

# Integrated Distribution Planning (IDP)

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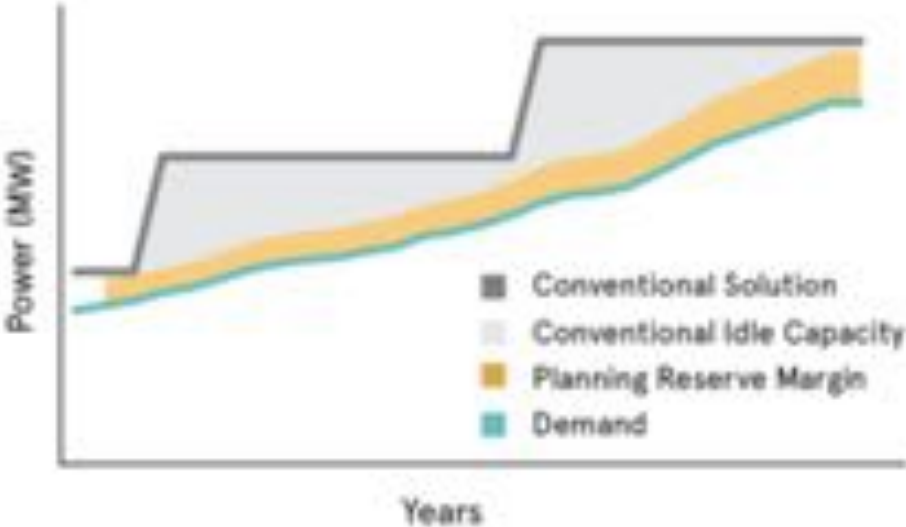
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# DER Growth and its Implications

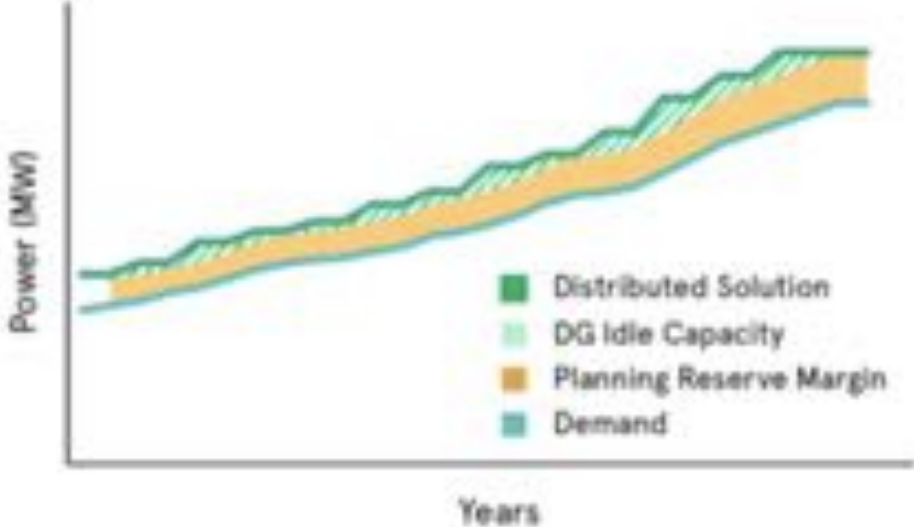
- Significant growth in distributed generation, EE, DR, CHP, EVs, energy storage, microgrids
- Increased flexibility
- Increased complexity of distribution system planning and operations
- New opportunities for customers and third parties to provide **Local Distribution Grid Services**, reducing the need for ratepayer-funded capital investments
  - Distribution capacity or peak load reduction
  - Voltage regulation
  - Reliability/resilience
  - Hosting capacity

