

ISO New England GETs Workshop

June 2025

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Prisma Photonics

prisma photonics

- Optical Fiber Sensing for Power Line
 Monitoring
- Founded in 2017, HQ in Tel Aviv, offices in the U.S., and Germany
- Over 100 employees and rapidly growing
- Innovating next-generation fiber sensors to increase grid resiliency and capacity
- Global customers and partnering with 4
 out of the top 10 US utilities
- Monitoring thousands of miles of transmission globally





Using Existing Fiber to Monitor itself



prisma

- The Optical Ground Wire (OPGW) runs on top
- Using Optical Fiber Sensing we monitor everything
- The image below shows raw data
 - The colors depict the vibration frequencies of the wire
- Using AI models, this data is translated to windand other metrics





The PrismaPower™ Suite

PrismaCapacity

- Dynamic Line Rating (DLR)
- Ambient Adjusted Ratings (AAR)

PrismaClimate

- Galloping
- Wire tension
- Extreme winds
- Icing
- Lightning strike
- Wildfires

PrismaCircuit

- Short circuits
- Flashovers
- Partial discharge & Corona
- Fiber cut
- Fiber quality (OTDR)
- Vandalism
- Vegetation hits



Measuring Wind on Every Span to Increase Capacity

60°

6

67°

65°

- Power line topology and terrain greatly influence wind cooling
- PrismaPower measures wind metrics on every line span between towers
- Using the OPGW, we turn the line itself into a sensitive wind sensor
- Real-time wind data feeds into the current model and optimizes forecasts



62°

Measuring wind accurately on every span

Compared to anemometers in different places along a 42km line, there is a strong correlation with fiber-based wind readings



Fiber to Wind

Fiber Signal	The fiber signal of entire line is recorded and digitized
Span localization	The data is split to spans
Mechanism	Per span, Spectral features characterizing the vibrations are calculated. Wind-induced vibrations affect the spectrum of the signal
Regression	A regression model is used to infer the Wind Speed and Attack Angle (0 - 90 deg)
Calibration	The model is calibrated to output the Wind at the desired height
Continuous Measurement	Each Span serves as a wind measurement device, continuously estimating the local wind



Cloud – Data Locations



Cloud



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Inputs and Outputs

Input, per span	Sourced from	lcon
Ambient temperature	Weather service	
Solar radiation	Weather service	ġ.
Siesmic data	Prisma Beacon	-M-
Wind	PrismaWind™	- Allfr
Conductor & OPGW parameters	PrismaPower™ database	()

Output	Sourced from	Format
Current rating (Amps), per line: 80%, 100%, 120%, 140%	PrismaCapacity™	Load Current 80% 800 A 100% 1,000 A 120% 1,200 A 140% 1,400 A
Climate & Resilience alerts, on GUI	PrismaClimate™ PrismaCircuit™	2
Long-term analytics data	PrismaCapacity™ PrismaClimate™ PrismaCircuit™	



On-Prem Architecture



On-Prem



Integration with ISO New England & PrismaPower

- Proven experience integrating with control room environments, adhering to strict operational and cybersecurity standards
- Supports seamless integration with SCADA and EMS systems via DNP3, IEC 60870-104, ICCP (TASE.2), and OPC gateway protocols.
- Flexible deployment options: On-premises within a utility DMZ or cloud-hosted, with secure data transfer via VPN tunneling.
- **Real-time OPGW-based line monitoring** combined with highresolution weather models for dynamic line rating (DLR) and operational detections
- **Built-in operational limit alignment** ensures EMS and SCADA applications reference consistent, centralized limits.
- Secure, redundant communication pathways using mobile VPN or private fiber infrastructure for continuous data delivery.

Thank you!

