NARUC
National Association of Regulatory Utility Commissioners

NASEO
National Association of State Energy Officials

Distribution System Planning Training 2.0
Action Planning Workshop Reference

Compendium of "Actions States Can Take" and

"Questions States Can Ask" from subject matter expert presentations.

December 2024

In December 2024, NARUC and NASEO collaborated with Lawrence Berkeley National Laboratory to deliver a two-day training and "Action Planning Workshop" on integrated distribution system planning (IDSP). Building from a similar training series offered in early 2024, new material focused additional attention on incorporating the effects of electrification and the expansion of distributed energy resources in IDSP.

At the request of NARUC and NASEO, each subject matter expert concluded their presentation with two lists: "Actions States Can Take to Support Utility Planning" and "Questions States Can Ask to Support Utility Planning." Attendees at this and previous trainings have found this material particularly useful in applying knowledge of IDSP to the particular situation in their states.

This document collects all the Actions and Questions from the presentations at the December 2024 training in Charlotte, North Carolina. A similar document was provided to participants during the Action Planning Workshop portion of the event.

Contents

IDSP Overview – Lisa Schwartz and Natalie Mims-Frick, Berkeley Lab

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
• Establish clear goals, objectives and priorities for distribution system planning • Request baseline data from utilities to understand the current state of distribution systems and distribution planning practices • Open an informational proceeding to educate stakeholders on distribution planning • Provide guidance to utilities on filing distribution plans for regulatory and stakeholder review • Ask utilities to document data inputs and outputs, metrics, and analytical methods that support distribution plans • Provide guidance to utilities on using multi-objective decision analysis to prioritize grid modernization and all other distribution expenditures to optimize value • Consider developing a standard template for presenting information on costs and benefits of proposed grid modernization technologies • Provide guidance to utilities to include grid modernization proposals in distribution plan filings	• If utilities are not filing distribution plans in your state, why not? • How are DERs considered in distribution planning — e.g., in the utility's forecasting, grid modernization strategy, technology roadmap, geotargeted demand-side management programs, and NWA procurements? • How is electrification of transportation and buildings considered in distribution planning? • How are utilities incorporating BIL and IRA impacts into distribution planning assumptions? Are State Energy Offices, PUCs and utilities working together to maximize federal dollars for distribution system improvements? • Are the proposed grid modernization investments achievable in the planning period, and are they appropriately prioritized when considering all other cost recovery requests? • Did the utility analyze alternatives to proposed investments and provide clear supporting information?

Load and DER Forecasting – Margot Everett & Chris Lawrie, Kevala

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning

State Regulators
• Provide guidance to regulated utilities on developing forecast scenarios consistent with state policies
• Require reporting on forecast error metrics and forecast improvements to avoid utility over- or under-investment to meet loads
• Require analyses on the potential impacts on underserved communities to align with state equity goals
 	
State Energy Offices, Utility Consumer Advocates and Other Stakeholders
• Participate in technical meetings and regulatory proceedings to provide feedback on forecasting inputs, methods, DER adoption propensity models, and scenarios to meet state and local policies and priorities
• Advocate for publicly accessible methodologies and forecast results to enhance stakeholder trust in utility plans
	• At what level of **resolution** are you forecasting DERs & electrification?
	• Do you use the **same forecast** for distribution, transmission, generation planning, cost recovery and rate design?
	• Do you forecast peak load separately from energy, or do you forecast peak load from a time series?
	• Do you perform a **single point load** forecast, or do you consider a range of **scenarios** and **probabilistic methods** to determine infrastructure needs?
	• How do you account for weather data in your forecast?
	  ○ Does your weather data account for impacts due to climate change?
	  ○ Do you use typical or extreme weather in your forecast?
	• Do you calibrate your **distribution planning** forecasts to a **corporate** forecast?
	• Which **DERs** are accounted for in your forecast?
	  ○ What is the level of resolution?
	  ○ What data do you use to develop your assumptions?
	  ○ What policy scenarios and incentives are considered?
	• **How do you account for load growth?**
	  ○ Do you forecast when and where load will appear?
	  ○ How do you determine the load profiles of these new loads?

