



# Planning for Growth

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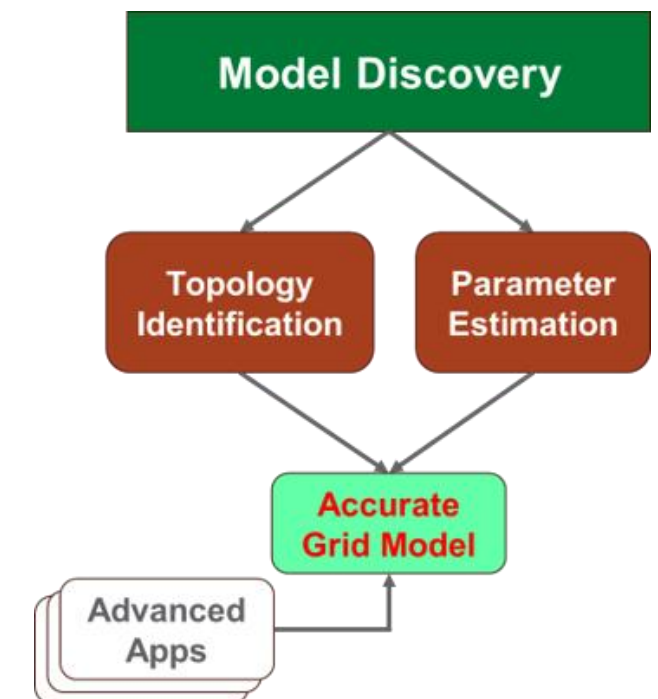
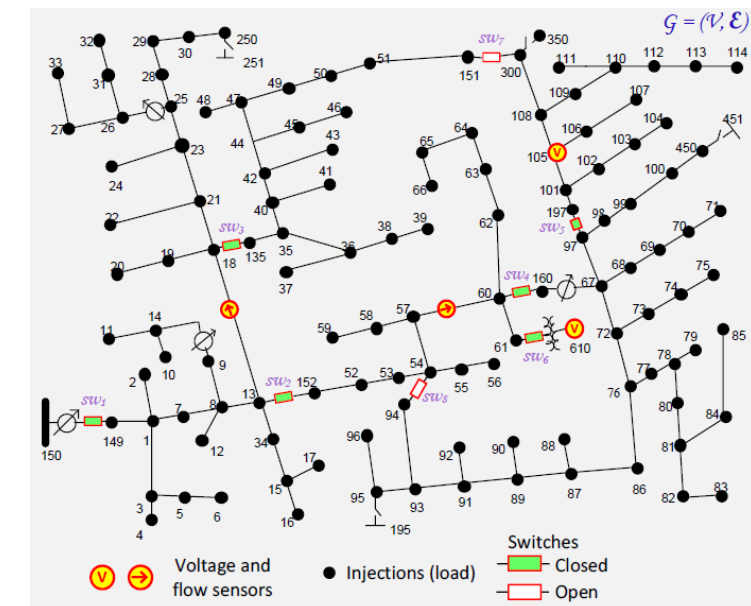


# Keeping the Lights on while Modernizing the Grid

- How much head room do we have?
- What net load growth should we expect?
- How can growth be accommodated in the short- and long-term?

# Distribution System Topology Identification

- Advanced distributions system management (e.g., voltage control, outage management, DERMS) are contingent on knowing your system
- Requires determination of current system topology and its real-time state
- System data may be shared with other entities and benefits from standards such as the Common Information Model (CIM)

