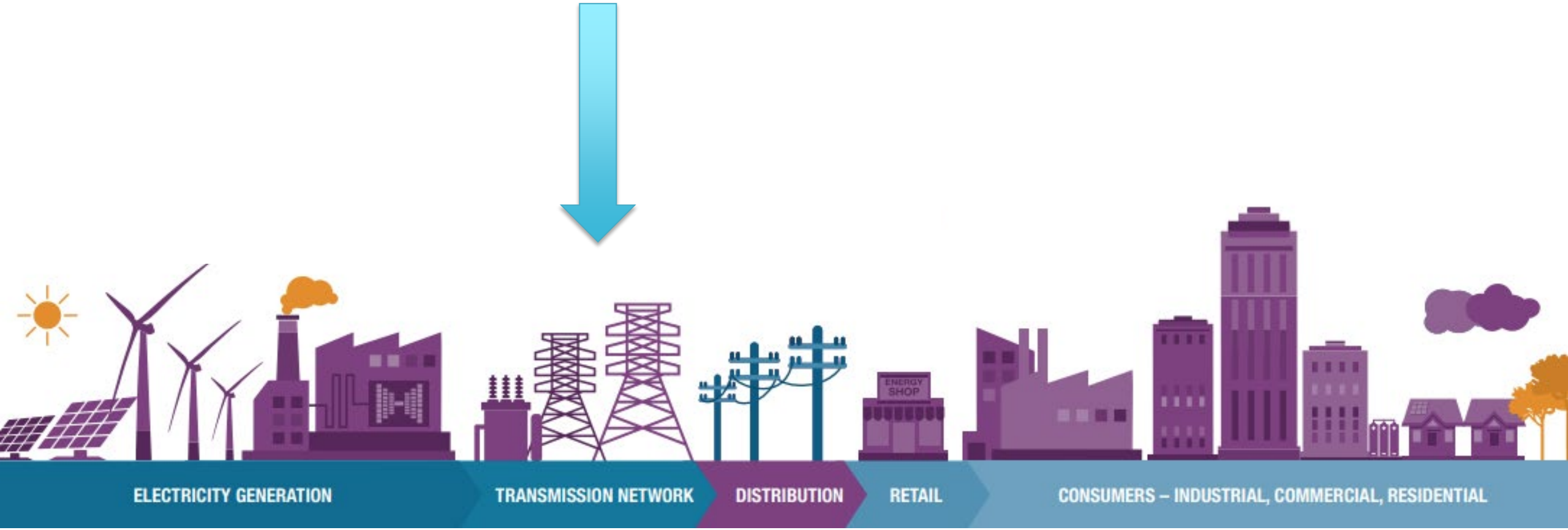
Meeting Energy Demand

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)**


ENERGY SHOP
ELECTRICITY GENERATION
TRANSMISSION NETWORK
DISTRIBUTION
RETAIL
CONSUMERS – INDUSTRIAL, COMMERCIAL, RESIDENTIAL

What are Advanced Transmission Technologies

Advanced transmission technologies (ATTs):