Distribution Planning Modeling – Cody Davis, Electric Power Engineers

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
State Regulators • Encourage utilities to drive towards adopting time-series analysis where practical • Review utility modeling practices and their impacts on planning and interconnection study results • Review utility data availability and quality, especially: • Availability and degree of utilization of AMI data for modeling • Prevalence of feeder-level SCADA monitoring and historical data • Driver adoption of modeling, data, and process improvements • Incorporate modeling practices into public distribution plans **State Energy Offices and Utility Consumer Advocates** • Recommend modeling practice improvements that can positively impact planning and load/DER interconnections • Participate in technical working groups related to modeling and interconnection	• What types of modeling software is the utility using? • How accurate / trusted is the GIS component and connectivity data? • What assumptions and/or data is used to model DERs? • How is the utility modeling large loads? • What method(s) of load allocation is the utility using in modeling? • Is unbalanced power flow used for all power flow modeling? • Is time-series analysis in use today? For what purpose(s)? • What barriers exist to expanding the utility's use of time-series modeling and how can they be resolved?

Planning with DERs – Cody Davis, Electric Power Engineers

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
State Regulators • Investigate current mechanisms for DER services and compensation • Direct utilities to study the value of DER services for various DER types • Review hosting capacity map requirements, information, and capabilities for potential improvements • Review justification and cost allocation methods for utility investments • Initiate working groups or other forums for developing effective proactive capacity mechanisms **State Energy Offices** • Provide input on the value of DER with respect to alignment with state policy goals • Participate in hosting capacity analysis efforts to support policy goals and reduce barriers to DER adoption • Provide state priority guidance and program information relevant to proactive investment opportunities **Utility Consumer Advocates** • Participate in value of DER efforts by reviewing scope, objectives, inputs, assumptions, and results • Provide feedback on hosting capacity information, costs, data sharing, privacy, and enhancements • Review proactive investment frameworks and proposals for reasonableness and cost-effectiveness	• How is the value of DER being compensated today? • What compensation mechanisms and value streams may be suitable for DER? • How effective is the hosting capacity information provided by utilities? • What enhancements could be made to improve hosting capacity map effectiveness? • What types of costs or barriers exist to making those enhancements? • How do utilities plan and prioritize distribution system capacity investments today? • Are any proactive investments anticipated to be needed? • How would existing cost allocation frameworks impact proactive investments?

Considering Equity and Engaging Stakeholders – Natalie Mims Frick, Berkeley Lab

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
• Establish DSP planning goals, objectives, and priorities with stakeholder engagement • Provide clear guidance on target stakeholders and roles and responsibilities, and timing of stakeholder engagement, in DSP process • Consider working groups to gather feedback from subject matter experts • Evolve requirements as state and utility needs for DSP change	• How are public utility commissions, state energy offices and utilities engaging stakeholders as part of the distribution system planning process? • What types of stakeholders are currently participating in the distribution system planning process? Do they appropriately represent all customers impacted by distribution system investments? • Are there opportunities to improve diversity of participating stakeholders, data access, and consideration of stakeholder and community feedback? • Are utilities required to provide stakeholder engagement plans? • Are utilities required to report on the results of stakeholder engagement? • Has your state or public utility commission defined low-income, disadvantaged community or environmental justice community? Can those definitions be incorporated into distribution system planning analysis? • Are costs and benefits of distribution system investments being appropriately distributed?

Planning for Transportation Electrification – Nancy Ryan, NER Consulting

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
State agencies can collaborate to help ensure that planned utility investments and TE programs support state objectives and expected trends for adoption of EVs in a timely and cost-effective manner. **State Regulators** • Provide guidance to utilities on developing scenario planning methods incorporating new, more granular data sources • Develop data transparency requirements for telematics and other types of industry data that are highly commercially sensitive but potentially valuable for grid planning • Develop a framework to weigh the ratepayer costs of (temporarily) underutilized grid infrastructure against the societal costs of (temporarily) unserved charging load • Update procedures to realize more timely and satisfactory resolution of new service requests for TE projects, including implementation of bridging solutions where only partial service is available **State Energy Offices** • Work with state DOTs and air regulators, EPRI, and the commercial transportation industry to identify areas where charging to support goods and people movement are likely to be concentrated • Update forecasting methods, data inputs, and assumptions to project capacity and energy needs for EV charging • Participate in regulatory proceedings, including distribution plans, integrated resource plans and general rate cases **Utility Consumer Advocates** • Engage with stakeholders to understand the economics of TE from a consumer perspective that is broader than utility rates (also includes prices of consumer goods)	• What are the drivers of EV adoption in my state? • What are some realistic scenarios for LD, MD and HD EV adoption in my state over the next decade? • What is the status of NEVI implementation in my state? • What is the state of grid readiness to meet the potential range of charging loads? • How do current grid planning practices need to be updated to forecast and prepare for TE load growth? • What types of grid impacts are likely to emerge here? What mitigation measures may be used successfully? • What regulatory changes may be needed related to grid data access frameworks, consumer data access and privacy, submetering, and retail rates – whole home versus EV-specific rates?