# Small and Targeted Investment

Option 1: Bulky Deployment



Option 2: Targeted Deployment



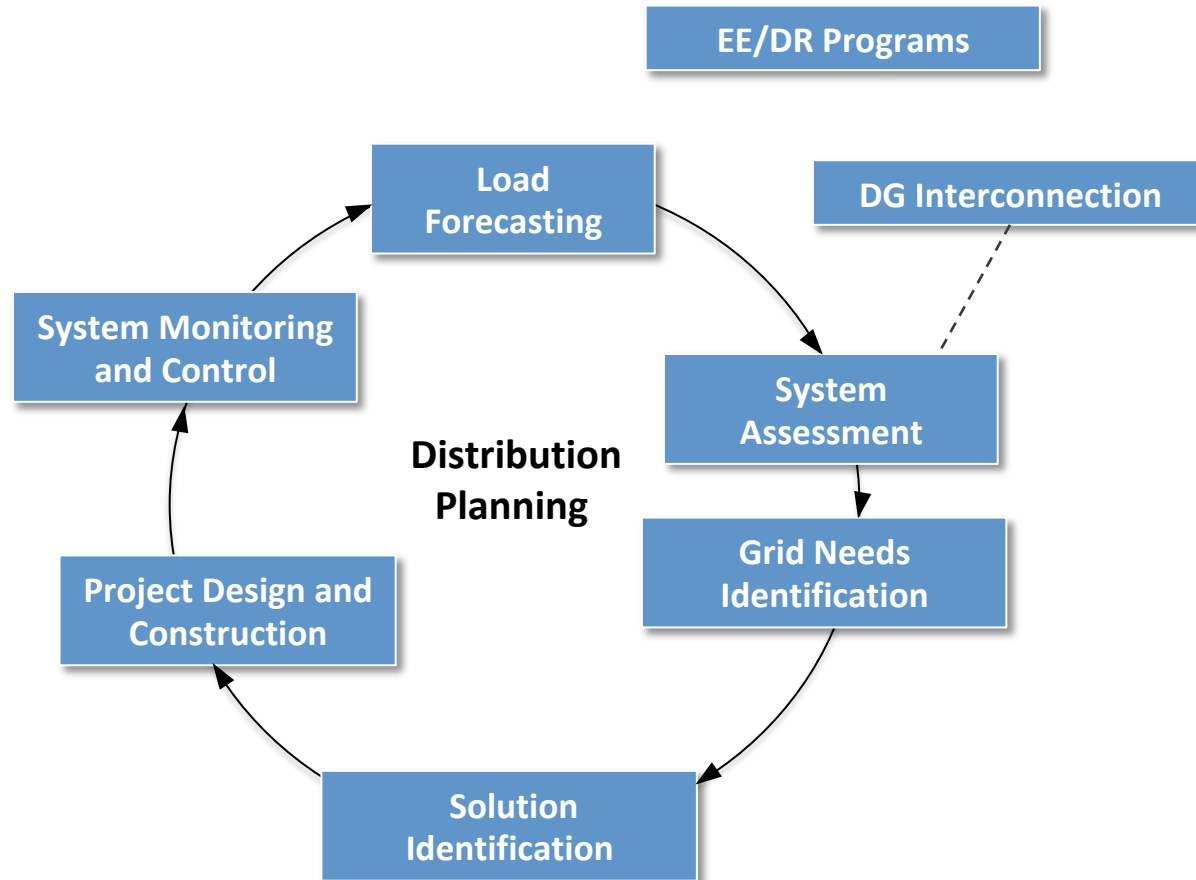
# Targeted Demand Response

Individual customers providing and receiving compensation for **Local Distribution Grid Services** to reduce costs for all customers ...

