

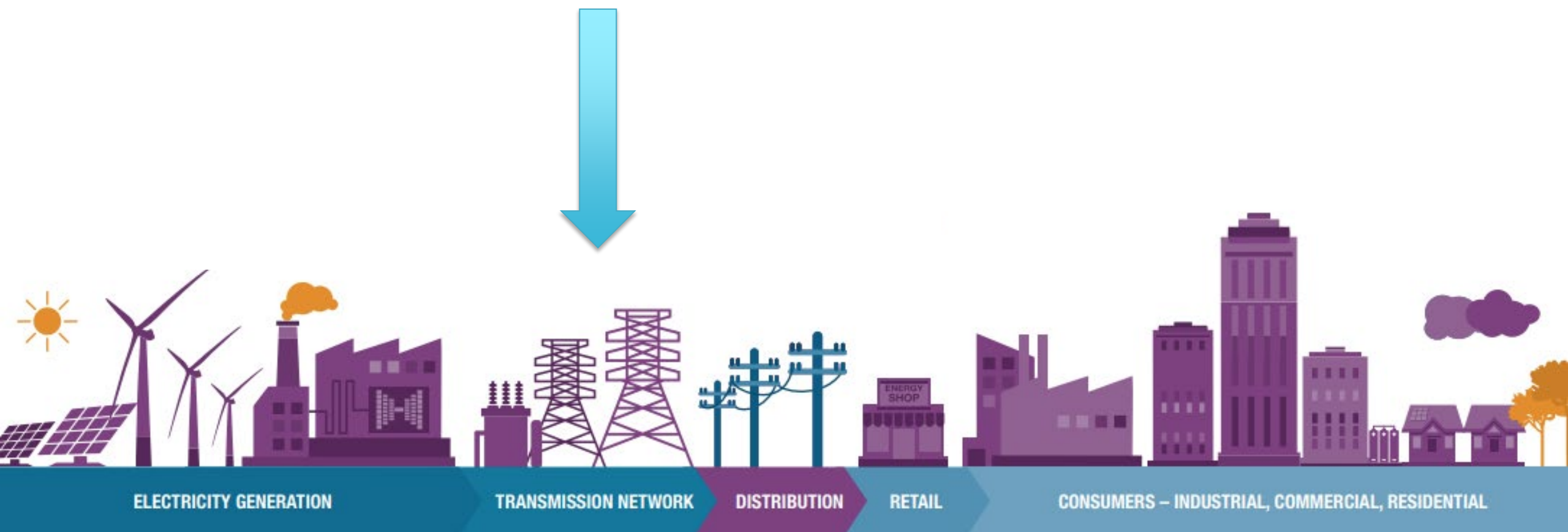
Meeting Energy Demand

How States Are Using ATTs to Modernize the Grid

2025 CSG Southern Legislative Conference
July 21, 2025

— Agenda

- **Advanced Transmission Technologies (ATTs) Overview**
- **Panel Insights**
 - **Matt Hart**, *Director of Grid Transformation, Alabama Power Company*
 - **Joseph Hunter**, *Vice President of Global Sales, TS Conductor*
 - **Ted Thomas**, *Former Chair, Arkansas Public Service Commission*
 - **Phil Hernandez**, *Delegate, Virginia General Assembly*
- **Q&A (~30 min)**




What are Advanced Transmission Technologies

Advanced transmission technologies (ATTs):

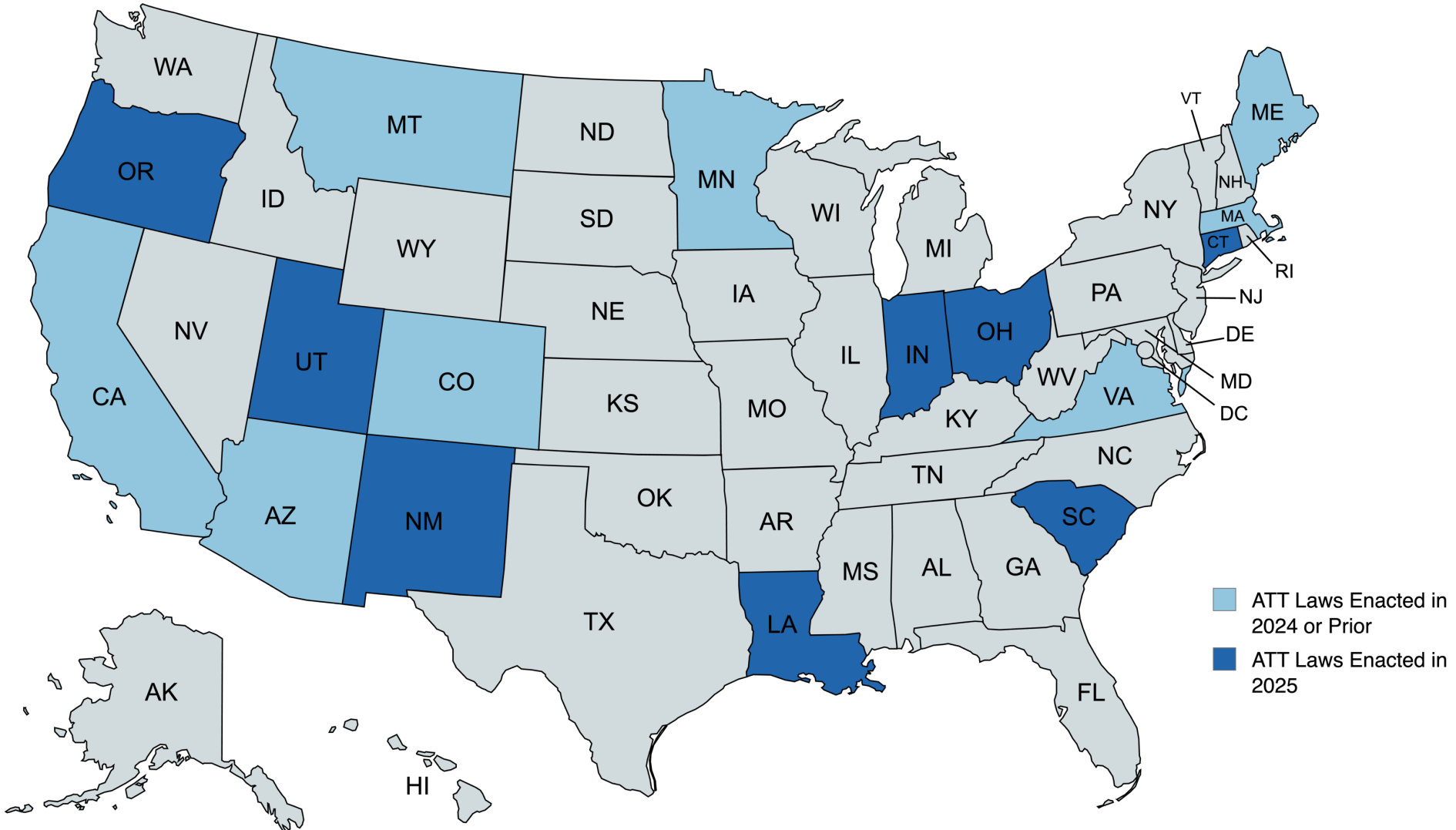
- squeeze more capacity out of the existing grid,
- reduce congestion costs,
- deploy faster than traditional transmission infrastructure.