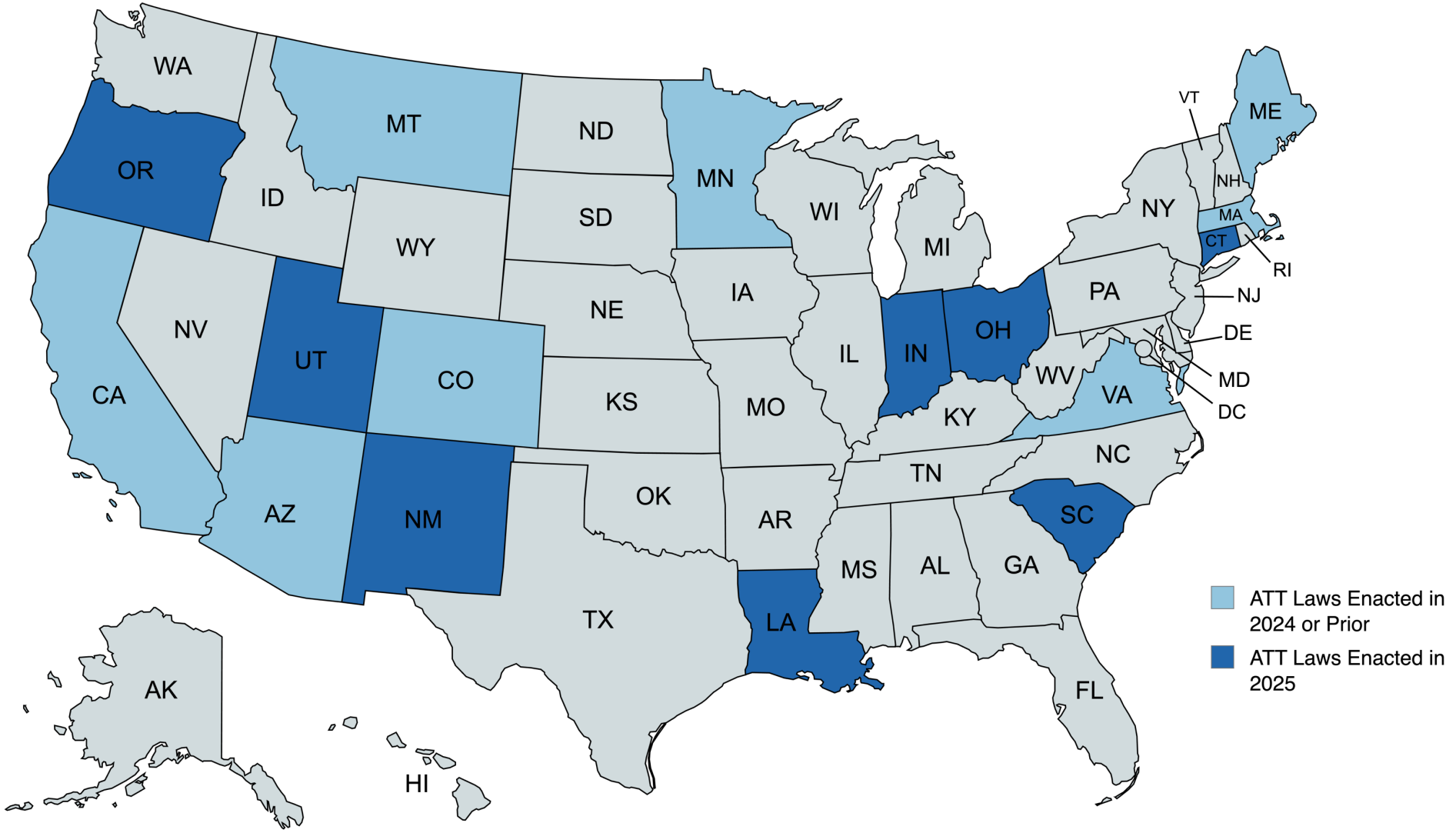
- squeeze **more capacity** out of the existing grid,
- **reduce congestion** costs,
- **deploy faster** than traditional transmission infrastructure.

3 MONTHS - **3** YEARS
DEPLOYMENT

100 GWs
GRID CAPACITY
UNLOCKED

Pew

National ATTs Policy Landscape



Pew

Meeting Energy Demand:

