Pacific Northwest
NATIONAL LABORATORY

Proactive Distribution System Planning

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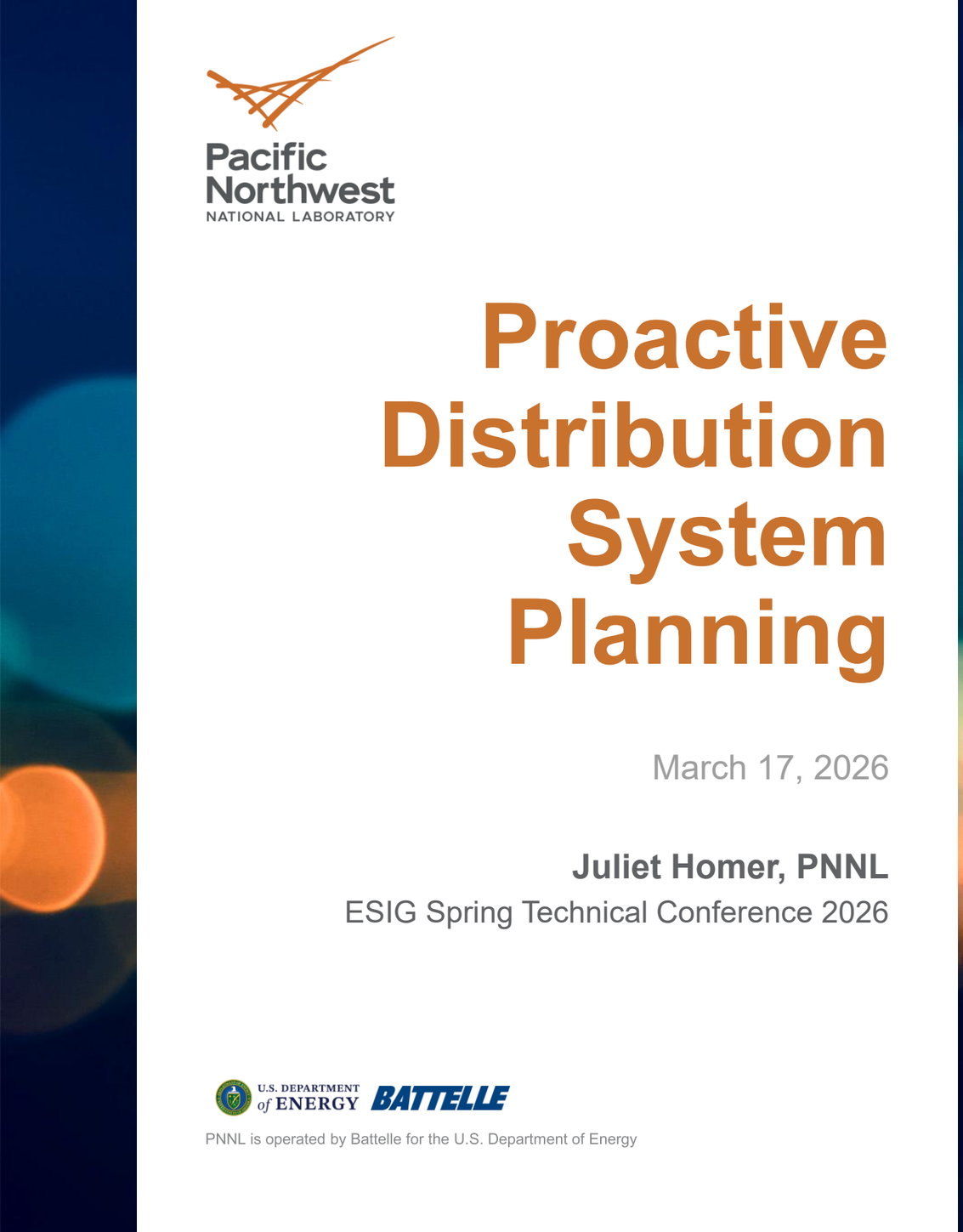
ESIG Spring Technical Conference 2026



