



TASK FORCE ON COMPREHENSIVE ELECTRICITY PLANNING

The National Association of Regulatory Utility Commissioners (NARUC) and the National Association of State Energy Officials (NASEO), in partnership with the U.S. Department of Energy, have provided a forum for the development of state-led pathways toward a more resilient, efficient, and affordable grid.

Planning for a 21st Century Grid

Emerging technologies, decreasing costs, consumer preferences, new energy service providers, and state and local efforts are driving significant growth in distributed energy resources (DERs) such as solar, storage, energy efficiency, demand management, and microgrids. As more customers install DERs, electricity planning needs to account for the quantity, location, capabilities, load, and production profiles of resources on the distribution system and the bulk power system.

With utilities making capital expenditures of more than \$100 billion per year on behalf of customers, it is essential to consider the full range of investment options across the electricity system for cost-effectively meeting current and emerging grid needs such as increased flexibility, variable renewable energy integration, and resilience.

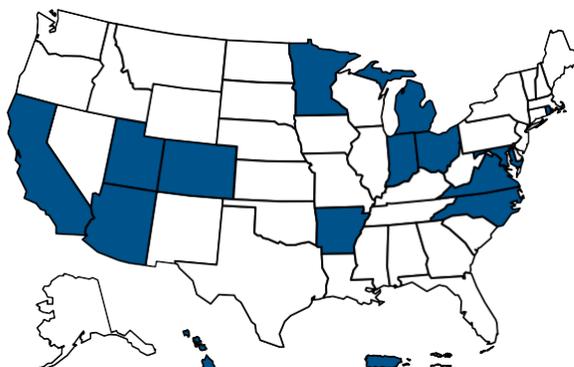
Changes are needed to both longstanding and emerging planning processes (such as integrated resource planning and distribution system planning) to align goals and analyses of investments to cost-effectively meet grid requirements, customer needs, and state policy goals.

New, more comprehensive approaches to electricity system planning and a more holistic analysis of system and customer needs and solutions can:

- Improve grid reliability and resilience
- Optimize use of new and existing resources
- Avoid unnecessary costs to ratepayers
- Support state policy priorities
- Increase the transparency of grid-related investment decisions

15 Participating States and Territories

- | | |
|------------|----------------|
| Arizona | Minnesota |
| Arkansas | North Carolina |
| California | Ohio |
| Colorado | Puerto Rico |
| Hawaii | Rhode Island |
| Indiana | Utah |
| Maryland | Virginia |
| Michigan | |



IN BRIEF

- Fifteen state teams of NARUC and NASEO members developed innovative visions for how electricity system planning can be improved.
- Members created five distinct roadmaps that describe how the building blocks of historically siloed resource, distribution, and transmission planning processes can be reconfigured for greater alignment, increased transparency, and more robust stakeholder engagement.
- Utilities, electricity system stakeholders, and subject matter experts shared their perspectives with Task Force members, helping identify opportunities for specific improvements to planning approaches.
- The Task Force's [*Blueprint for State Action*](#) and related materials are now available for all states to use as a starting point for achieving their own goals related to aligned planning. Visit bit.ly/electricity_planning_taskforce.

Developing Diverse Approaches Relevant to Any State

Task Force member states are diverse and broadly representative of the nation based on their geography, market models, planning approaches, and state goals. Member states completed their work in five multi-state cohorts, based on their market and regulatory structures and the planning processes they sought to align (see Table).

COHORT	Amber	Coral	Turquoise	Silver	Jade
REGULATORY STRUCTURE	Utilities own generation assets				Utilities do not own generation assets
MARKET STRUCTURE	Within organized markets	Within organized markets	Outside organized markets	Outside organized markets	Within organized markets
PLANNING PROCESSES ADDRESSED	Focused on aligning distribution, resource, and transmission planning			Focused on aligning distribution and resource planning	Integrated distribution planning (combined with other energy planning and programs)

Envisioning Aligned Planning

Each of five cohorts developed its unique vision for idealized planning: what planning steps need to happen in what sequence to better align planning processes and enable improved decision making. In addition to differences in which planning processes were the focus (distribution, resource, transmission), the five visions include differences in the number of steps, the order of those steps, and the level of specificity in their described visions. (See summary vision diagrams on page 3.) A detailed description of each cohort’s vision is presented in its [Cohort Roadmap](#).

