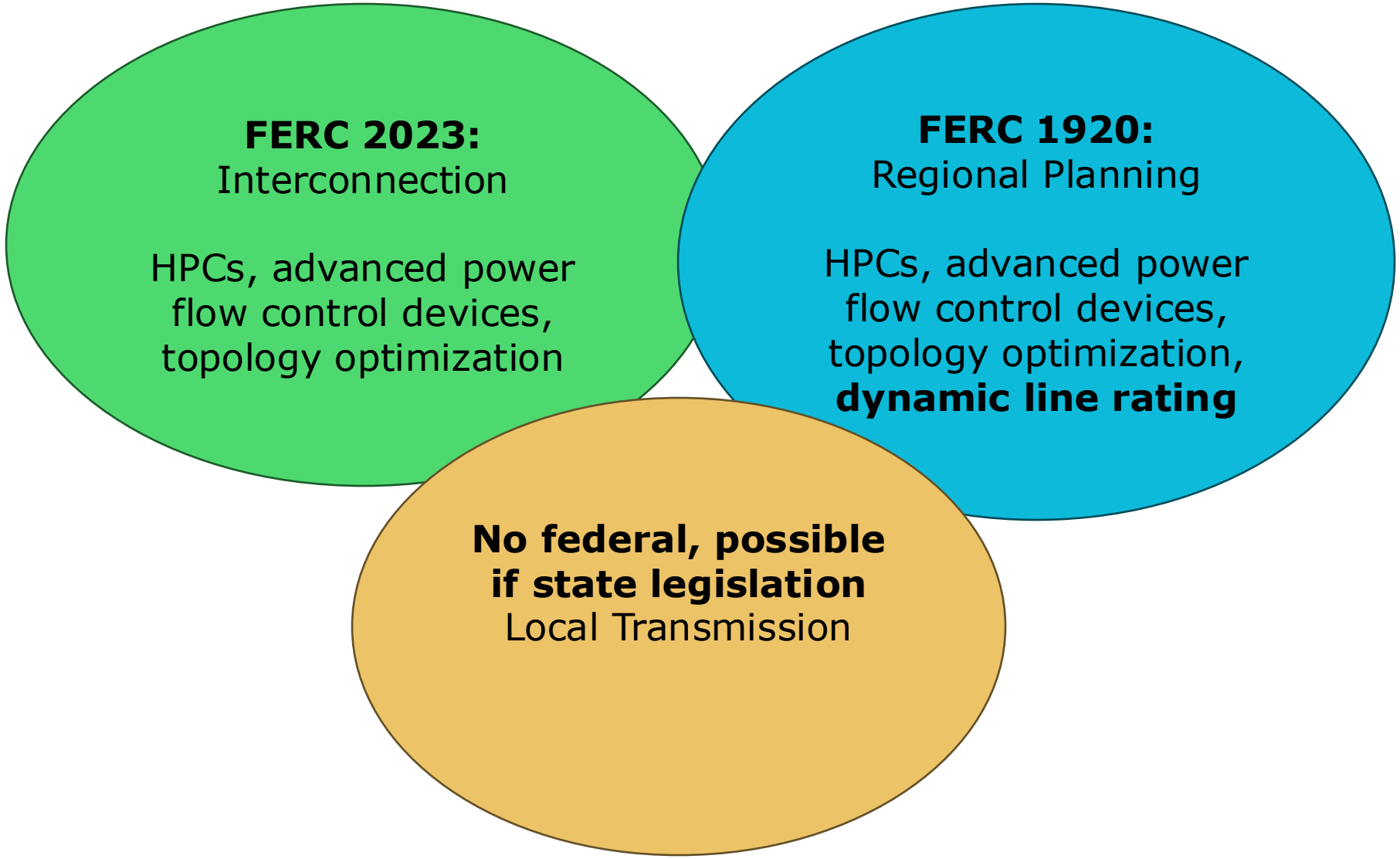
**Unlock low-cost power generation:** The production cost savings by adding more renewables to the grid more quickly for GETs alone is estimated at $5B annually[2]

**Improve efficiency:** HPCs can reduce annual transmission losses by 20%+, generating over $2.2 billion in annual consumer savings[3].

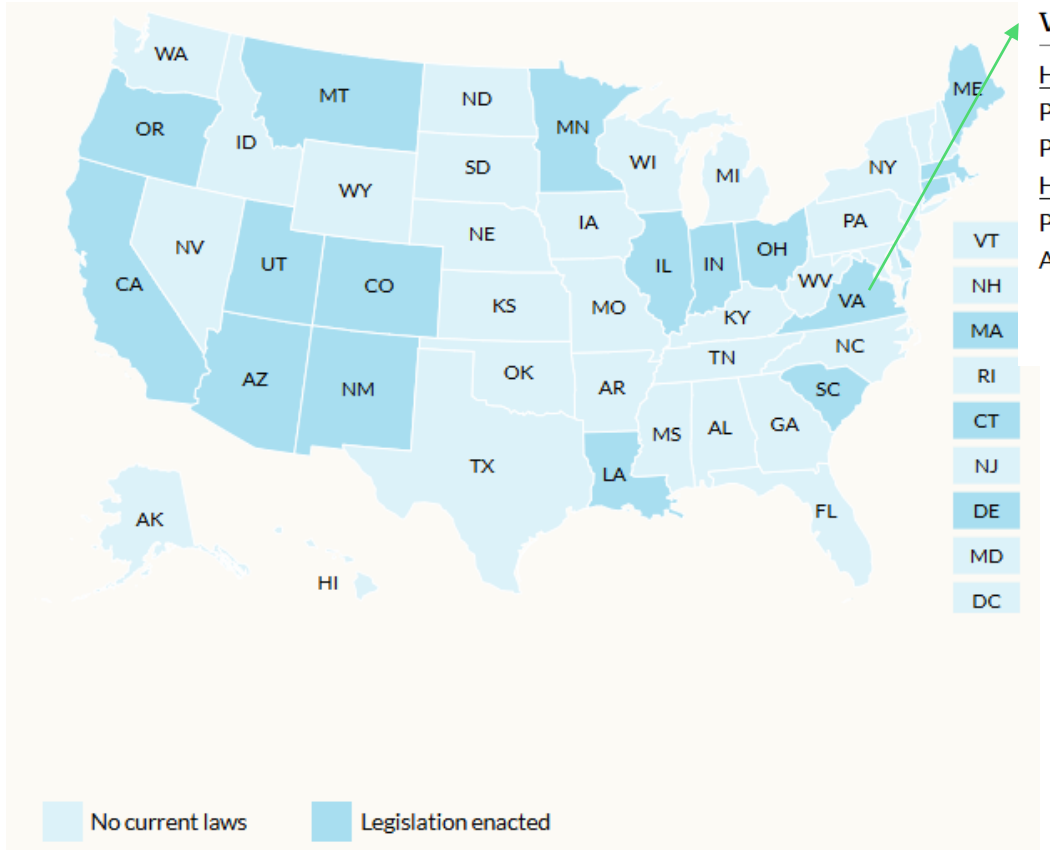
**Lower upfront cost:** Reconductoring is often less than half the cost of new transmission and can be build in years[4].