EV Rate Design – Andy Satchwell, Berkeley Lab

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
State Regulators • Considering price-based demand response in distribution system planning • Implementing appropriately designed scenarios that bound customer load impacts of time-varying rates • Designing rate pilots that include robust data collection and evaluation of customer enrollment and response • Aligning rate design elements with rate design goals and objectives **State Energy Offices** • Participate in rate design proceedings or stakeholder processes **Utility Consumer Advocates** • Participate in rate design proceedings or stakeholder processes • Request utilities expand rate analysis to explore impacts across larger distributions of customers	• What are your EV rate design objectives? • Are multiple EV rate offerings necessary to achieve the objectives? • What is the value of managed EV charging to the utility and customers? • What are the appropriate EVSE and other charging infrastructure costs to be paid by all ratepayers vs. EV owners? • What role should the utility play in managing EV charging? • How are you evaluating customers' response to and satisfaction with EV rate offerings? • How do your evaluations influence changes to rate design, customer education, and customer engagement?

Planning for Building Electrification – Natalie Mims Frick and Andy Satchwell, Berkeley Lab

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning
• Create a working group to explore opportunities to improve load forecasting assumptions and approaches for electrification • Explore opportunities to include scenarios in load forecasts to better understand potential uncertainties associated with building electrification • Provide guidance to utilities to conduct robust analysis of distribution system solutions in areas where rapid building electrification is occurring • Examine potential reliability and resilience impacts of electrification • Encourage electric and gas utilities to collaborate to avoid unnecessary distribution system investments • Review current retail rate designs to identify opportunities to incorporate the value of efficiency and flexibility • Quantify the complete distribution of customer bill impacts from a change in rate design • Provide customer education on building electrification technologies • Participate in stakeholder meetings and collaboratives to review future grid needs, investment options, and demand-side solutions	• How does the utility consider building electrification in distribution system planning? • What is the building electrification adoption rate in areas where the utility is considering distribution system investments? • Are efficient building electrification technologies included in the utility's demand-side management program offerings? • Are there opportunities to coordinate electric and gas planning? • What are the utility's assumptions for load growth from building electrification, and how do different electrification load assumptions under different scenarios impact future distribution system investments and costs? • How do objectives to encourage electrification complement or compete with other objectives (e.g., promoting energy efficiency)? • What are the assumed characteristics of customer building technologies for the purposes of calculating bill impacts from electrification? Can the utility calculate bill impacts across the distribution of customers as opposed to a single "average" customer? Can the utility calculate bill impacts among different key building technology characteristics?

Coordinating Across Planning Processes – Grace Relf, Berkeley Lab

Actions to Support Utility Planning	Questions to Ask to Support Utility Planning

State Regulators
• Provide guidance to utilities on types of plans to coordinate and methods for doing so
• Conduct technical conferences to explore existing and possible coordination efforts
• Request input from stakeholders on plans and datasets that may be coordinated
• Ensure stakeholder engagement is effectively streamlined and accessible
State Energy Offices
• Participate in utility planning proceedings and working groups
• Identify existing data sets, information, and plans that utilities can use
• Validate plan assumptions and outputs
• Help ensure coordination between utility planning and state planning
• Invite utilities, PUCs, and consumer advocates to participate in state plan development
Utility Consumer Advocates
• Participate in utility planning proceedings and working groups
• Identify existing data sets and information from other proceedings that utilities can use
	Pre-Filing
	• What plans, either internal or external to the utility, has the utility identified that may impact the IDSP?
	  ○ Who leads execution of each plan?
	  ○ What are the key data inputs, outputs, and procedural dates for each plan?
	• How does each identified plan impact the IDSP?
	• What approaches will be used to coordinate each plan with the IDSP?
	  ○ Will the utility employ data from other plans in its IDSP?
	  ○ Will the utility use data from the IDSP in other plans?
	  ○ Will the utility run any scenarios that are based on findings from other plans?
	• How will the utility coordinate and streamline stakeholder and community engagement for IDSP and other planning processes?
	Post-Filing
	• What tangible outcomes or improvements occurred from coordinating multiple plans?
	  ○ What specific elements of coordination led to those outcomes or improvements?
	  ○ Can those elements be applied to other areas of the IDSP?
	• Which processes related to coordination were most and least fruitful?
	• Which processes related to coordination were resource-intensive or lighter lifts and which were relatively most valuable?
	• In the next IDSP planning cycle, what other types of plans will become increasingly important?
	  ○ Can those plans be better integrated with IDSP in some way in the next cycle?