How States are Using Advanced Transmission Technology to Modernize Grid

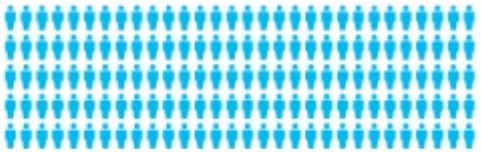
Matt Hart

July 21st, 2025

About Alabama Power

Customer Service

1.5M Customers



=10K customers

86% Residential

14% Commercial/Industrial

Charitable Giving

$17M

charitable giving in 2024 through Alabama Power Foundation

$273M

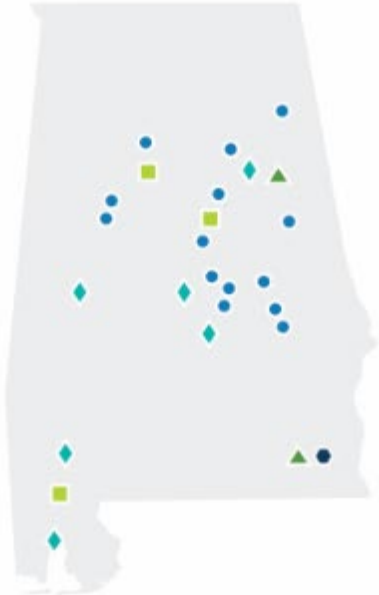
given since its inception in 1989

About Us

6,154 employees

5,925 retirees

Generating Plants

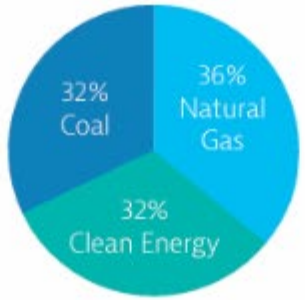


Natural Gas · Coal · Hydro · Solar · Nuclear

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

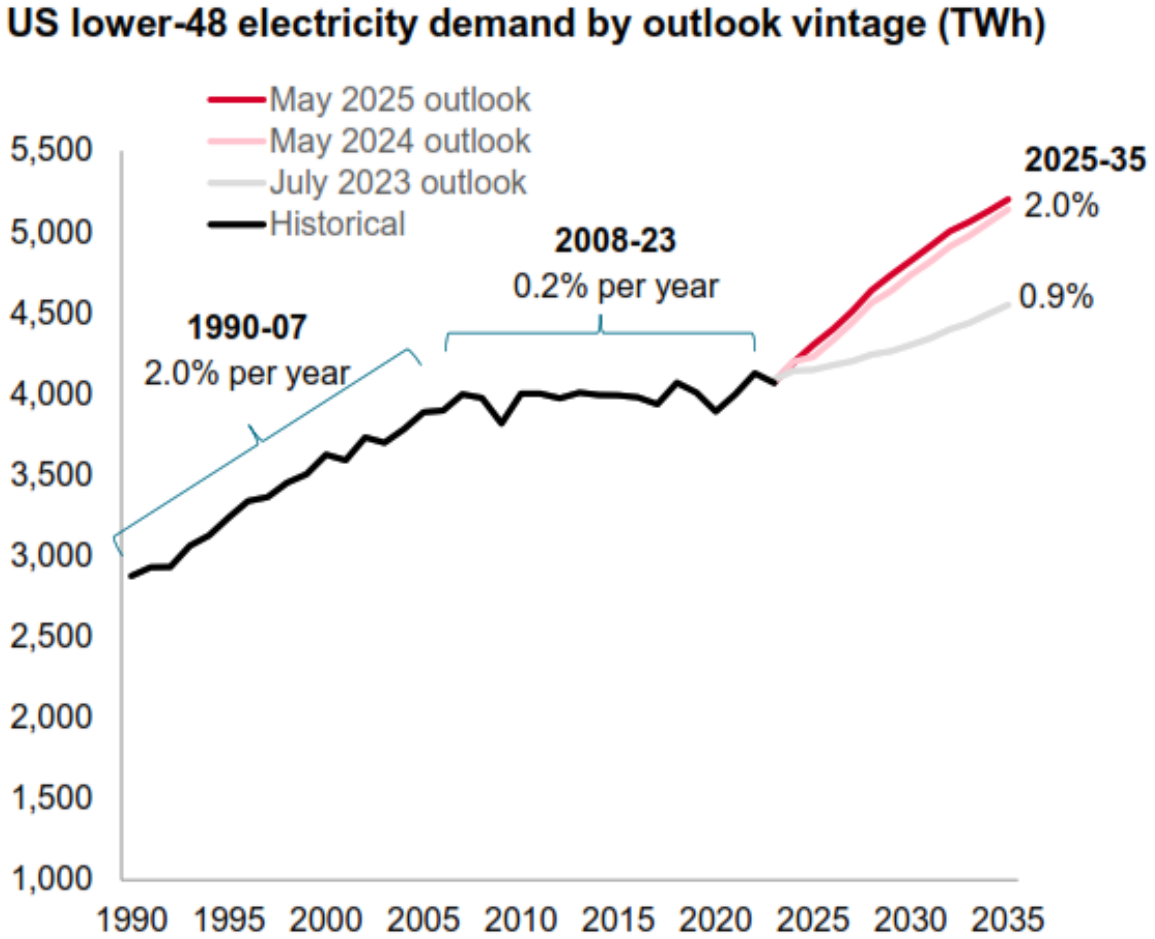
total towers and poles

86,171

total miles of power lines

*Other includes energy from sources that may include wind, solar, etc. To the extent Alabama Power gets the renewable energy certificates (RECs) from these sources, it generally retains the right to sell renewable energy or associated RECs to third parties for the benefit of customers.