1:Building-a-Better-Grid-How-Grid-Enhancing-Technologies-Complement-Transmission-Buildouts.pdf
2.Unlocking the Queue with Grid-enhancing technoloiges
3. HPC Playbook
4. 2035 and Beyond: Reconductoring

# ATTs evaluation isn't required for local transmission



# Over 20 states have passed ATT policies




**Virginia** ×

HB 862 (2024)
Policy Approach: Utility Planning
HB 1822 (2025)
Policy Approach: Commission Assessment

ADD STATE TO TABLE

**Source: Pew**

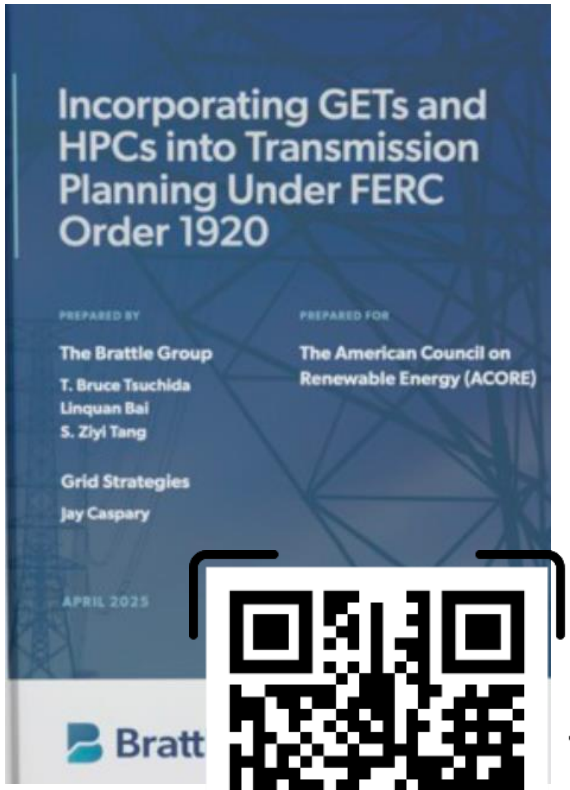
SCAN ME

# State regulators and policymakers play a large role in successful ATT deployment

- Study
- Require evaluation
- Incentives
- Shift away from least upfront cost
- Expedited permitting
- Utility working group
- Engage RTO/ISO in FERC Order 1920/2023

# States can support successful FERC Order 1920 implementation

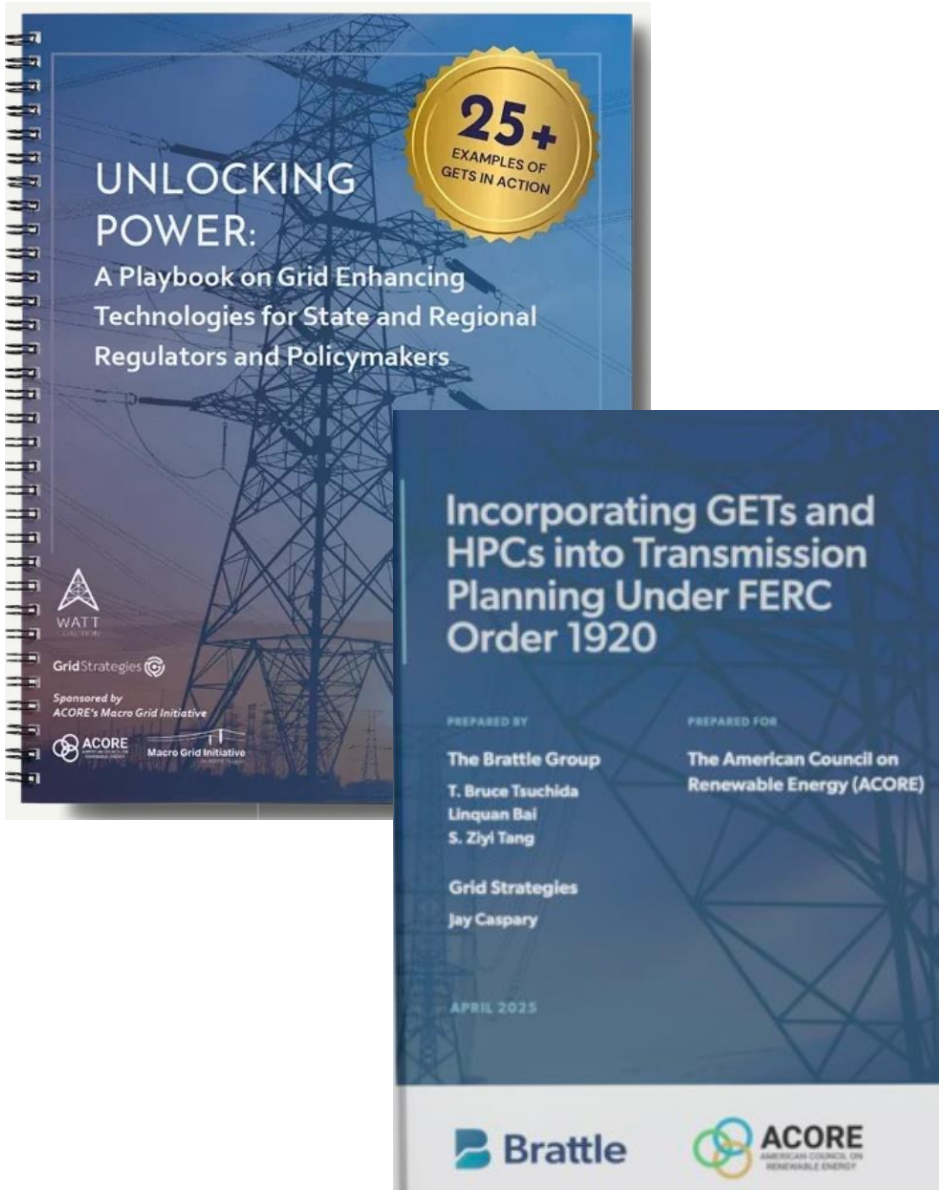
- Demand greater transparency in planning process
- Encourage a loading order approach
- Advocate for benefit-to-cost ratio metrics
- Provide input on evaluation method and selection criteria




