

Growing Grid Capacity and Resilience in New England

Accommodate load growth quickly and safely with dynamic line rating, transmission line monitoring, and grid analytics



- Is there a business need?
- Are GETs/DLR the right approach?
 - Does the solution work? (TRL)
 - Are there sufficient examples of the solution working? (CRL)
 - Do the economics work?

What is the business need for ISO New England?



Power demand is forecast to increase for the first time in 5 years¹

1. State of the Markets 2024. FERC

As weather becomes more severe, utilities face rising insurance costs and reliability concerns

ISO-NE's queue has grown from 8GW to 20GW in annual requests since 2020²

2 Interconnection.FYI 2020 to 2024 summaries

LINEVISION

Unlock Capacity on Your Existing Infrastructure

Dynamic Line Ratings (DLR)

BEFORE DLR

DLR is a technology that uses measured & forecasted data to optimize transmission capacity Provides **speed** and **flexibility** to interconnect new load and generation

Increases grid reliability and affordability

AFTER DLR



LINEVISION

What is required to safely calculate DLR?

Dynamic Line Rating calculations require accurate data on ambient solar, temperature, and wind speeds and directions along the transmission line. Wind speed and direction have by far the most impact on DLR, and are the most variable across even very short distances. LineVision's ratings are calculated with the industry-standard IEEE 738 heat balance equation.

Inputs to DLR Calculation:

- > Maximum Operating Temperature
- > Solar Irradiance, Air Temperature, and Wind Speed
- > Fixed conductor properties:
 - > Resistivity
 - > Emissivity/absorptivity
 - > Thermal mass





Case Study: AES Deployed DLR to Address Load Growth

Results from one circuit with several large C&I service requests

43% Average Capacity Gain

7.6% DLR Project Cost vs Reconductor

Months of Outages Avoided



42 Sensors Installed In Under 2 Weeks, Averaging 30 Minutes Per Installation



2.5

"The speed at which loads are growing or coming into our grid footprint means that having a solution that can be deployed quickly helps us provide timely improvements to meet the needs of our customers."

- EXCERPT FROM AES' DLR WHITE PAPER



What drives the economics of GETs?

ISO-NE experienced growth in 2024 prices while other markets saw decreases

Figure 2: Percent Change in Annual Mean and Median Day-Ahead On-Peak Wholesale Electricity Prices



Planned Outages	Storage + Renewables	Stochastic Uncertainty
"Pick up the slack	Increasing	Addressing bias to
caused by the	deliverability of the	inaction whilst
outage to	34GWh (2024) of	transmission
accommodate	constrained by	planning occurs
deliveries" - NGrid	transmission.	and POIs change.

Start with Historical Congestion Top 20 lines?

Frameworks proposed from \$500,000 to upwards of \$2,000,000 with varying degrees of commentary around the lack of a future-looking requirement or a payback term.

Perhaps driven by -1.4GW net generating retirements last year with accelerating load estimates



Source: S&P Global Capital IO.4

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