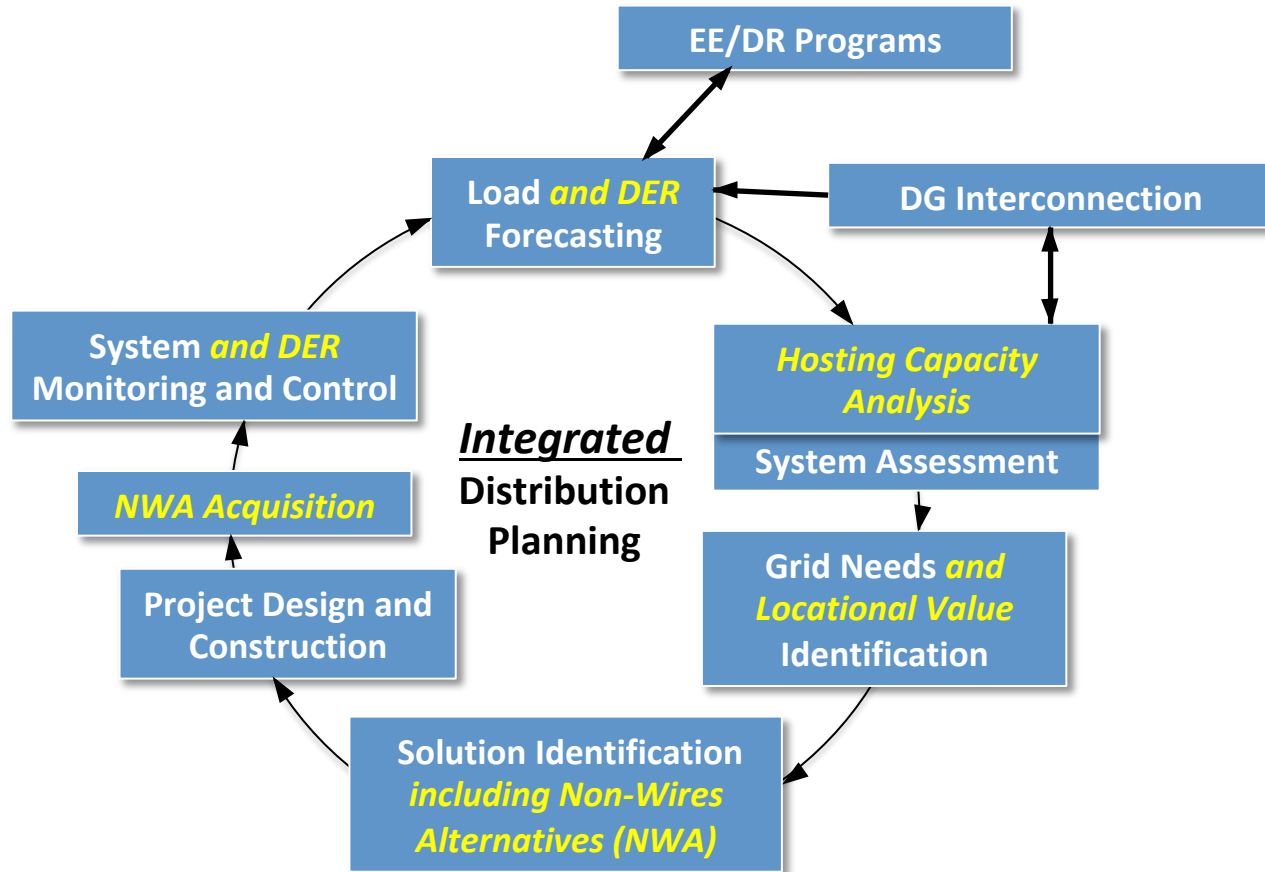


*To what extent will you establish an open, competitive market for customers and third parties to provide **Local Distribution Grid Services**?*