3 MONTHS -
3 YEARS
DEPLOYMENT


100 GWs
GRID CAPACITY
UNLOCKED



National ATTs Policy Landscape



Meeting Energy Demand:

How States are Using Advanced Transmission Technology to Modernize Grid

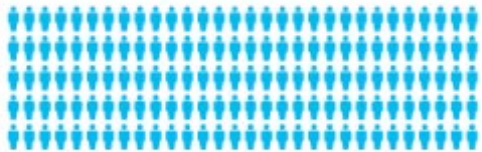
Matt Hart
July 21st, 2025



About Alabama Power

Customer Service

1.5M Customers



1 icon = 10K customers

86% Residential



14% Commercial/Industrial

Charitable Giving

\$17M

charitable giving in 2024 through
Alabama Power Foundation

\$273M

given since its inception in 1989

About Us

6,154

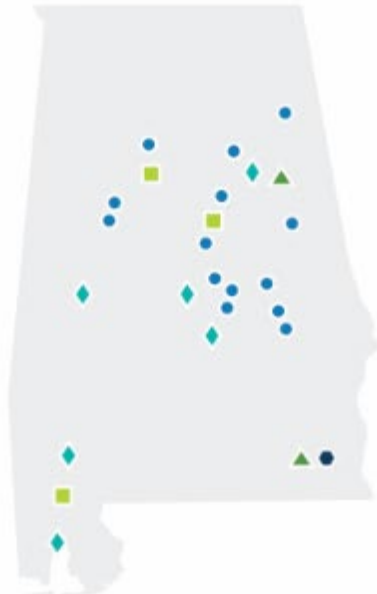
employees



5,925

retirees

Generating Plants

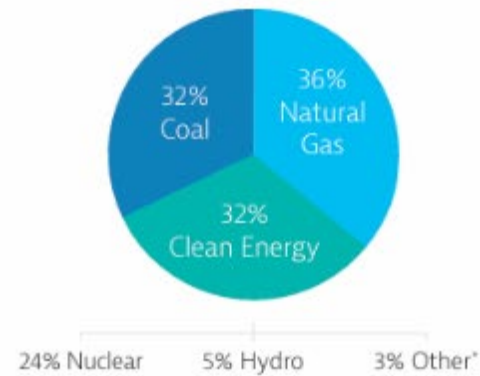


◆ Natural Gas ■ Coal
● Hydro ▲ Solar ● Nuclear

Generation

12,942

megawatts total nameplate
generating capacity



24% Nuclear 5% Hydro 3% Other*

45,000

square mile service territory

81

generating units

Power Delivery



10,102 towers + 1,579,379 poles =

1,589,481

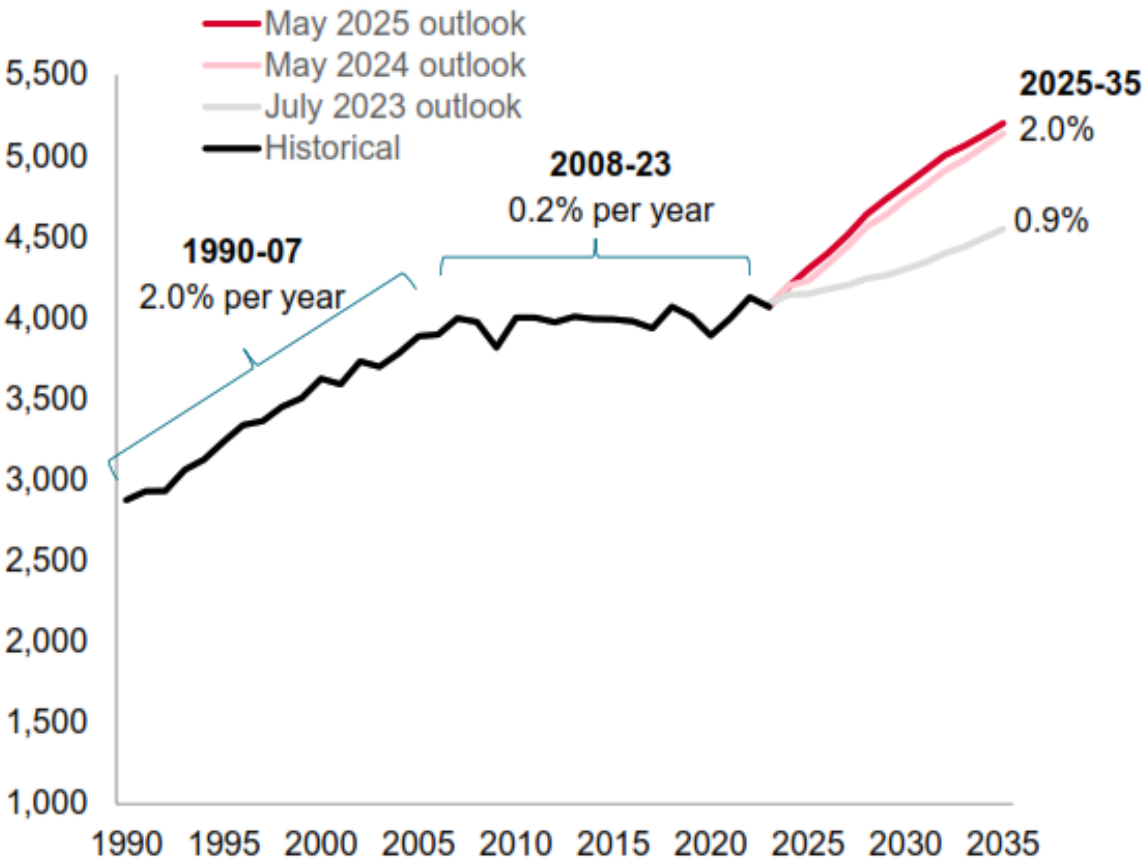
total towers and poles

86,171

total miles of power lines

Increasing Grid Demand

US lower-48 electricity demand by outlook vintage (TWh)



Data compiled May, 2025

Notes: Large industrial loads include incremental demand from datacenters, new manufacturing (e.g., battery, steel, semiconductors, and others), and the electrification of oil and gas operations. Large flexible loads includes demand from electrolysis and cryptocurrency mining.

“Economic growth” represents gross electricity demand growth net of energy efficiency.

Source: S&P Global Commodity Insights and the US Energy Information Administration for historic data.

Alabama Growth

ArcelorMittal to move forward with construction of a new, world-class electrical steel facility in Alabama

October 7, 2022

Homepage / Media / News Articles

February 1, 2023

it is pro grain-facility

The new up to 150 in support other inc generate

Novelis Breaks Ground on \$2.5 Billion Aluminum Recycling Plant

Alabama facility to support growth