All five cohorts emphasized the need to affirmatively consider state policy within planning processes, establish regulatory checkpoints, and incorporate stakeholder engagement.

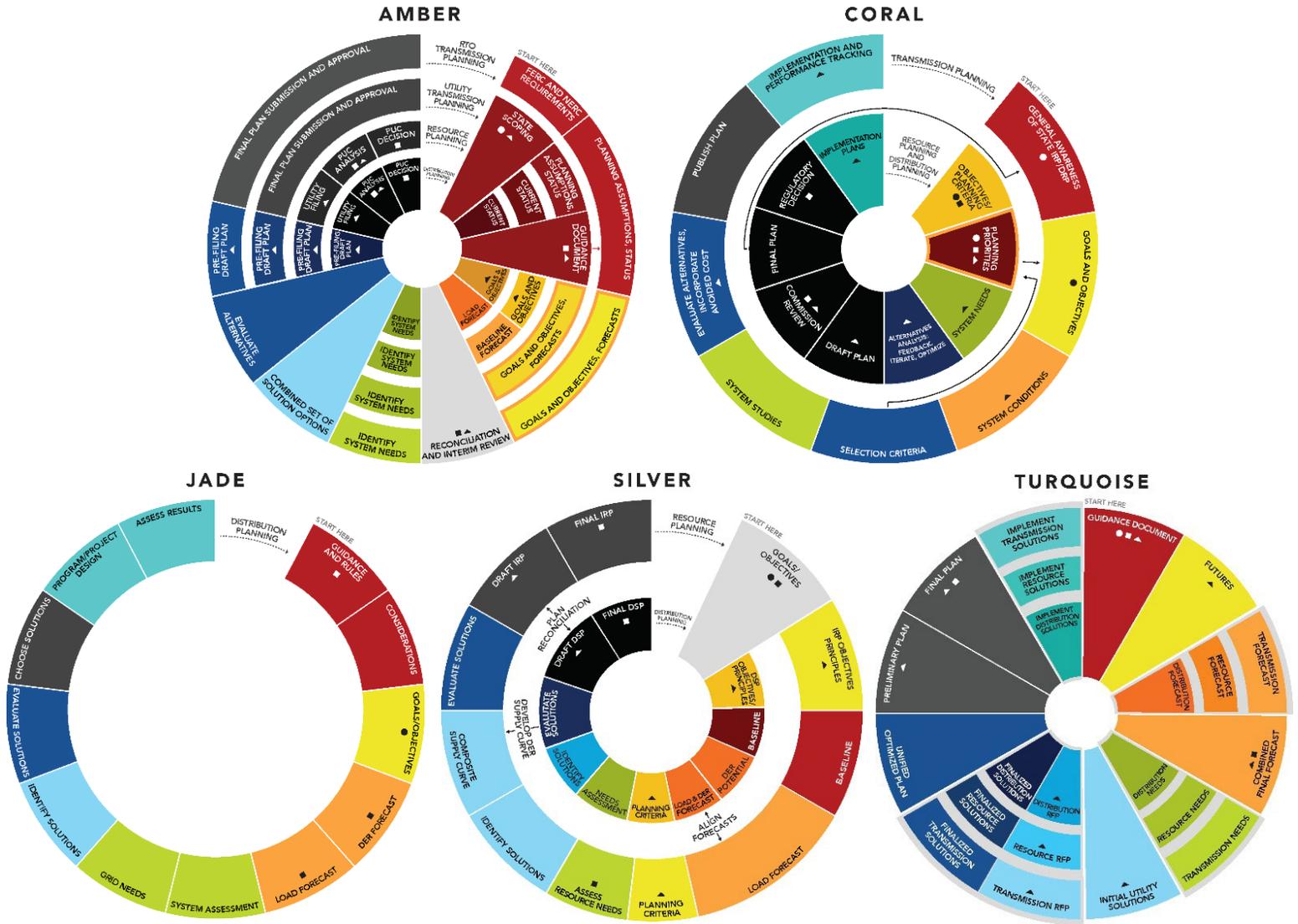
State Policy Inputs to Planning: All cohorts identified how state policy would inform planning objectives early in the process. Cohort approaches include: developing a guidance document at the outset of the planning process, establishing an explicit step in the process to articulate how planning goals and objectives align with state policy, and ensuring state policy informs objective-setting steps across multiple aspects of the planning process.