# From today's Distribution Planning ...



# ... to Integrated Distribution Planning

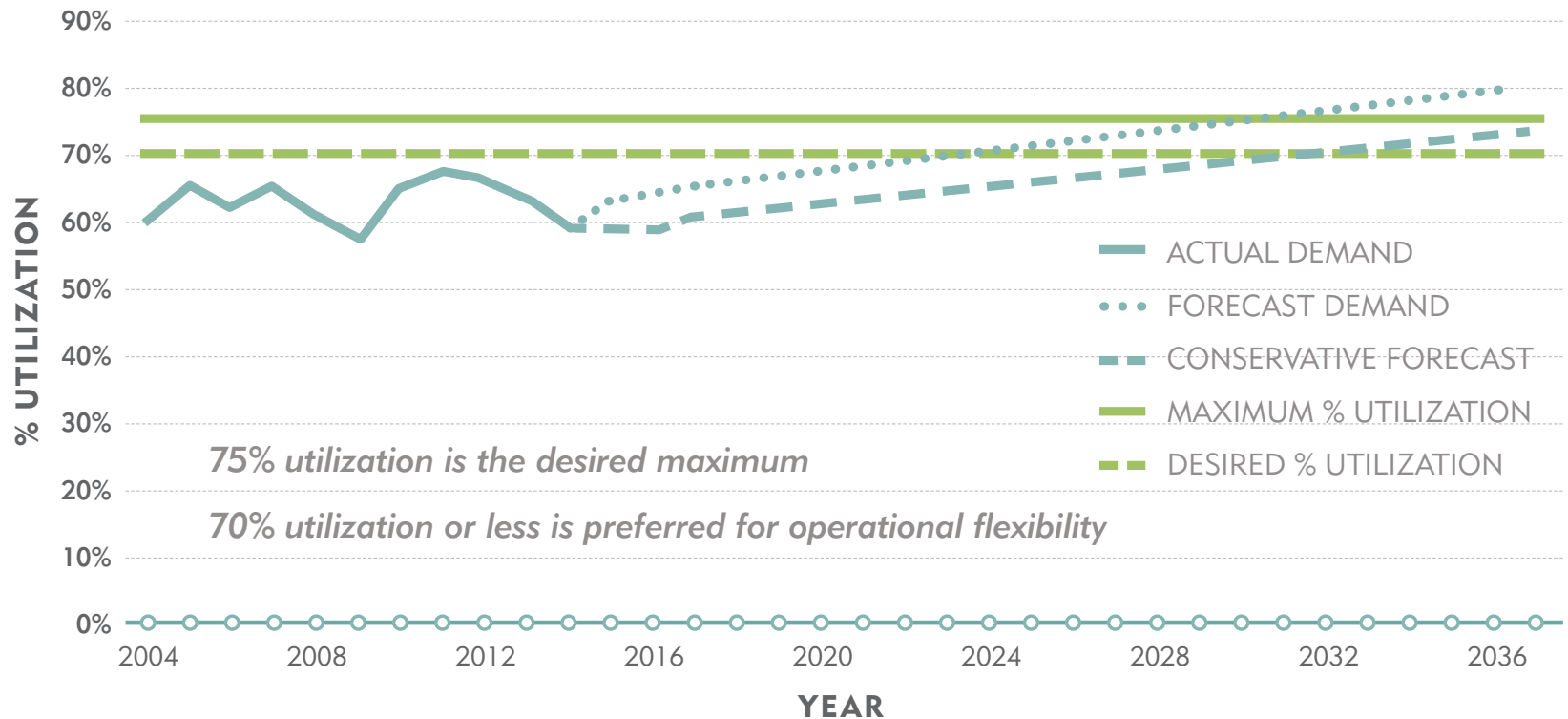


# New IDP Capabilities

Capability	Description
<b>1) Advanced Forecasting and System Modeling</b>	Probabilistic planning and DER adoption scenario analyses; more granular load and power flow modeling; enhanced modeling of new smart inverter capabilities; and the ability to monitor, manage and optimize DER connected to the system.



# Load Forecasting Today



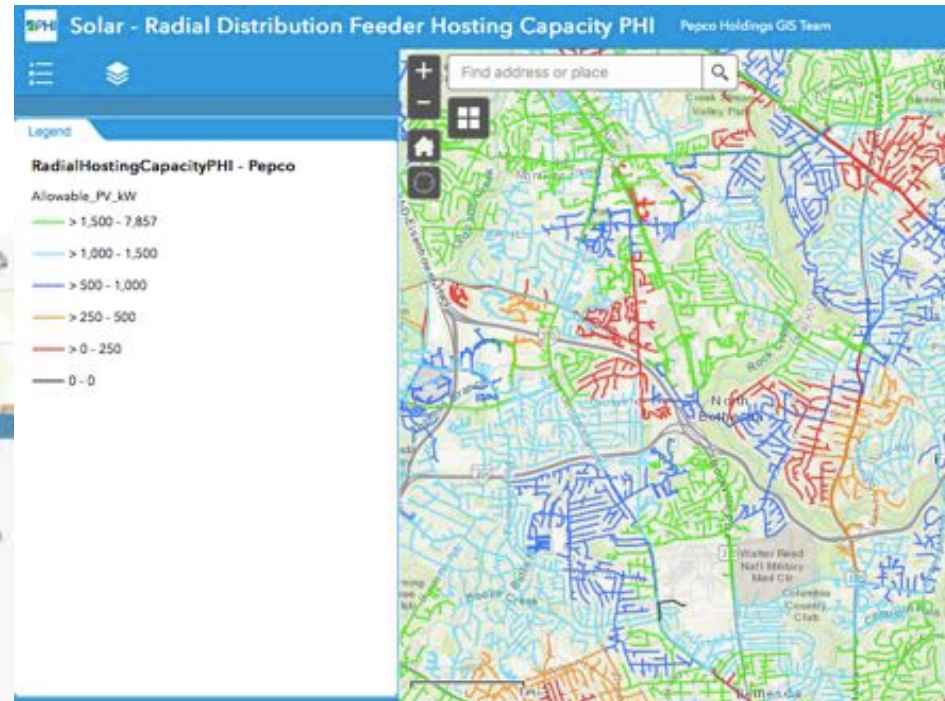
**FIGURE 3. Typical Distribution Load Forecasting Results**

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2) <b>Hosting Capacity Analysis</b>	Determining how much additional DER each distribution circuit can accommodate without requiring upgrades.

# Hosting Capacity Results

ArcGIS - DERIM Web Map



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2) <b>Hosting Capacity Analysis</b>	Determining how much additional DER each distribution circuit can accommodate without requiring upgrades.
3) <b>Disclosure of Grid Needs and Locational Value</b>	Identification and publication of opportunities for DER to provide grid services as non-wires alternatives (NWA); identification and publication of locations on each circuit where DER deployment can provide grid benefits.

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4) <b>New Solution Acquisition</b>	Acquiring or sourcing DER to provide grid services using pricing, programs or procurement.