BAY MINETTE, Ala., Oct. 7, 2022 /PR aluminum solutions provider and the ground and began construction today Minette, Ala. The highly advanced fa have an initial 600 kilotonnes of finish beverage container market, with flexi recycling center for beverage cans, in cans per year when fully operational.

"Through this investment, we want to partnerships, the commitment we ha forward-thinking approach we are tak President and CEO of Novelis. "We a this state-of-the-art facility on Nation career opportunities available in our i

Governor Ivey Announces Meta Plans to Build \$800 Million, Next-Generation Data Center in Montgomery

MAY 2, 2024

PRESS RELEASES

SHARE

MONTGOMERY – Governor Kay Ivey announced today that technology company Meta Platforms plans to open an \$800 million data center in Alabama's capital city that will support 100 operational jobs and build on the company's previous investment in the state.

Meta's new 715,000-square-foot, AI-optimized data center will be built off Interstate 65 in Montgomery, across from the Hyundai automotive assembly plant. It will join the company's other Alabama data center campus, located in Huntsville and representing an investment commitment of \$1.5 billion.

"Each day, millions of people around the world use Meta's products, and the next-generation Alabama data center in Montgomery will soon help keep the company's popular platforms running smoothly," said Governor Ivey. "Meta is putting down roots in another great location in Sweet Home Alabama, and we're committed to helping the company grow and prosper here."

Source: [//governor.alabama.gov/newsroom/2024/05](https://governor.alabama.gov/newsroom/2024/05)

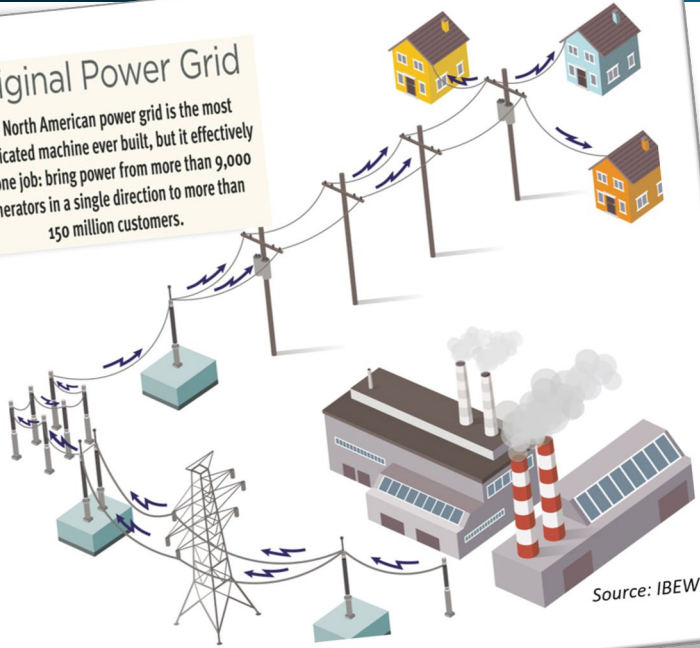
Source: [//investors.novelis.com/news-events/press-releases/detail/43](https://investors.novelis.com/news-events/press-releases/detail/43)

Source: [//corporate.arcelormittal.com/media/news-articles](https://corporate.arcelormittal.com/media/news-articles)