SCAN ME

# Learn more!

- Unlocking Power: A Playbook on Grid Enhancing Technologies for State and Regional Regulators and Policymakers
- Unlocking the Grid: A Playbook on High Performance Conductors for State and Regional Regulators and Policymakers
- Incorporating GETs and HPCs into Transmission Planning Under FERC Order 1920
- Assessment and Evaluation of Grid Enhancing Technologies (GETs)
- Advanced Transmission Technologies Planning Guide
- Best Practices for State Legislation on Advanced Transmission Technologies




Reach out! Alisa Fox, Fox@acore.org

# NASEO Advanced Electric Grid Optimization Solutions Policy in a Box

## Research

- New York Power Grid Study (2021)
  - New York
- Unlocking the Queue with Grid-Enhancing Technologies (2021)
  - Kansas and Oklahoma
- Assessing the Value of Grid Enhancing Technologies: Modeling, Analysis, and Business Justification (2023)
  - Massachusetts

## Preparation

Working Groups:

- Massachusetts Department of Energy Resources
- Northeast States Collaborative on Interregional Transmission

State Energy Planning:

- Comprehensive State Energy Plans
- State Energy Security and Resilience Plans
  - Idaho, Montana, Virginia
- Integrated Energy Policy Report (2023)
  - California

## Action

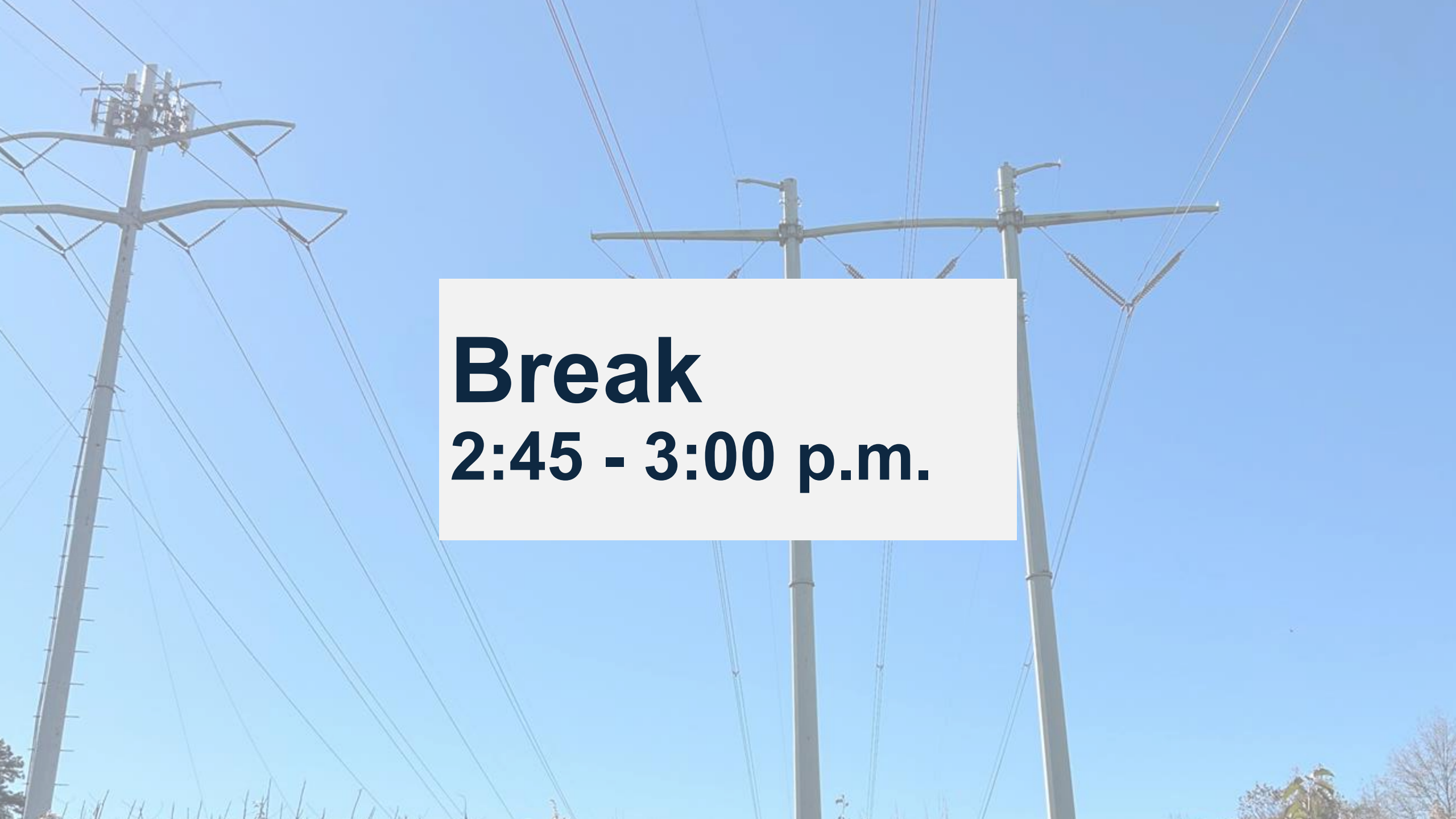
Legislation:

- UT H.B. 212
- MA Chapter 239 of the Acts of 2024

Additional Considerations

## Implementation

- Grid Resilience and Innovation Partnerships (GRIP) Program
- SPARK


Break
2:45 - 3:00 p.m.