State Regulatory Role in Planning: The role of state utility commissions to establish rules, conduct regulatory checkpoints, and acknowledge or approve plans follows similar patterns across the cohorts; however, the role of commissions related to specific functions, like load and DER forecasting, varies substantially.

Stakeholder Engagement: Robust stakeholder engagement is a common attribute across all cohort visions, but the location, frequency, and function of stakeholder engagement varies. One cohort chose not to specify locations for stakeholder engagement in its vision documents but instead specifies a step early in the planning process to establish the details for stakeholder engagement approaches.

Task Force on Comprehensive Electricity Planning Vision Diagrams

Each vision diagram is composed of one to four rings that represent distribution, resource, and transmission planning.



Starting at the top and proceeding clockwise around the planning cycle, the wedges represent sequential steps. Where wedges stretch across multiple rings, the cohort envisions an integrated approach to completing that step. Where arrows connect one step to another, the cohort envisions a cross-check, data or information flow, or an alignment opportunity.

The color of each step is consistent with the planning categories described in the Task Force’s two-page briefing paper, [Aligning Integrated Resource Planning and Distribution Planning—Standard Building Blocks of Electricity System Planning Processes](#).

- State policy inputs to planning
- State regulatory role in planning
- ▲ Stakeholder engagement
- Establish assumptions
- Develop forecasts
- Objective/scenarios
- System needs
- Identify solutions
- Evaluate solutions
- Finalize plan
- Implement

Task Force Resources

Through the Task Force on Comprehensive Electricity Planning, Task Force members, NARUC and NASEO staff, technical and subject matter experts, and others have developed a robust set of resources to support state decision makers in advancing aligned electricity system planning processes. Task Force materials are now available on the Task Force website:

bit.ly/electricity_planning_taskforce.

- [Blueprint for State Action](#) supports states seeking to further align electricity system planning processes in ways that meet their own goals and objectives. The Blueprint provides a step-by-step approach for states to develop and implement a plan or series of actions to better align planning processes, based on the experience of Task Force member states.
- [Task Force Cohort Roadmaps](#) describe five distinct visions for an ideal comprehensive electricity planning process created by Task Force members. The process is viewed from the state perspective on how to align or integrate distinct planning processes that, historically, have not significantly informed one another. Each roadmap explains one vision for aligned planning, including both procedural and analytical steps, alongside points of evidence for innovative approaches that appear in the vision.
- [Opportunities to Improve Analytical Capabilities towards Comprehensive Electricity System Planning](#) outlines potential data, tools, and methods for conducting integrated analyses across key points in electricity planning processes that could help achieve the visions of the Task Force. This scoping study will be used to conduct a gap analysis and develop a research agenda for approaches and capabilities in areas such as load forecasting, solution evaluation, and system optimization within planning.
- [Standard Building Blocks of Electricity System Planning Processes](#) shares information about the color-coded framework cohorts used to describe their visions for aligned planning processes in consistent terms.
- [Comprehensive Electricity Planning Library](#) enables further learning about important issues related to comprehensive electricity planning by linking to existing publications and webinars. The library is organized across 15 key topical areas.
- [Member State Summary Information](#) includes a 2018 snapshot of each of the 15 member state's electricity system profile, organizational responsibilities, policy goals, and existing planning processes.

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