Now/Future: Rapid Change & Increased Complexity

Original Power Grid

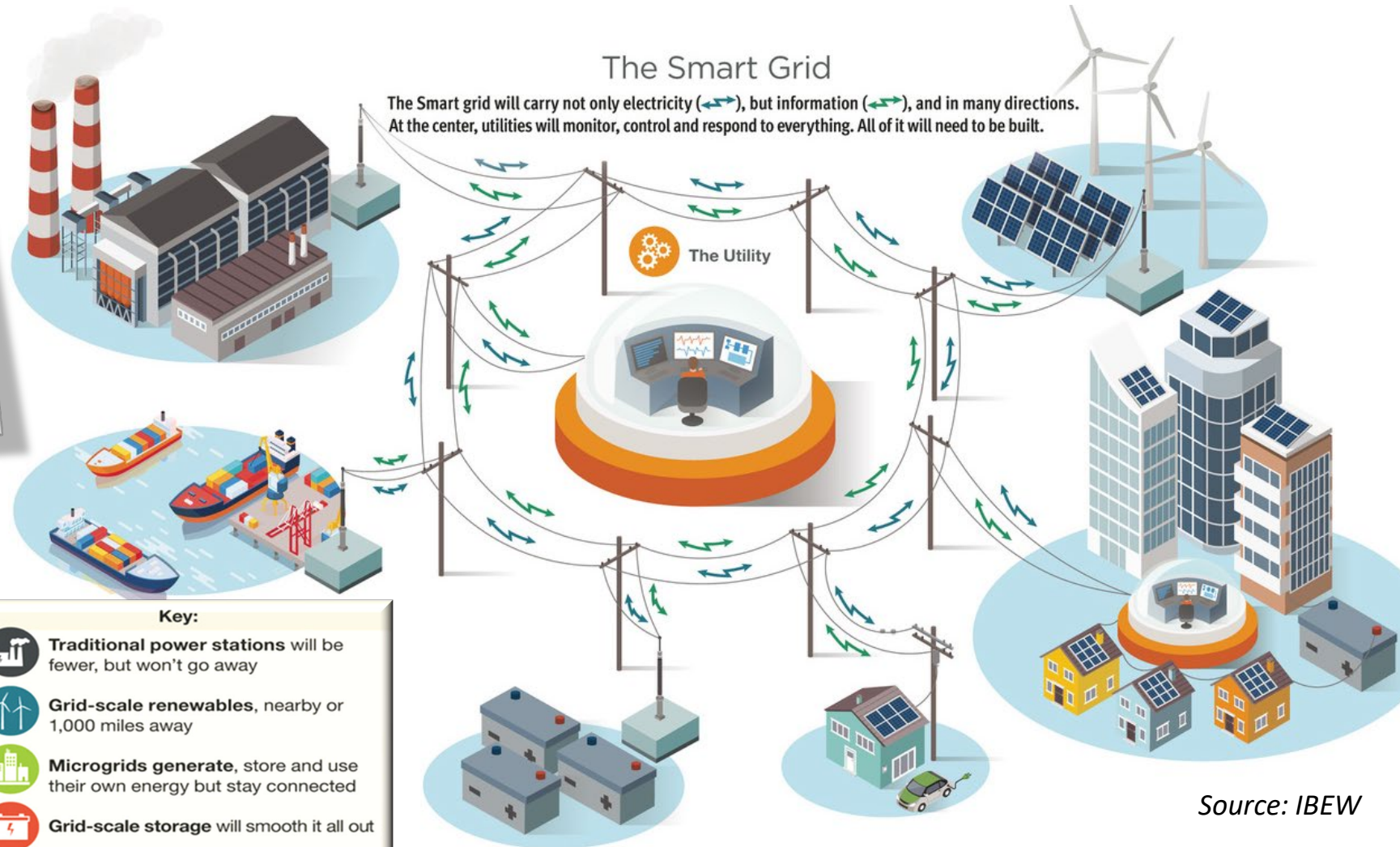
The North American power grid is the most complicated machine ever built, but it effectively has one job: bring power from more than 9,000 generators in a single direction to more than 150 million customers.



Source: IBEW

The Smart Grid

The Smart grid will carry not only electricity (⚡), but information (📶), and in many directions. At the center, utilities will monitor, control and respond to everything. All of it will need to be built.



Source: IBEW

Key:

-  **Traditional power stations** will be fewer, but won't go away
-  **Grid-scale renewables**, nearby or 1,000 miles away
-  **Microgrids** generate, store and use their own energy but stay connected
-  **Grid-scale storage** will smooth it all out
-  **Ports, railroads, factories** and even **farms** will end their reliance on gasoline and shift to electric power

Source: [//docs.nrel.gov/docs](https://docs.nrel.gov/docs)