# Grid Optimization: The Path to Implementation

Catherine Reed

- Senior Program Director, Electricity, National Association of State Energy Officials

Nathan Shreve

- Senior Research and Policy Associate, Grid Strategies LLC

Vishal Kapadia

- Chief Executive Officer, LineVision

Peter Brehm

- Vice President, Policy and Grid Strategy, CTC Global

Kaitlin Savage

- Energy Market Development, Google

# Grid Optimization: The Path to Implementation

Nathan Shreve, Grid Strategies LLC

March 2026

Grid Strategies

# What are Advanced Transmission Technologies?

**Advanced Transmission Technologies (ATTs)** are technologies that can cost-effectively increase the capacity, efficiency, reliability and/or safety of power lines faster than traditional grid infrastructure and at lower cost or with higher net benefits.

*There are two types of ATTs…*

## Grid Enhancing Technologies (GETs)

- **Dynamic Line Ratings**
- **Advanced Power Flow Control**
- **Topology Optimization**

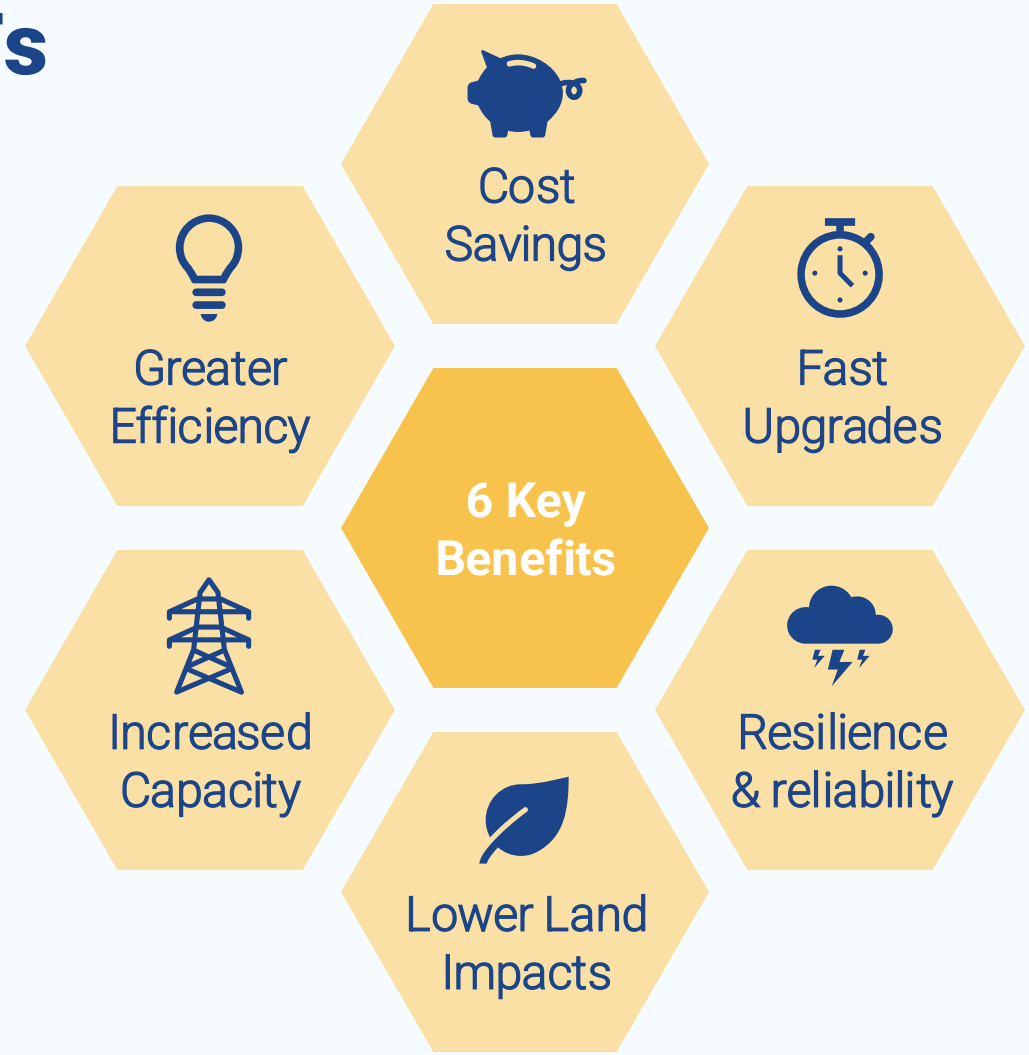
WATT COALITION

## High Performance Conductors (HPCs)

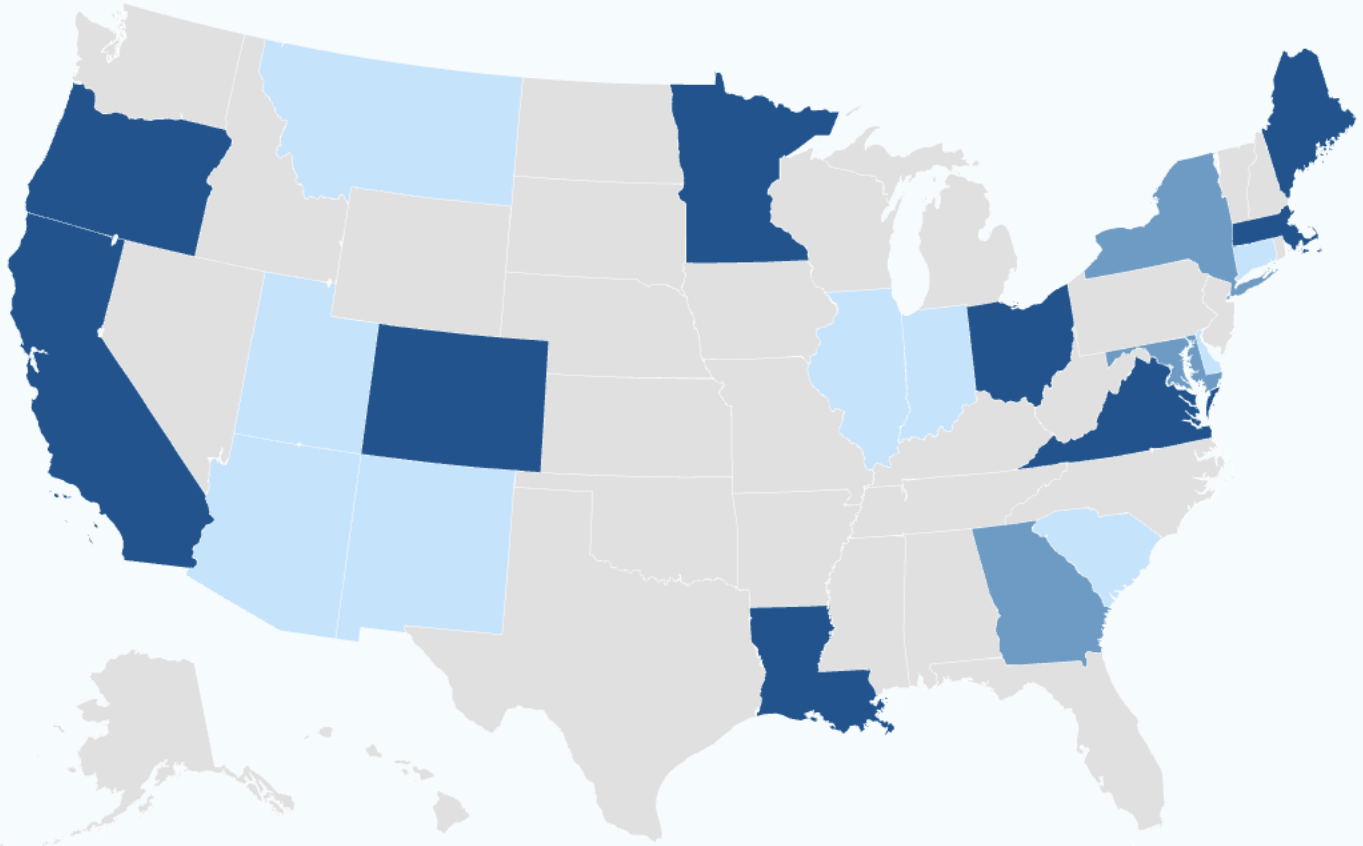
- **Carbon Core Conductors**
- **Superconductors**

AMP COALITION

# Benefits of ATTs



# Half of the states that have passed ATTs laws have started implementing those laws, with more to come!



- Passed ATTs laws, and has started implementation
- Has not yet passed ATTs laws, but has taken action on ATTs
- Passed ATTs laws, and has not yet started implementation

# Implementation examples: California, Minnesota, Oregon

**California**

- *Progress:* Utilities submitted ATTs reports required by legislation. These reports identified specific lines that would be prime candidates for ATT deployments.
- *Next steps:* More robust evaluation of all ATTs, in a systemwide manner