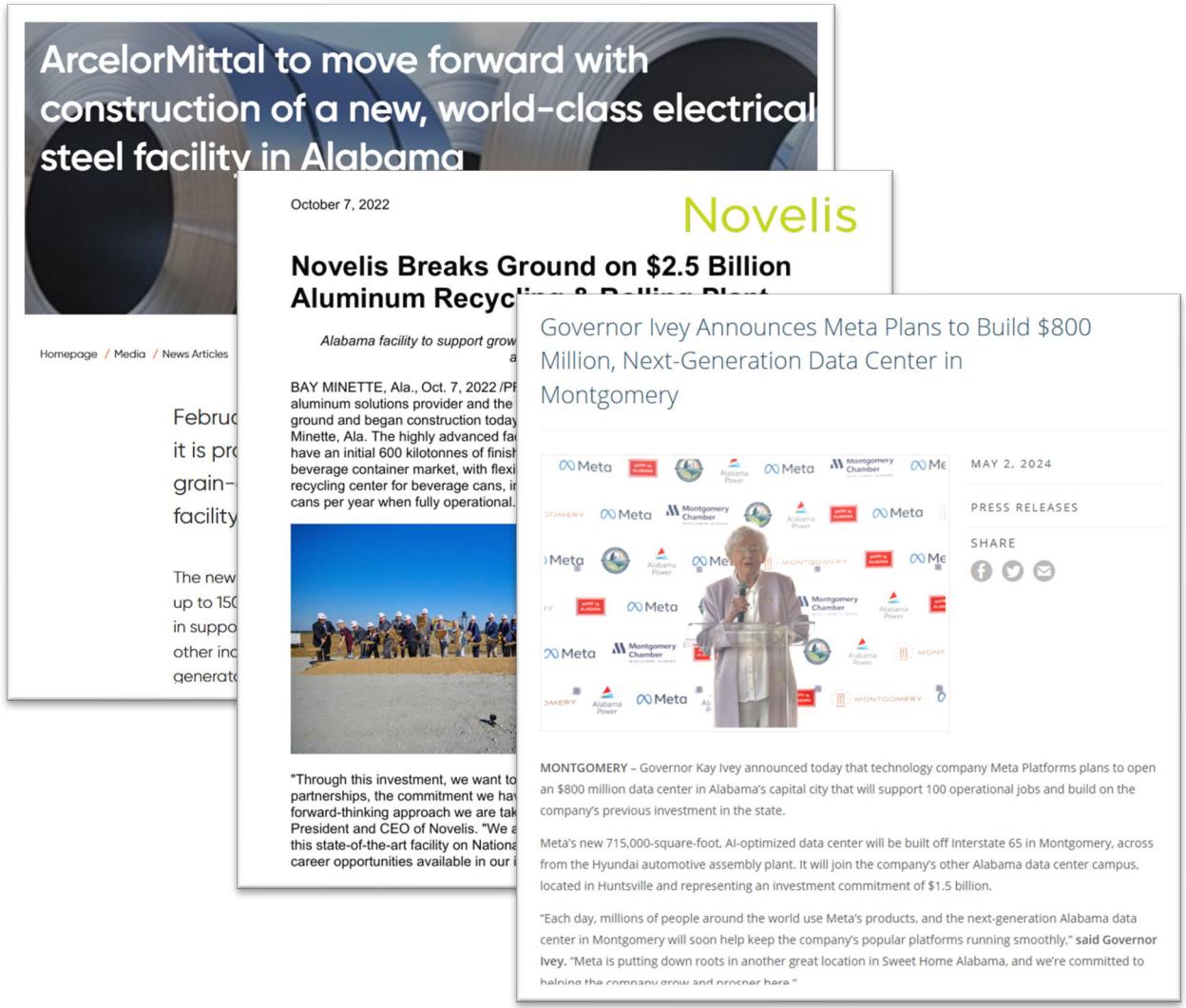
Increasing Grid Demand



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.