Managing Grid Reliability

Advanced Conductors



High-Temperature Conductor

Flexible AC Systems



STATCOM

Transmission Deployment



Transmission Expansion

Power Flow Control



SmartValve

Adaptive Line Ratings



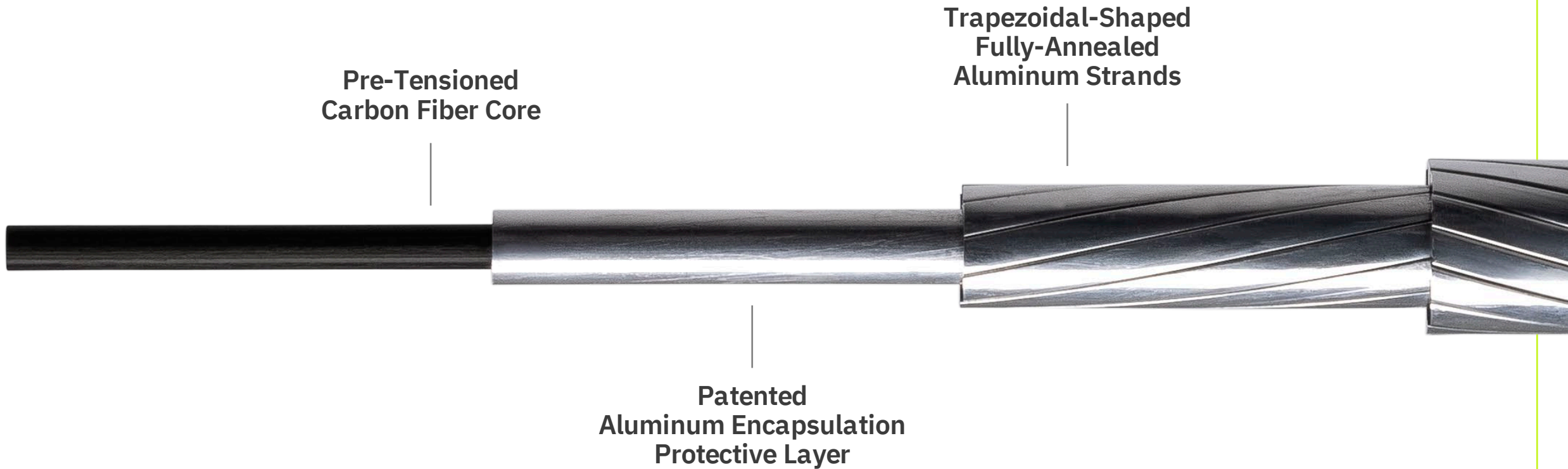
Dynamic Line Ratings



More capacity. Less CapEx.

Next generation advanced conductors enable utilities to double or triple capacity while saving customers money. It's the only advanced conductor that is safe and easy to work with using standard installation practices and equipment.

Award-winning innovation.