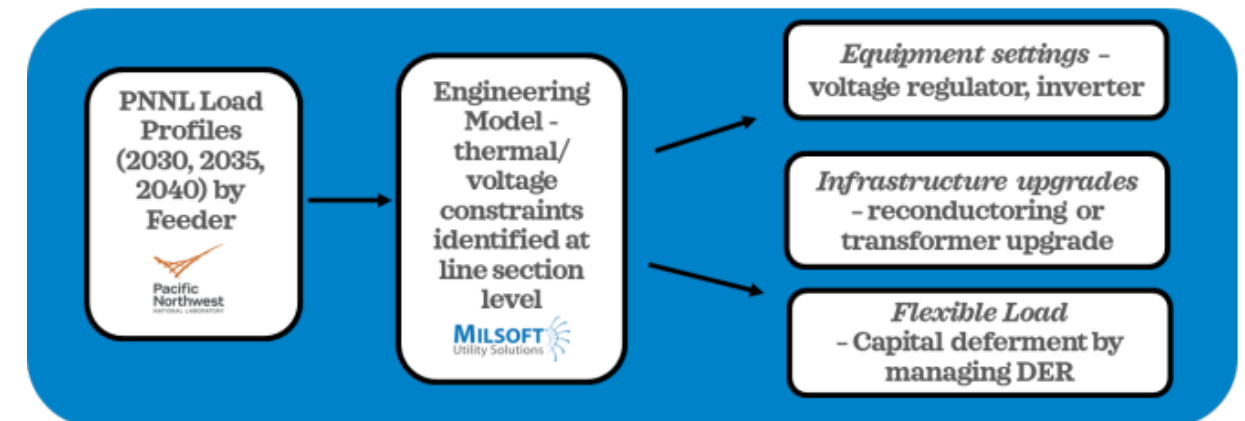
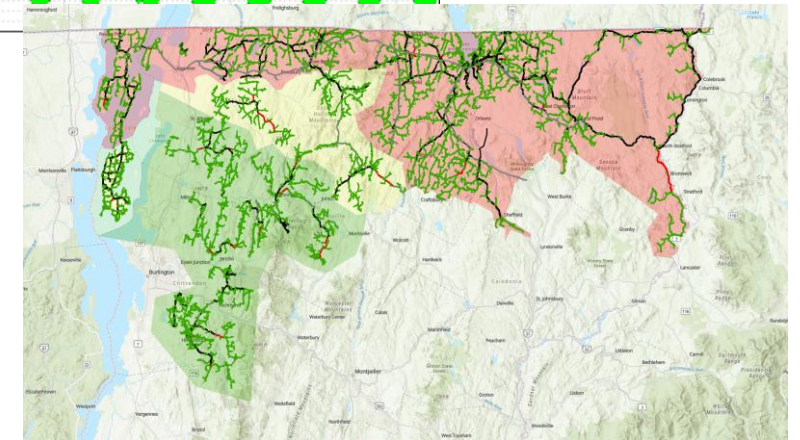
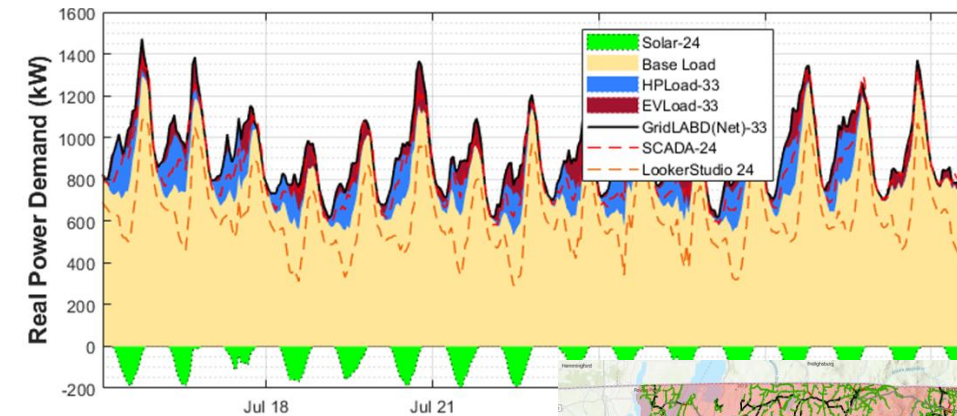


<https://ieeexplore.ieee.org/abstract/document/10251548>

<https://www.energy.gov/oe/articles/demonstrating-data-analytics-transmission-and-distribution-coordination>