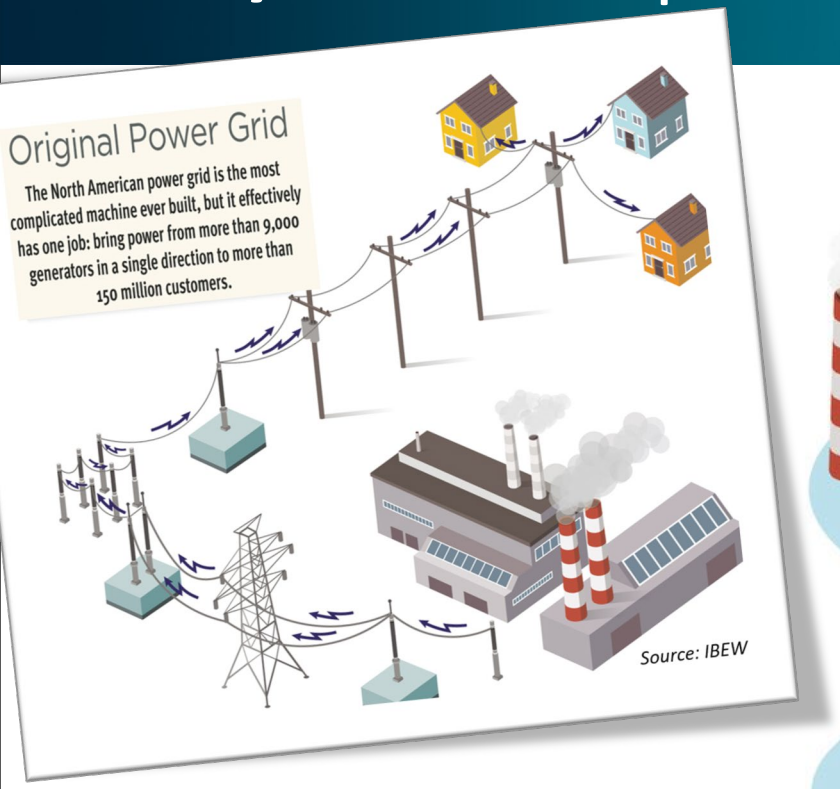
S&P Global
Market Intelligence

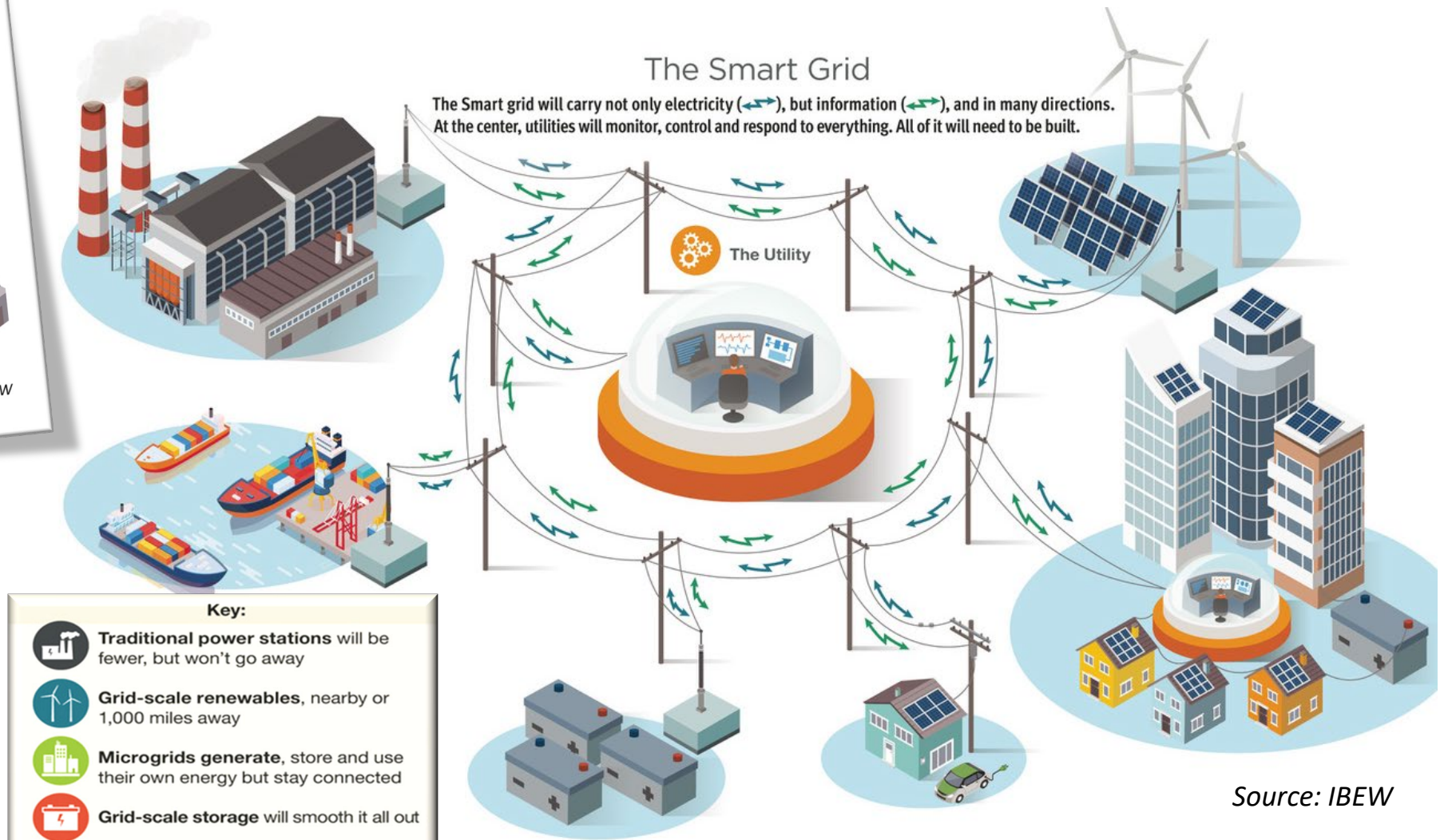
Alabama Growth



Source: //governor.alabama.gov/newsroom/2024/05
Source: //investors.novelis.com/news-events/press-releases/detail/43
Source: //corporate.arcelormittal.com/media/news-articles

Now/Future: Rapid Change & Increased Complexity





Source: IBEW

Source: //docs.nrel.gov/docs

Managing Grid Reliability

Advanced Conductors

High-Temperature Conductor

Transmission Deployment

Transmission Expansion

Power Flow Control

SmartValve

Flexible AC Systems

STATCOM

Adaptive Line Ratings

Dynamic Line Ratings

Award-winning innovation.