**Minnesota**

- *Progress:* Utilities conducted congestion mitigation studies and submitted reports on GETs solutions / implementation plans.
- *Next steps:* Study periodicity, more robust evaluation of all ATTs, and greater transparency into modeling practices

**Oregon**

- *Progress:* PUC opened a docket asking how to best implement the law (i.e., developing Staff GETs Review Criteria to set expectations for utilities' GETs analysis in forthcoming IRPs)
- *Next steps:* Utility GETs analysis in forthcoming IRPs

# Key takeaways for State Energy Offices supporting ATTs implementation

**Elevate and champion ATTs**

*Example*: MD Governor's Transmission Modernization Working Group

**Participate in implementation processes**

*Example*: MN Department of Commerce engaged in GETs dockets

**Continue exploring funding opportunities**

*Example*: SPARK funding!

# States can apply for $1.9 billion in federal funding for ATT deployment through the SPARK program

**There are three funding topic areas…**

1. Topic Area 1: Grid Resilience
2. Topic Area 2: Smart Grid (states can apply)
3. Topic Area 3: Grid Innovation Program (2 or more states can apply)

**…for which DOE is prioritizing projects that…**

1. Reconductor with advanced conductors;
2. Use ATTs that can increase the usable capacity of existing assets in real time; and
3. Involve large-scale, cross-regional transmission upgrades and coordinated planning.

**Timelines are fast! Concept papers are due April 2, 2026, and full applications are due May 20, 2026**

**Register for the WATT and AMP Coalitions' SPARK webinar TOMORROW @11am ET:**

- Hear from vendors on potential project opportunities
- Learn from vendors' past experiences with federal funding applications
- Find application partners and technical assistance opportunities