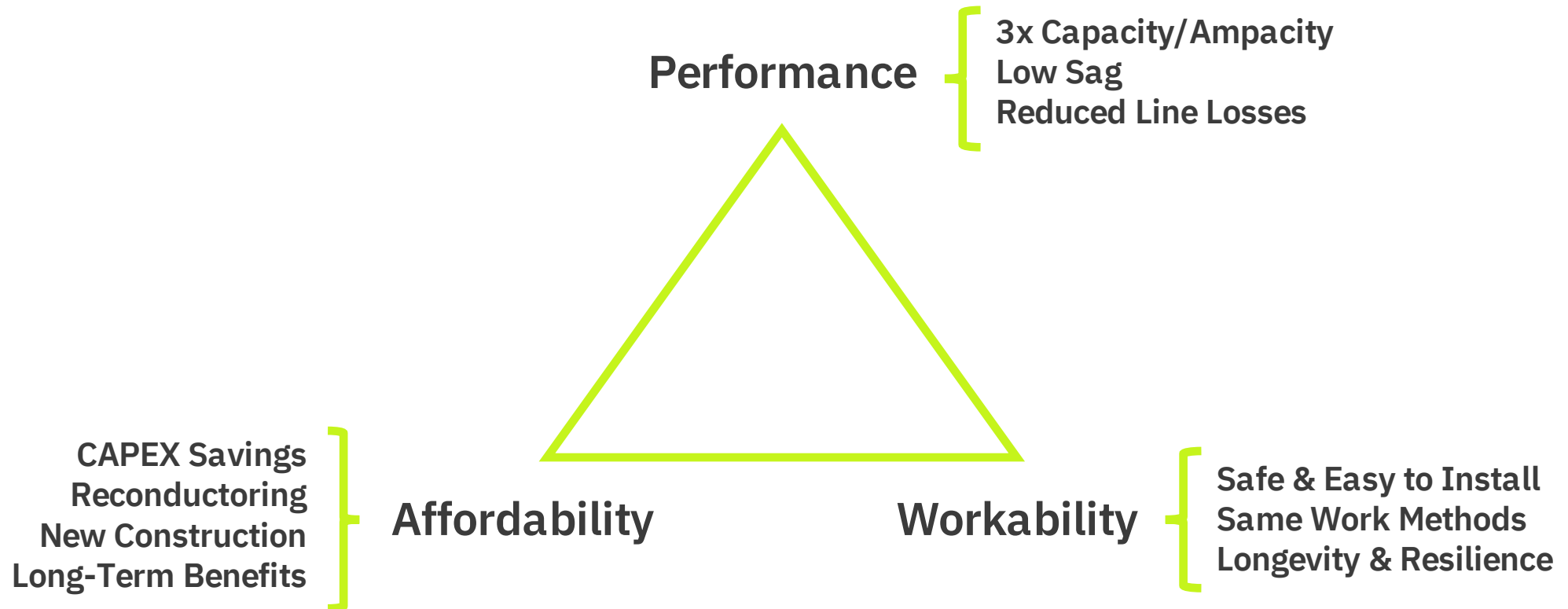


**PUBLIC UTILITIES
FORTNIGHTLY**

Bloomberg
NEW ENERGY FINANCE

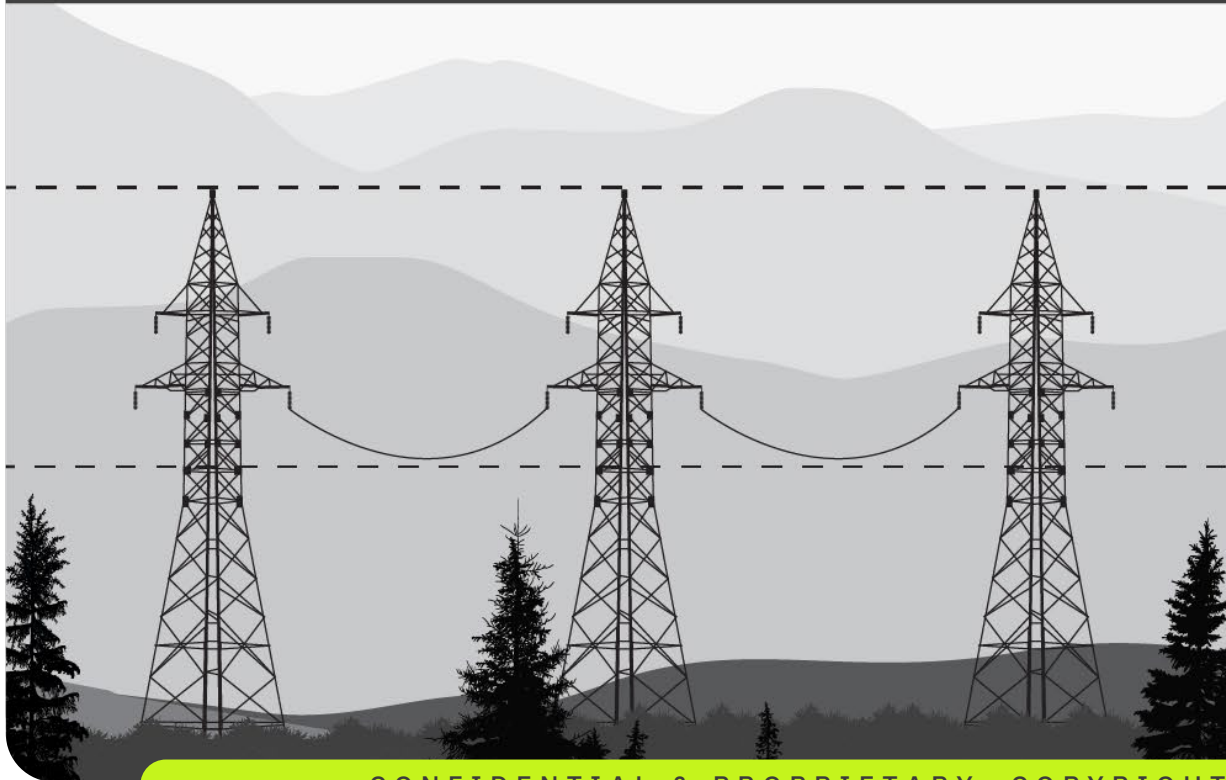
AMERICAN
MADE
U.S. DEPARTMENT OF ENERGY

TS Value Proposition for advanced conductor adoption.

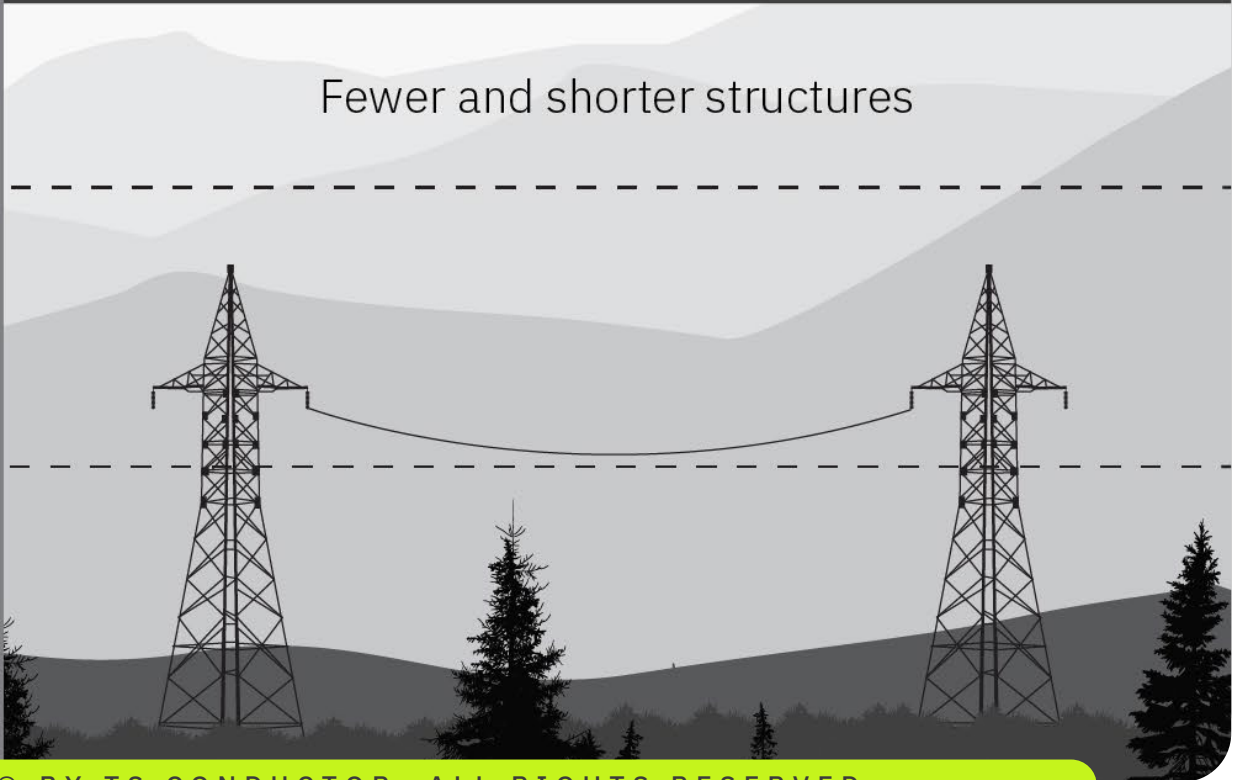


New construction: Up to 10-20% lower costs.