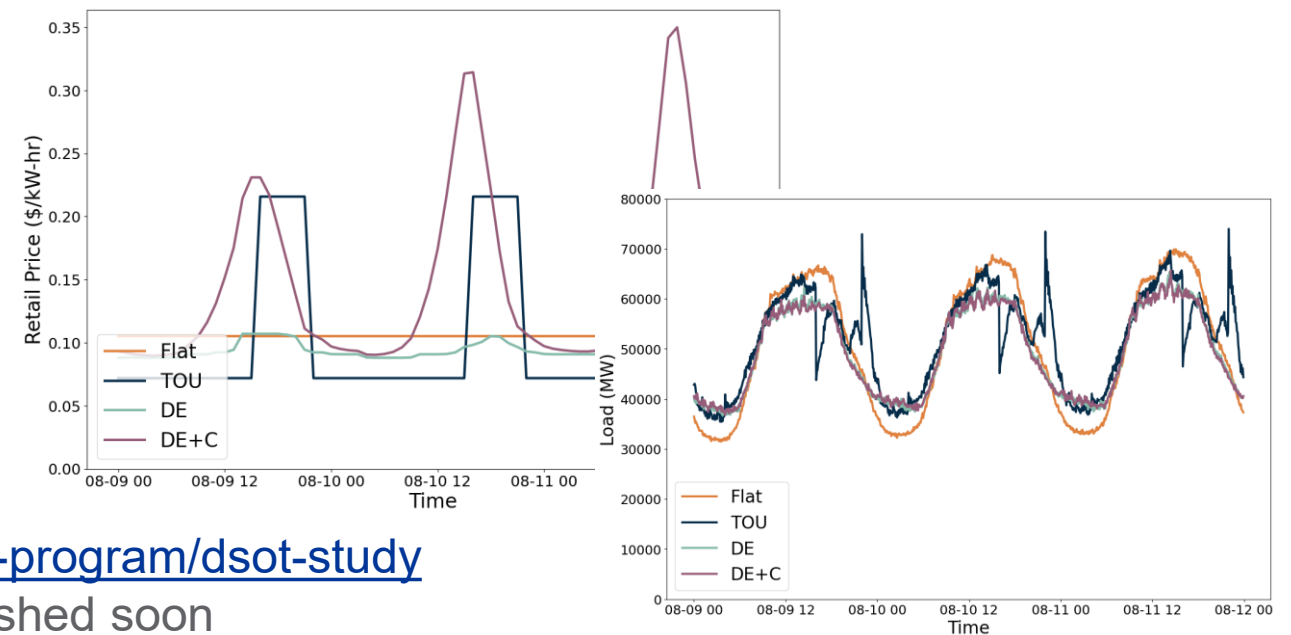
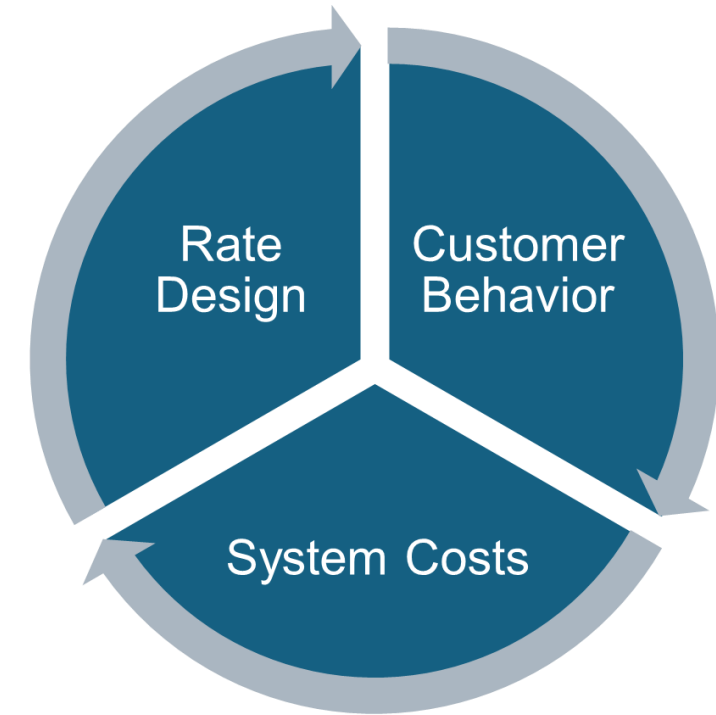
# Integrated Resource Planning

- New loads are fundamentally changing the nature and growth of demand profiles
- Solution space is also rapidly growing: poles and wires, demand flexibility, storage, grid enhancing technologies...
- Necessitates efficient analysis workflows that develop bottom-up forecasts & integrated resource plans



# Orchestrating Non-Utility Assets

- Demand side management offers a fast and cheap solution to addressing capacity and affordability challenges
- But what is the best mix of regulated program-based and dynamic market-based solutions?
- Must be able to determine fully-coupled impact of solutions when adopted at scale.



DSO+T Study: <https://www.pnnl.gov/projects/transactive-systems-program/dsot-study>

Reeve H.M., et al. 2026. PAVER Study. PNNL-39189. To be published soon



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**Thank you**