Trapezoidal-Shaped Fully-Annealed Aluminum Strands

Pre-Tensioned Carbon Fiber Core

Patented Aluminum Encapsulation Protective Layer

Platts Global Energy Awards

PUBLIC UTILITIES FORTNIGHTLY

Bloomberg NEW ENERGY FINANCE

AMERICAN MADE U.S. DEPARTMENT OF ENERGY

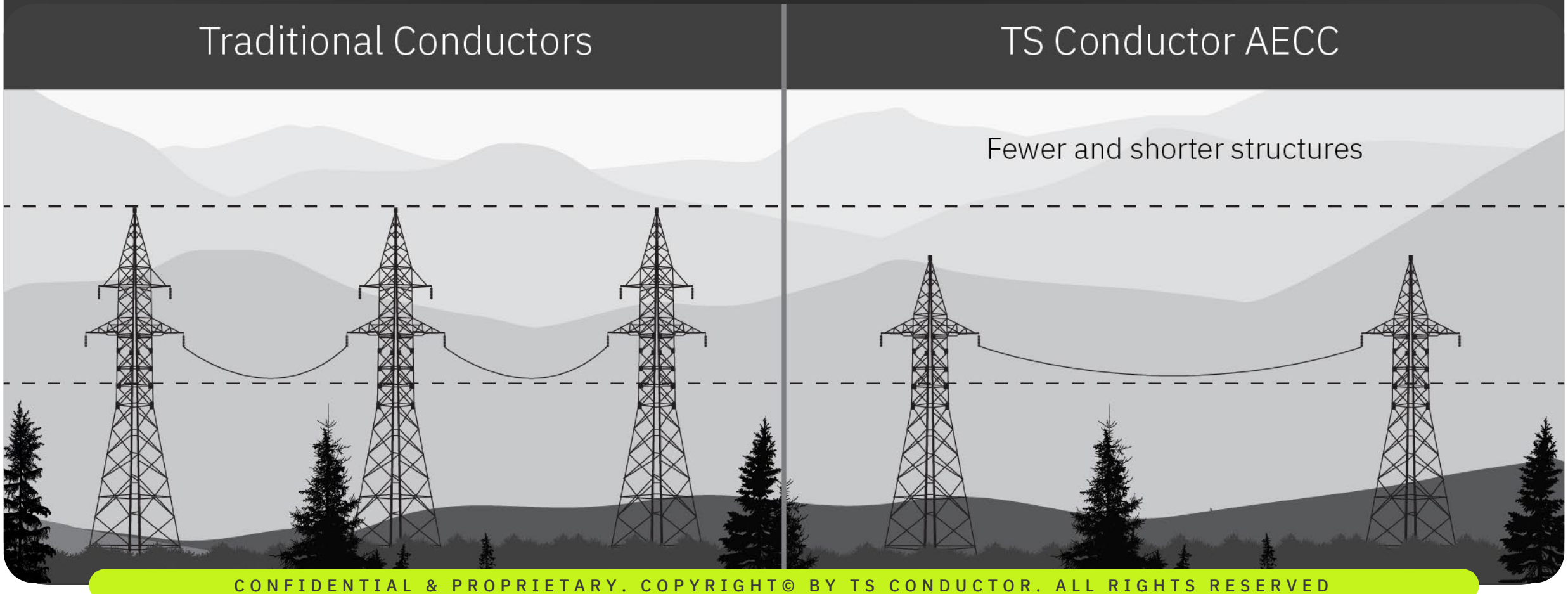
TS Value Proposition
for advanced conductor adoption.