LINEVISION
Critical Intelligence for Critical Infrastructure

# We need more power, more quickly - but system costs are rising

Power Demand

**Peak Load Forecast**
**+6X** since 2023

Congestion Costs

**~$15 billion p.a.**
**+2x** vs prior 4 years

Transmission Spend

**$45 billion+ p.a.**
vs $33B in 2024

# Our Transmission Grid Intelligence Solutions

## Dynamic Line Ratings


**Best-in-class, network-scale DLR** using advanced modeling and machine learning

## Situational Awareness

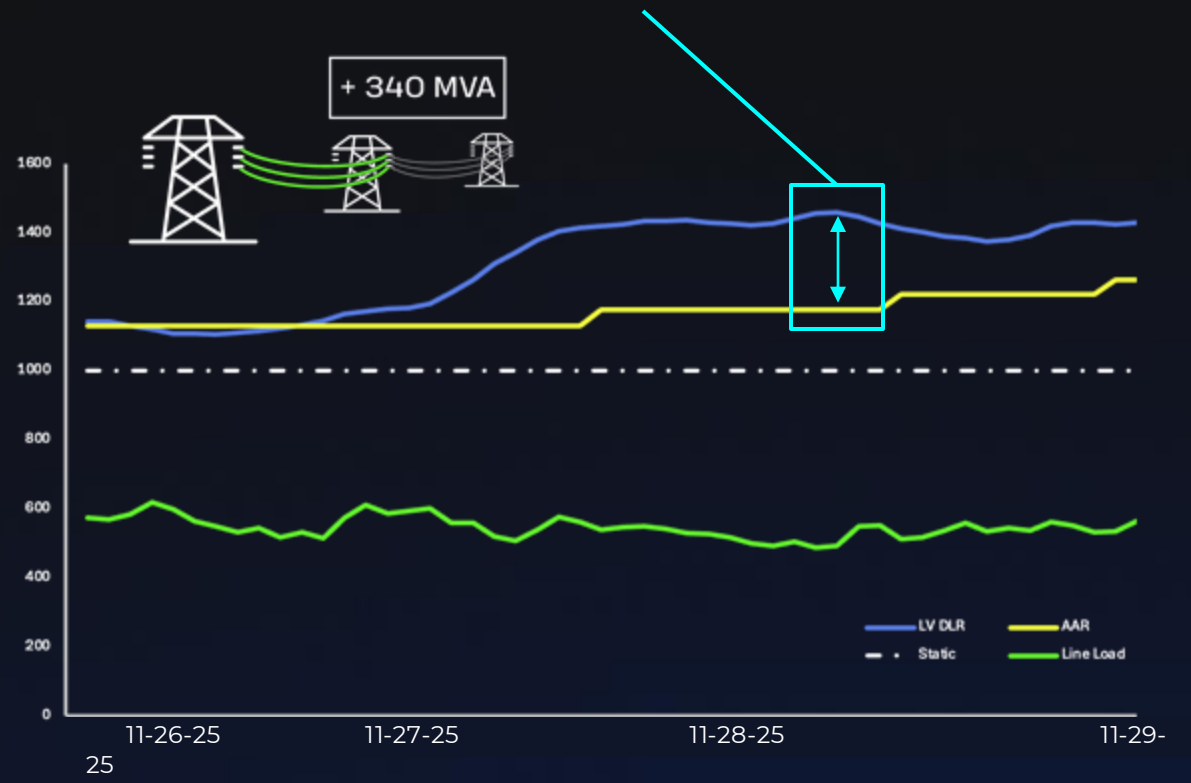
**Enhanced** via strategically deployed **hyperlocal sensors**

**Real-time** conductor and **right of way monitoring** via optical and environmental sensing

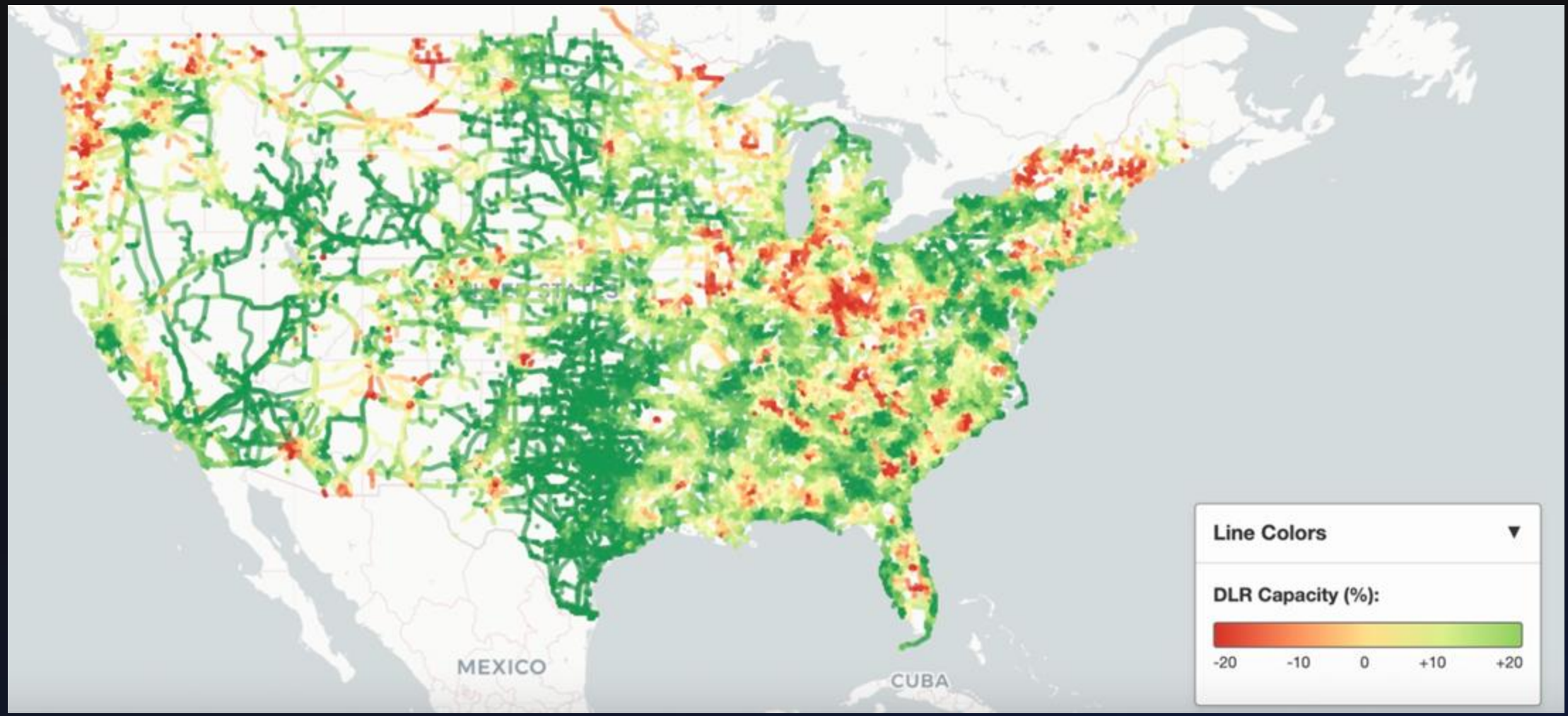
# The use of Dynamic Line Ratings is critical for grid optimization