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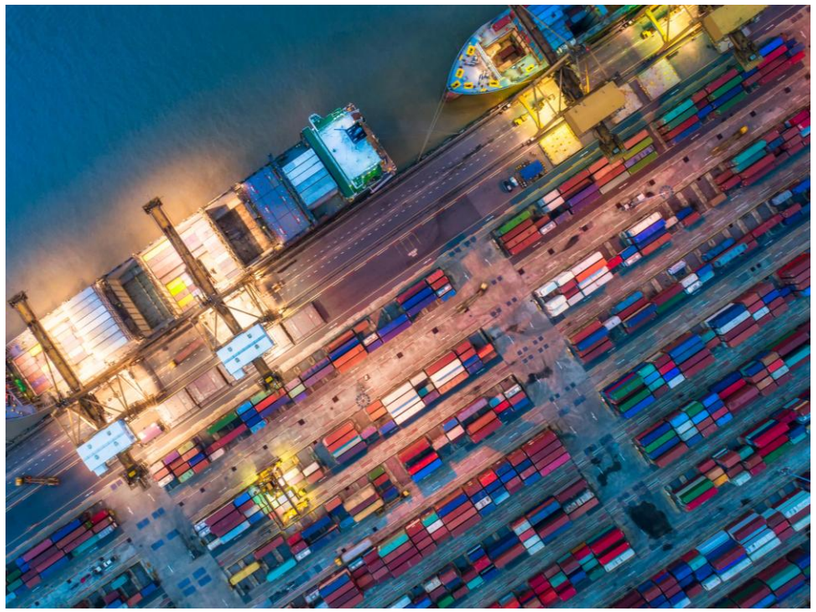
What is Proactive Distribution System Planning?



- Context
  - Electricity sector expecting long-term load growth, not just from large loads.
  - Distribution system-level load growth often occurs much faster than the time required for utilities to plan, permit, and build electric infrastructure.
  - Loads are facing delays to interconnect, and utilities may be conducting incremental upgrades that could have been done more efficiently as one larger upgrade.
- Proactive planning anticipates load growth beyond current practices and with longer time horizons. Proactive investments enable future load growth.
- Uncertainty about the timing, location, and size of future load growth increases the risk that proactive investments might not exactly meet the need that ultimately materializes.