Traditional Conductors



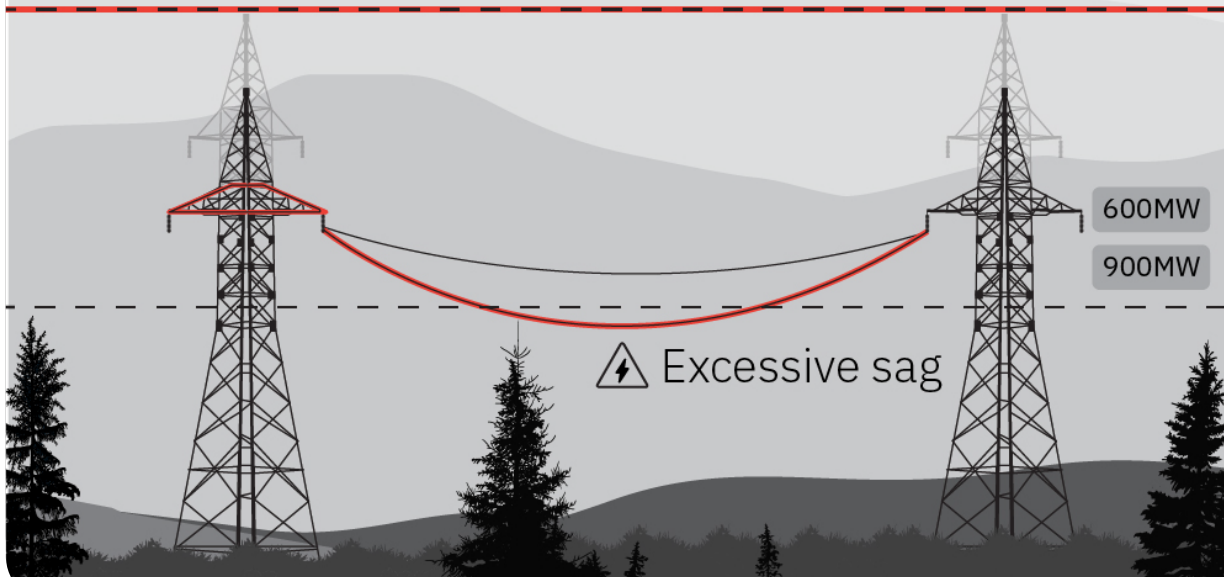
TS Conductor AECC



Reconductoring: Up to 30-40% lower costs.

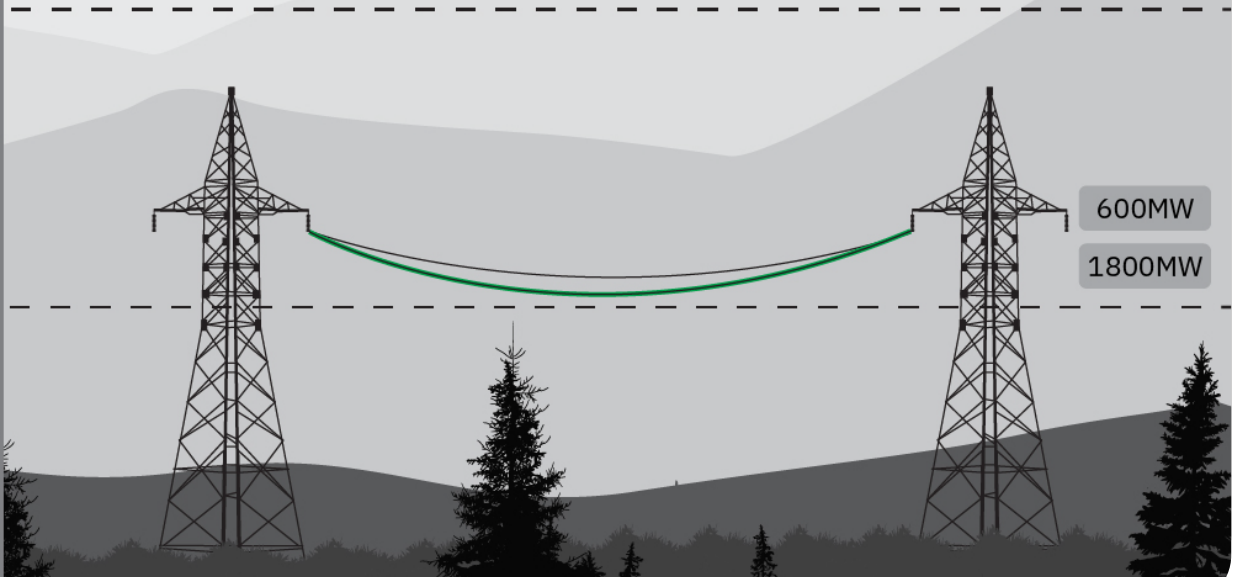
Traditional Conductors

Structure retrofit required including raising height and/or strengthening crossarms