Performance
- 3x Capacity/Ampacity
- Low Sag
- Reduced Line Losses

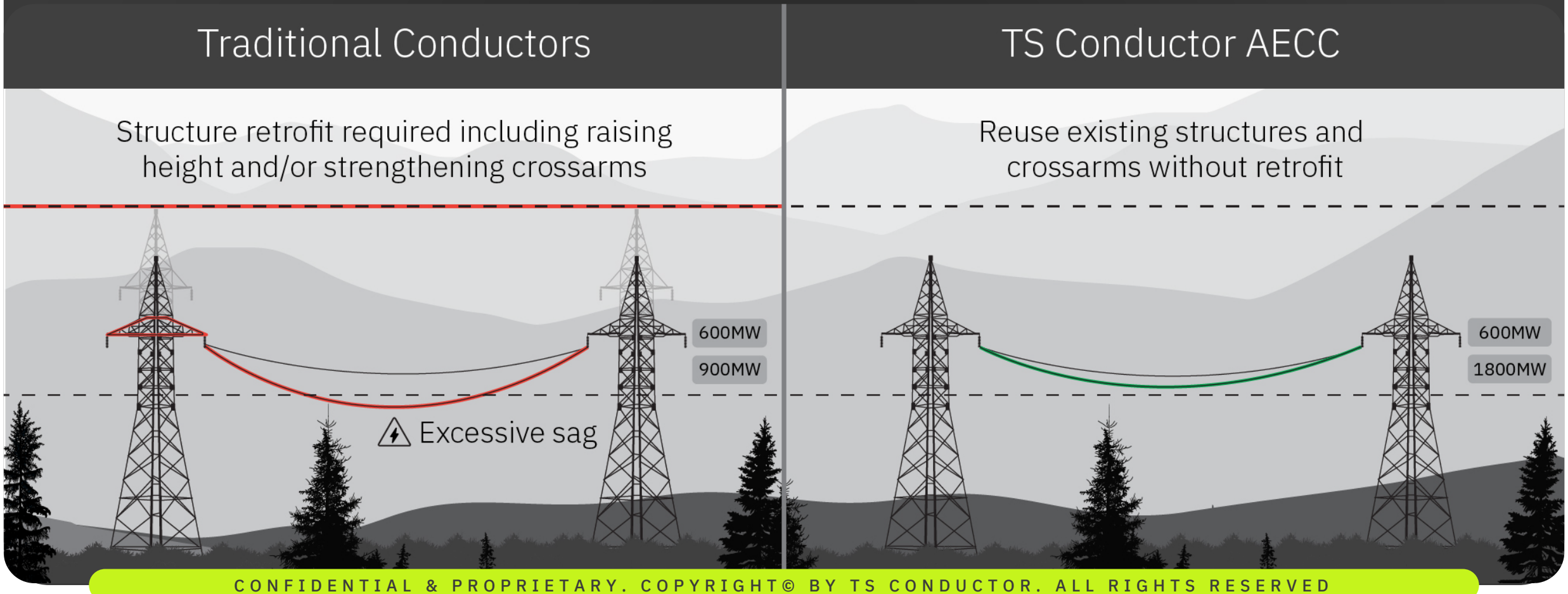
Affordability
- CAPEX Savings
- Reconductoring
- New Construction
- Long-Term Benefits

Workability
- Safe & Easy to Install
- Same Work Methods
- Longevity & Resilience