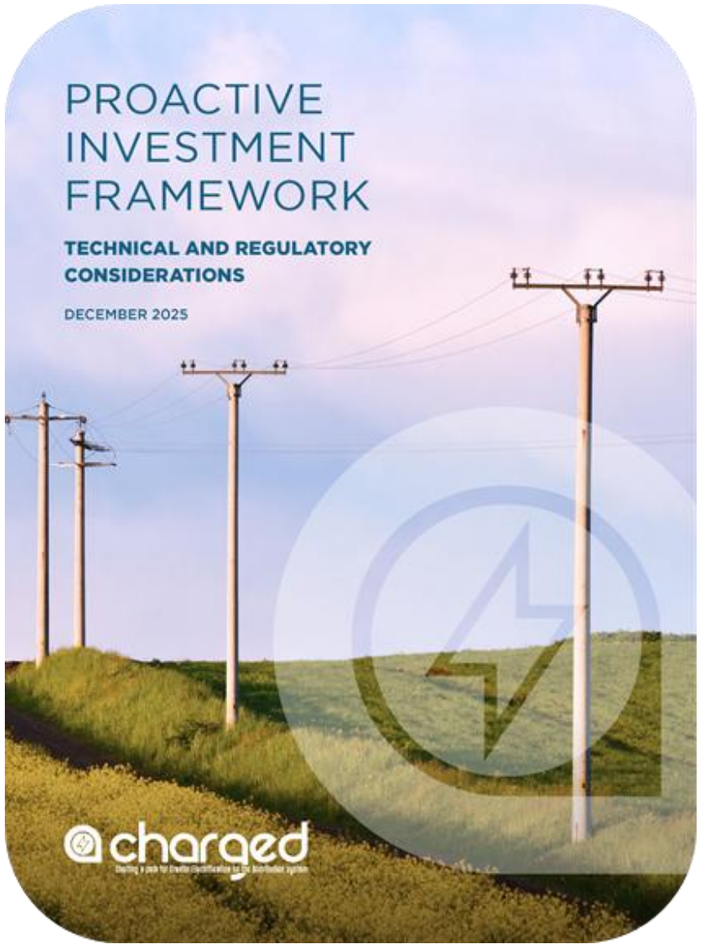
PNNL Work on this Topic

- Workshop and research in 2024 and 2025
- Continued work in 2026 on a “model framework” for regulatory treatment of proactive investments

Workshop report

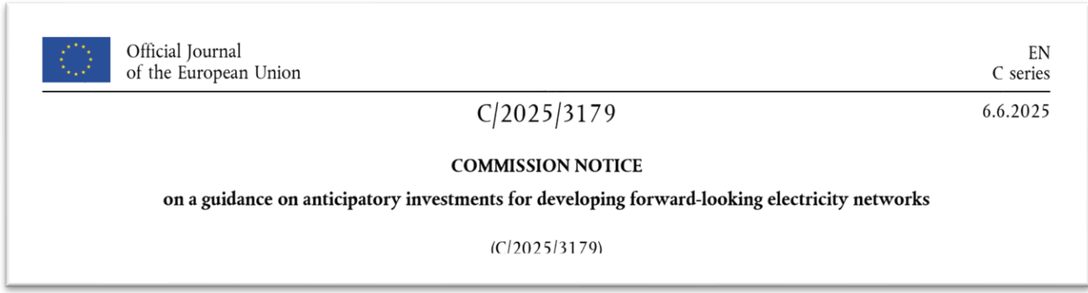
CHARGED Initiative

- CHARGED is a multi-stakeholder initiative, co-led by GridLab, RMI and Advanced Energy United, supporting affordable and reliable electrification.



- In collaboration with a working group of industry experts, CHARGED developed a **Proactive Investment Framework** report to help navigate developing and adapting proactive investment processes.
  - Key chapters
    - ✓ Key considerations and framework design
    - ✓ Identifying and assessing the appropriateness of proactive investments
    - ✓ Regulatory approval, cost recovery, and risk management
    - ✓ Cost allocation
- Report, fact sheet, webinar available at chargedinitiative.org/resources/
- Future focus areas building on this work include proactive investment metrics and grid utilization metrics.

Anticipatory Investment in Europe



Official Journal of the European Union

EN
C series

C/2025/3179

6.6.2025

COMMISSION NOTICE

on a guidance on anticipatory investments for developing forward-looking electricity networks

(C/2025/3179)

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202503179

- Anticipatory investments: "…**proactively address network development needs** beyond those relating to currently existing grid connection requests by generation or demand projects…"
- European Commission issued a **guidance document** for key entities to ensure that grid investments reflect future needs, while also ensuring affordability for consumers and the competitiveness of industry.
  - The guidance document has concrete recommendations in 3 main areas: network (grid) planning, regulatory scrutiny, and costs and incentives.
- EU countries and National Regulatory Authorities are invited to consider this guidance when designing national frameworks for network planning, connection charges and network tariffs, as well as regulatory cost approval.

Key Challenges to Proactive Planning and Investment

As discussed in PNNL's workshop and within current state processes in the U.S.

Traditional planning processes may be insufficient and too fractured to deal with proactive approaches.

Planners need improved **load forecasting** tools to help manage uncertainty associated with future growth, e.g. more granularity and better location and temporal information.

Existing **prudence review and cost recovery processes** may not be nimble, flexible, or fast enough to deal with the pace at which grid investment needs are materializing.

Need a better characterization of the **potential role of DERs and flexibility** in meeting needs and reducing costs and risks.

Deciding how to **allocate costs** for proactive investments between the anticipated new loads, the broader customer base, or even the broader taxpayer base, is a controversial and challenging issue.

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Thank you