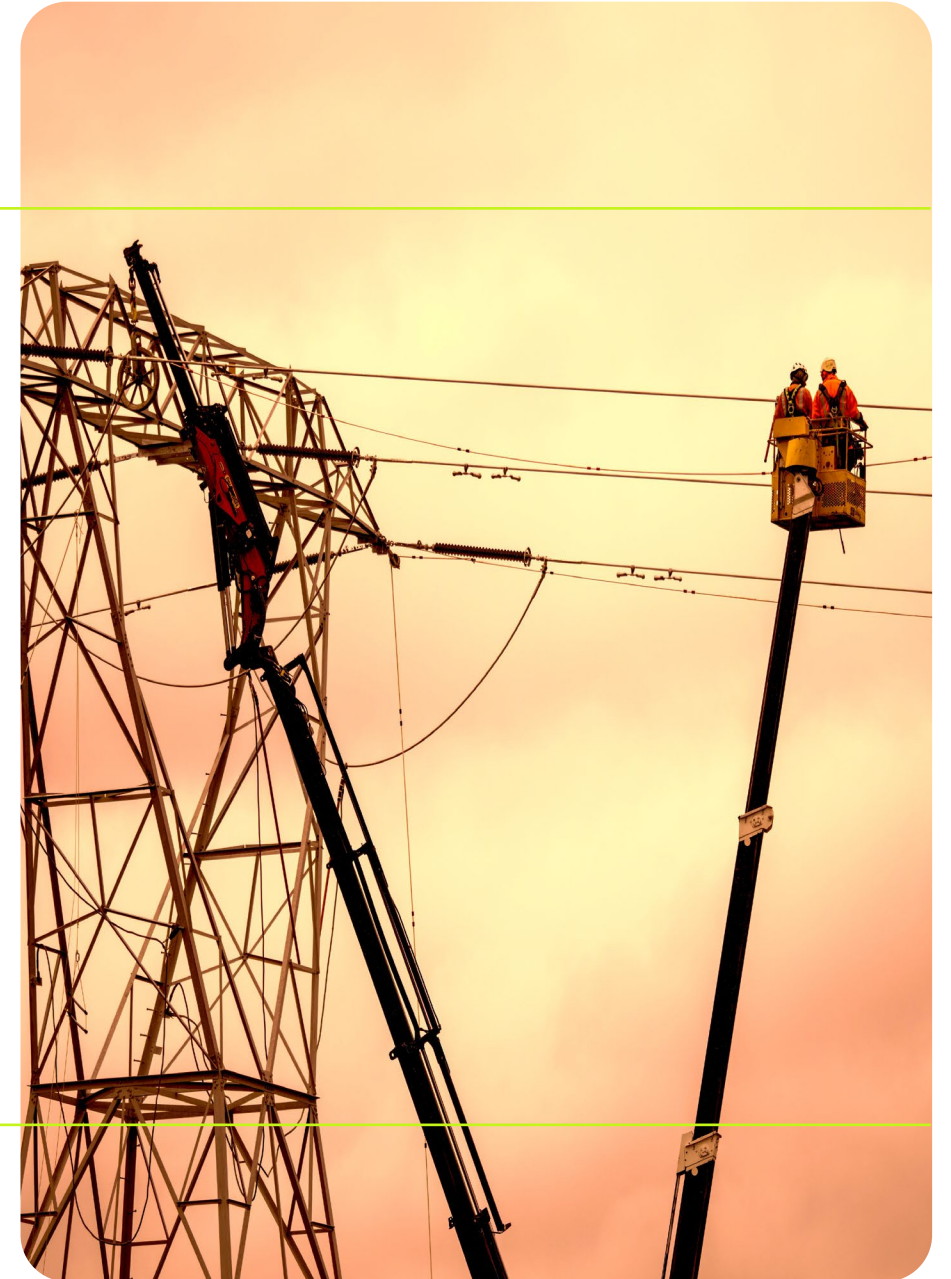
TS Conductor AECC

Reuse existing structures and crossarms without retrofit



Summary.

- **Performance:** Up to 3x higher ampacity, less sag, and standard installation methods.
- **New Construction:** 10-20% CapEx savings, fewer towers, reduced labor, and streamlined permitting.
- **Reconductoring:** Up to 30-40% CapEx savings, faster deployment, and no retrofits required.
- **Efficiency:** Up to 50% lower line losses for enhanced grid performance.



TED Talk.



<https://youtu.be/rHUJAIma7qI?si=lqFpS52dnMavZE-P>

Breakthrough Energy.



<https://youtu.be/6Vua7eEeUpw?si=51tVXMGeveSDBzrb>



Thank you.

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Grid Enhancing Technologies in Virginia

July 21, 2025

**Delegate Phil Hernandez
District 94 (Norfolk)**

The Context: Rising Demand for Power

“Unprecedented” energy demand from data centers poses big challenges for Virginia, commission says

Lawmakers working to address high electricity bill costs

OPINION

Virginia’s energy future: Balancing growth and costs amid rising demand

Over the next 15 years, Virginians’ energy bills are expected to rise as much as 50%, primarily driven by the growing demand from energy-intensive data centers.

HB 862 (2024)

Defined GETs for 1st Time in Virginia law:

- "Grid-enhancing technologies" means a **set of technologies that maximize the transmission of electricity across the electric distribution grid in a manner that ensures grid reliability and safeguards the cybersecurity and physical security of the electric distribution grid**, including storage as a transmission asset, dynamic line rating, power flow control, and topology optimization.

Whats does HB 862 Do?

- Requires "a comprehensive assessment" of GETs as part of the integrated resource plans from utility companies.
- Limited to distribution, excludes transmission plans.
- An electric utility that does not include GETs in the IRP "shall include a detailed explanation of why such technologies or conductors are not included in such plan."

Emerging Tech > Partisan Politics

HOUSE VOTE:

58-39

**SIGNED INTO LAW
APRIL 5TH 2024**



VIRGINIA LEAGUE OF
CONSERVATION VOTERS



Ted.Thomas@energizestrategies.com



Role of Regulator.

1. Regulatory compact: State gives company monopoly, state sets the rate charged for service.
2. Legislative delegation of authority to set rates and resource adequacy.
3. Rates are prices and prices are policy.
4. Further study: *Prophets of Regulation* by Thomas McCraw.

Challenges for innovation in the monopoly model.

1. Universal service mentality: One size fits all.
2. Incentives inherent in cost of service ratemaking.
3. Absence of market conditions that drive innovation in other sectors of the economy.
4. Challenge of product differentiation.

Grid Economics 101.

1. All forms of generation have limitations.
2. All forms of generation have different and sometimes changing costs.
3. Economic dispatch by balancing authority.
4. The grid enhances the geographic reach of generation resources.
5. End goal: A more robust grid paid for by generation savings.

Grid Enhancing technologies

1. Technology is not static.
2. The goal is a culture of innovation, not adoption of a particular technology.
3. The early bird gets the worm, the second mouse gets the cheese.
4. Increased throughput for same investment/right of way.
5. Price information to provide customer options.

Specific technologies

1. Old School: SCADA.
2. New School 1: Dynamic Line Ratings and
3. New School 2: Ambient Adjusted Ratings.
4. Distribution grid: AMI for hourly measurement of usage that can be matched with cost.
5. Enables non-wires alternatives, consumers to see prices, etc.

THANK YOU!



POLICY SESSION 11
Meeting Energy
Demand: How States
Are Using Advanced
Transmission
Technologies to
Modernize the Grid
MONDAY, JULY 21

