

Initial State Questions and Priorities – 2022-23 NorthernGrid Planning Cycle

In the 2020-21 NorthernGrid planning cycle, states commented that the study's scenarios and/or sensitivities were too narrow and did not sufficiently address broader states' policies, priorities, and questions about developing the scope of the study.

At this very early stage of the 2022-2024 planning cycle, the states offer a high-level summary of questions and policy priorities that are of interest to one or more states. We request that NorthernGrid provide initial guidance as to how the next planning cycle can address these questions and policy priorities. We seek NorthernGrid's assistance with the following:

- Understanding how our questions and priorities may align with what the members already plan to include in the study;
- Understanding how NorthernGrid can assist states to develop viable requests for scenarios, sensitivities, or economic study requests to address questions and policy priorities that may differ from those being pursued by the members.

The states look forward to meeting with NorthernGrid, formally and informally, to develop these collaborative initial ideas.

1. Climate Change and Extreme Weather

- How will the study consider climate impacts and increased potential for extreme weather?
- Does the base data set include adjustments for expected climate change impacts (vs. solely relying on selected historical weather and temperature data)?
- Does the base data set include extreme heat and cold scenarios beyond what may be included in base IRPs – such as scenarios that WECC has developed for its modeling?

2. Off-Shore Wind / Large East-Side Generators

- How would significant development of offshore wind change transmission flows and needs in the region?
- Would locating significant new nuclear and/or hydrogen resource(s) near existing thermal plants that are near load change expectations for transmission flows?

3. High Electrification

- States need to understand transmission impacts from higher electrification scenarios (i.e., EVs, space heating, A/C on the west side of the NorthernGrid system), particularly where increased load must be served with clean resources.
- Are there transmission system impacts from electrification growth, particularly in urban centers on the west side of the system?

4. Grid-Enhancing Technologies

- How will NorthernGrid model the use of modern technology to make the most efficient use of existing infrastructure?
- Can NorthernGrid study how elevated deployment of Grid Enhancing Technologies (GETs) (i.e., dynamic line ratings, advanced power flow control and topology optimization) impacts transmission constraints and costs?

5. Longer Time Horizons

- Major transmission development takes longer than the 10-year study horizon—what is NorthernGrid's plan to provide the region with useful information about how the

transmission system is positioned to meet load growth (including electrification) and satisfy corporate and state policy goals in the 2040 time frame?

- How could NorthernGrid develop useful informational runs with 15- or 20-year time horizons?

6. Modeling Storage and/or High Distributed Energy Resource (DER) Penetration

- How is NorthernGrid modeling storage (i.e., as a transmission resource, load, and with what charge/discharge patterns)?
- Would significant DER penetration within certain areas or states materially impact transmission needs?

7. Interregional Planning

- How does NorthernGrid interact with neighboring transmission planning entities, in theory and in practice?
- How can coordination be improved early in the planning cycle to make interregional planning more meaningful?