- **Accurate**: Represent the true capacity of transmission lines
- **Fast**: Deployable across entire networks within weeks
- **Cost-Effective**: Fraction of the cost of traditional upgrades

*Ex: Actual capacity **19% higher than AAR***



# Example - Line Capacity vs AAR on July 20, 2025 at 4 PM



# Our existing customer base includes many of the largest utilities in the US and UK

# The “ROI” We Unlock for Utilities - and Their Customers

## Reliability & Resilience

Empower operators with **flexibility** to predict & respond where and when needed most

## Optimized Asset Utilization

Unlock capacity to **reduce congestion costs** and **accelerate interconnection of new load**

## Informed Capital Decisions

Target the right investment in the right place at the right time, **maximizing capital efficiency**

# DLR is the fastest way to help with availability and affordability

- FERC 881 re: AAR is a step - but an incomplete one
- Dynamic Line Ratings deliver
  - Real-time intelligence for operational flexibility and cost reduction
  - Network visibility to inform where, when, and how to optimize capacity

**Save Money Today, Spend Smarter Tomorrow**

**Where SEOs Can Help**

- DLR to inform transmission upgrades
- Grid utilization metrics (e.g. VA)
- Funding opportunity via DOE SPARK program

# Speed to Power

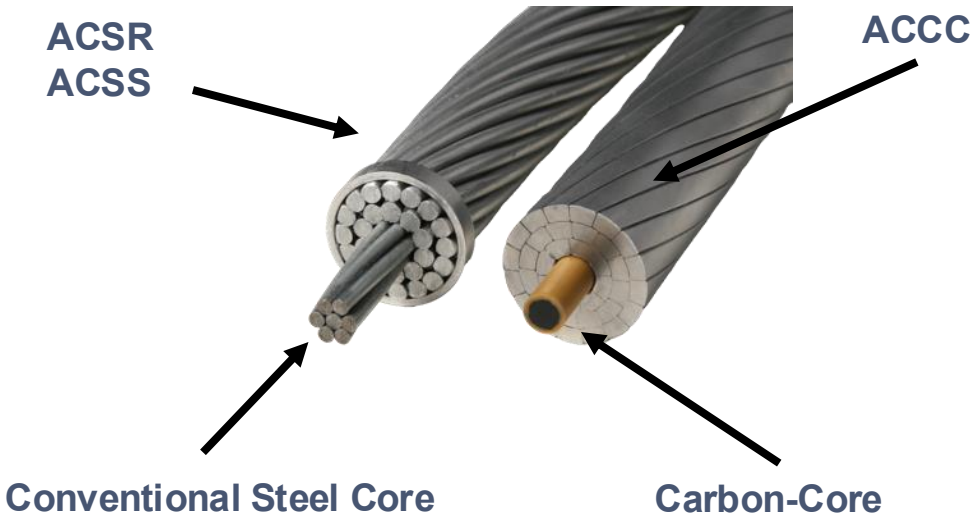
## Rapidly Increase Capacity & Resiliency, Reduce Consumer Costs, Mitigate Wildfire Risk, and Enable Growth

**Peter Brehm**
**VP, Policy & Grid Strategy**

March 24, 2026

CTC GLOBAL
The Advanced Conductor

# 101: What are Advanced Conductors?




## Advanced vs. Conventional

Replace steel and hard aluminum with carbon and annealed aluminum

Carbon is lighter and stronger so more aluminum can be used

Even after more aluminum is added, **the carbon-core Advanced Conductor weighs about the same** as the conventional ACSR of the same diameter.

**Enables a unique capability: Advanced Reconductoring – the fastest, least expensive way to add significant grid capability: in months, not years.**

*High-efficiency carbon-core Advanced Conductor can be installed on the same tower/structure that was designed for the conventional ACSR (same diameter & weight) and provides much greater capacity and energy efficiency, with much lower sag*