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

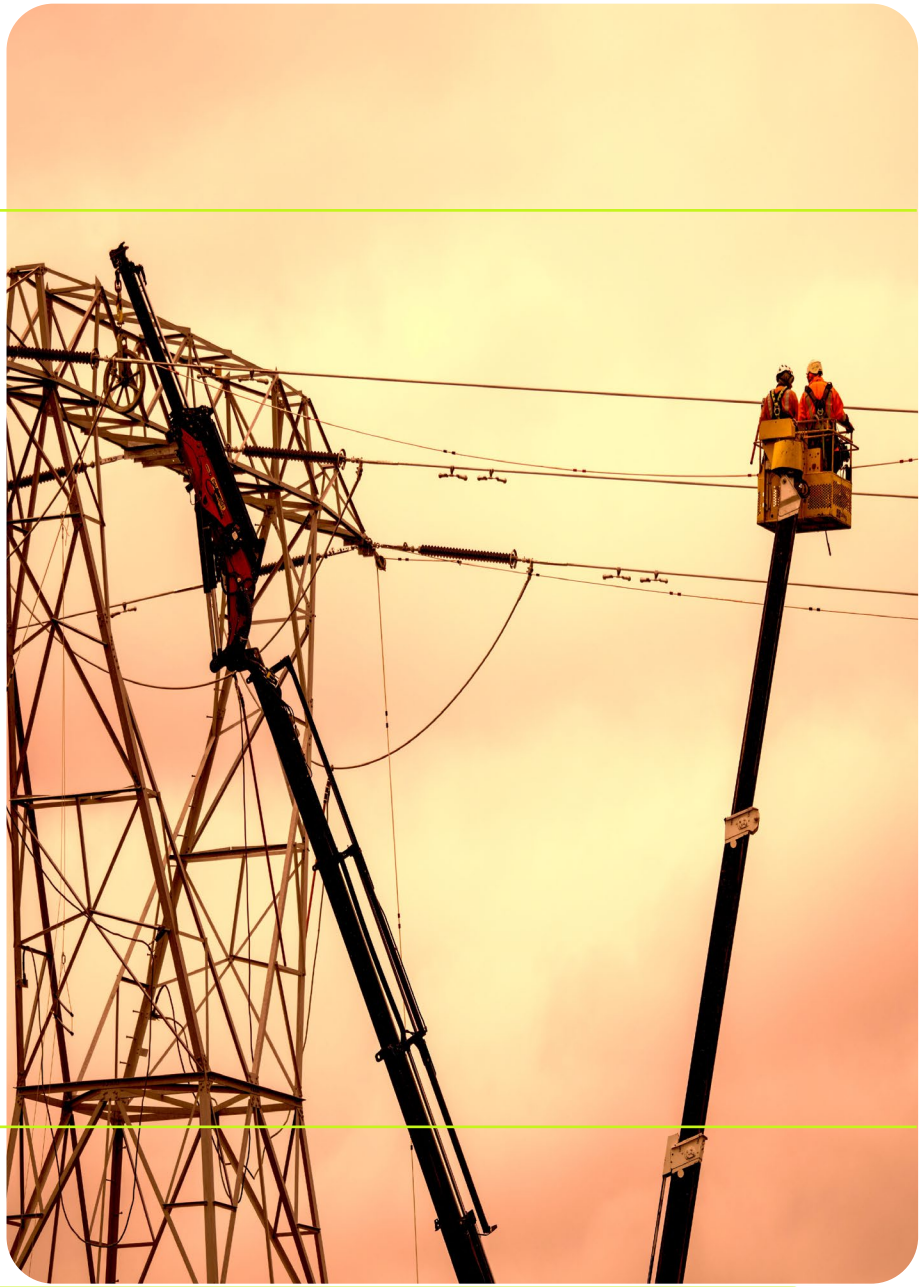


Reconductoring: Up to 30-40% **lower costs.**

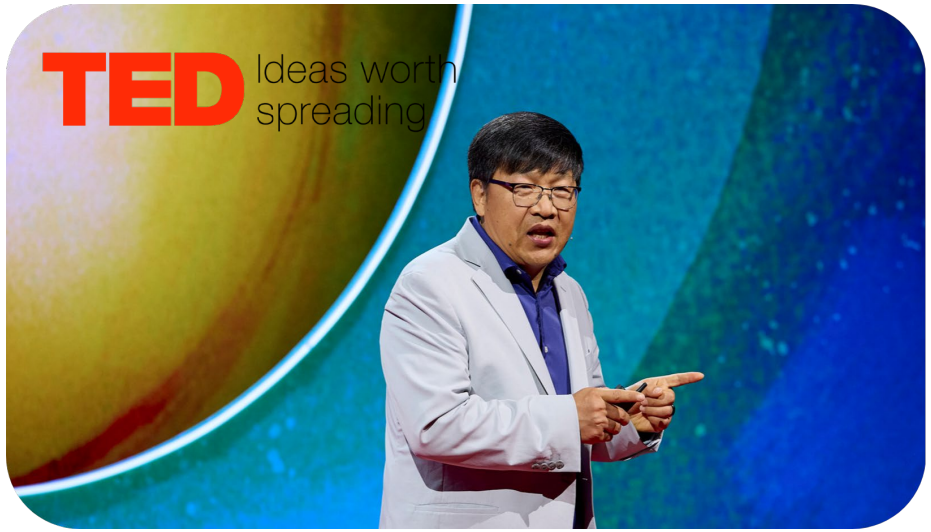


Summary.

- 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/rHUJAlMa7qI?si=IqFpS52dnMavZE-P

Breakthrough Energy.

https://youtu.be/6Vua7eEeUpw?si=51tVXMGeveSDbzrb

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Grid Enhancing Technologies in Virginia

July 21, 2025

Delegate Phil Hernandez
District 94 (Norfolk)

The Context: Rising Demand for Power

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

ADVANCED ENERGY UNITED™

CONSERVATIVES FOR CleanEnergy VIRGINIA

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 metality: One size fits all.
2. Incentives inherent in cost of service ratemaking.
3. Absense 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. Ecommic 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 measurment of usesage that can be matched with cost.
5. Enables non-wires alternatives, consumers to see prices, etc.

THANK YOU!

POLICY SESSION 11

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MONDAY, JULY 21