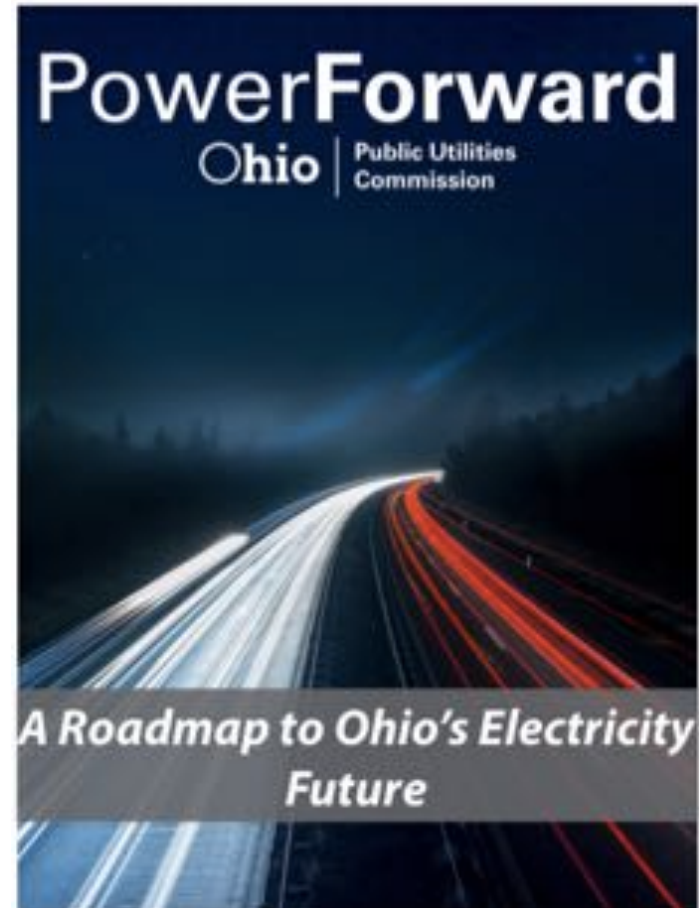
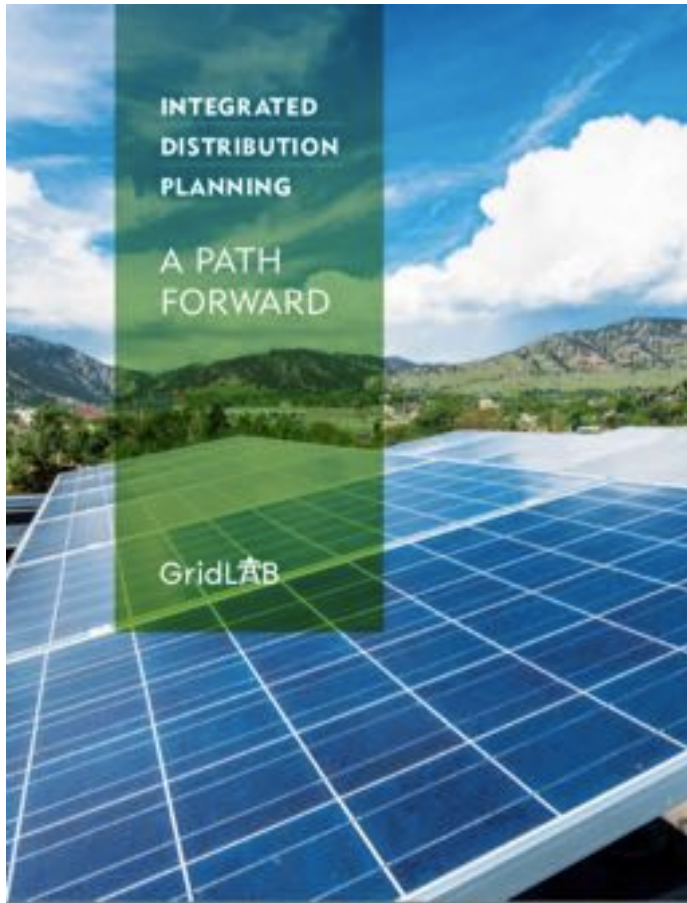
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5) <b>Meaningful Stakeholder Engagement</b>	Establishing processes for open dialogue, transparent information sharing, collaboration, and consensus building among stakeholders.

- Establish clear objectives and guiding principles
- Require utility reports to understand current capabilities
  - Planning methods and tools; spending categories and amounts; proposed HCA use cases; NWA suitability criteria and pilots
- Establish IDP Technical Working Group(s)
  - DER adoption and growth scenarios; smart inverter functions and settings; NWA suitability criteria and process for pilots; HCA use cases, methodology, timeline for implementation; development of data sharing portals

## Additional resources ...



<https://gridlab.org/publications/>



# Additional resources (continued) ...