CTC GLOBAL

# Much Faster Capacity | Lower Project Costs

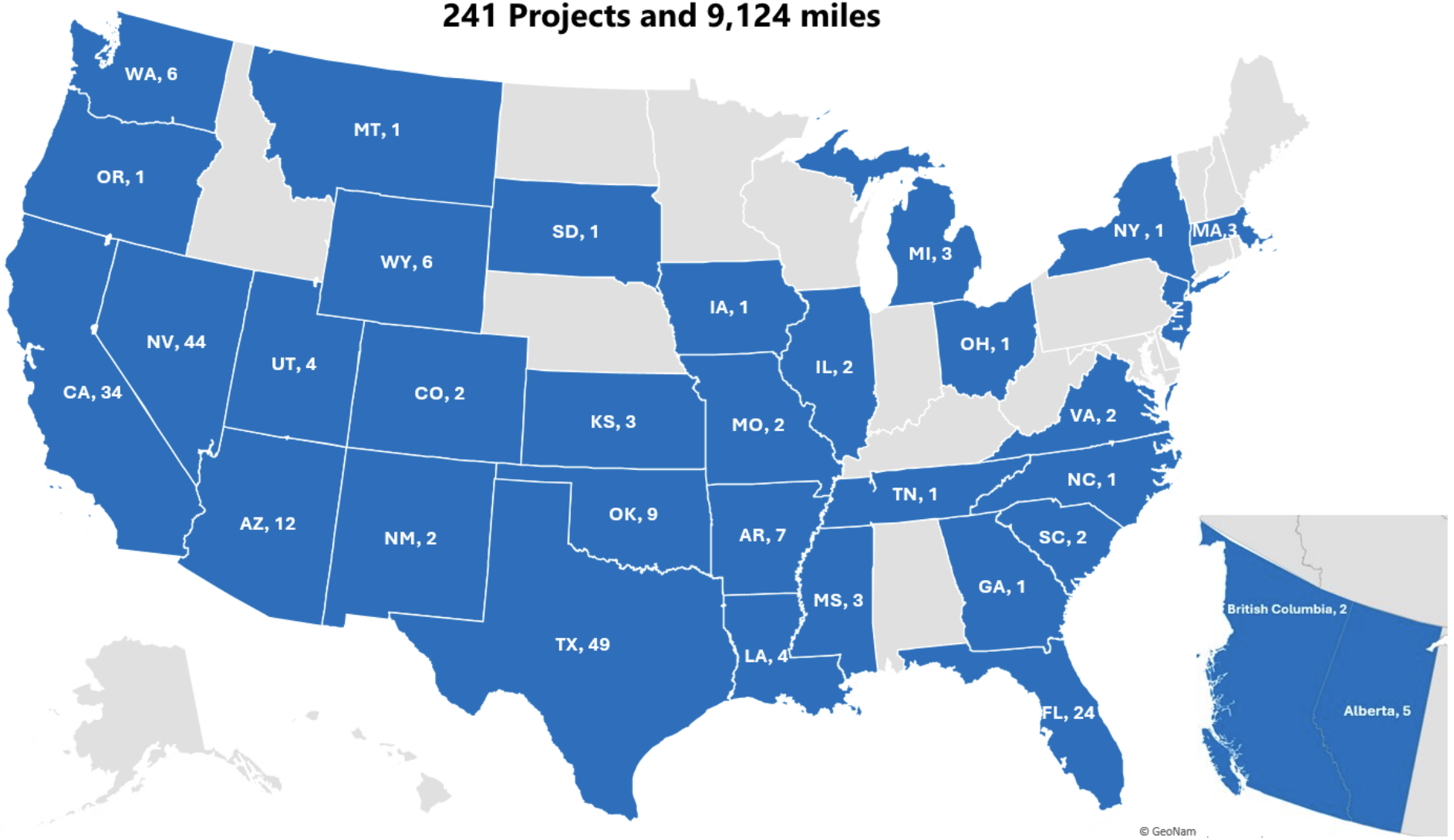
| | | |
|---|---|---|
| **Reconductoring** | **2X capacity with ACCC® and up to 40% reduced losses** on existing structures with **minimal retrofitting – 75% less cost than doubling capacity with a new line** | Similar capacity upgrade with traditional conductors like ACSR and ACSS requires more structure replacements or full rebuilds with significantly higher total project costs and much longer timelines |
| **New & Rebuilds** | **Substantially lower** structure & construction **costs when using ACCC® - 40 – 50% cost less than rebuilds with traditional conductor like ACSS** | Lower sag allows for longer span (fewer structures) and/ or shorter structures requiring less right of way |
| **Adding capacity** | **Faster & lower cost project completion** when replacing ACSR with ACCC® | Avoid rebuilds to quickly increase line capacity |

# ACCC® Conductor Installations- North America

## North America Utilities

Alcan
AltaLink, L.P.
American Electric Power Company (AEP)
Arizona Public Service (APS)
ATCO Electric
Atlantic City Electric
Austin Energy
Black Hills Energy
Brookfield Renewables
Central Iowa Power Cooperative (CIPCO)
Cheyenne Fuel Light and Power (division of Black Hills Energy)
City of Alexandria, LA
City of Gillette, WY
City of Holland
City of Kingman
City of Riverside
ComEd / Exelon
Dominion
Douglas County PUD
Duke Energy Florida
Duke Entergy Alliance
ENMAX Power Corporation
Entergy Corporation
Flour Alliance - Tapoco APGI
Fortis BC
Holland Board of Public Works
KAMO
KBS Electric
Keys Energy
Kingman (FEMA)
Leesville Gas
Mohave Electric
National Grid USA
NorthWestern Energy
NV Energy
OG&E
Oncor Electric Delivery Company LLC
Orlando Utilities Commission (OUC)
Ormat Technologies, Inc.
Ozark Electric Cooperative
PacifiCorp
PEC
Progress Energy
Rappahannock Electric Cooperative
SCANA - South Carolina Gas & Electric
South Texas Electric Cooperative, Inc.
Southern California Edison
Southern California Edison (SCE)
SRP (Salt River Project)
Summit Line Construction
Tampa Electric Company (TECO)
Texas-New Mexico Power Company (TNMP)
WAPA
Xcel Energy

## 241 Projects and 9,124 miles



# Thank you


**Address**

2026 McGaw Ave, Irvine, CA 92614

**Email**

PBrehm@CTCGlobal.com

**Contact Number**

(509) 727-7200


# ACCC® Conductor Fire Storm Resilience

2009: ACCC® Conductor installed to increase the capacity of existing 120 kV transmission line from Reno to Carson City from 350 amps to 1,000 amps.

2012: wildfire burned down four wood H-frames structures dropping the ACCC® Conductor to the ground. The damaged structures were replaced and the undamaged ACCC® Conductor was lifted back into service. RESILIENCE.

# ACCC® Conductor Tornado Resilience

## 2006

Oklahoma Gas & Electric: ACCC® Conductor was installed to connect new generator to the grid.

## 2013

EF-5 Tornado hit Moore, Oklahoma. Tornado picked up empty shipping container and threw it into a transmission powerline steel monopole.

## Damage

The shock and tension on the powerline shredded the aluminum conductor, but the carbon-composite core was NOT broken.

## Result

Because the core survived and kept the conductor in the air, the bucket crew was able to splice the conductor and return the powerline to service after only a few hours.

**Avoided Potential Delay in Powerline Restoration**

# State Leaders Roundtable

## Marion Gold

- Senior Advisor, National Association of State Energy Officials

## Jerry Henderson

- Policy Advisor, Office of Wyoming Governor Mark Gordon

## Josh Walters

- Director, Office of Federal and Regional Energy Policy, Connecticut Department of Energy and Environmental Protection

## Brian Lipman

- Director, New Jersey Division of Rate Counsel

# Day 2: Wrap-Up