Scenario 1

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Scenario Title: Aggressive Distributed Generation including Solar PV, Smart Grid Deployment, Energy Efficiency and Demand Response
Scenario Submitted By: Eastern Interconnection States' Planning Council
Study Case: 2025 Winter and Summer Peaks

General Description and Premise

This scenario would assess the implications of aggressive adoption of distributed generation (DG) and similar technologies in transmission congested areas during summer and winter peak conditions in the Eastern Interconnection. In this scenario, the EIPC SSMLFWG planners would utilize the 2025 Winter and Summer Peak Roll-up Cases of the Eastern Interconnection developed in 2015. The SSMLFWG would then examine whether the reductions in peak load from aggressive public policy deployment reduce the number of new facilities required in the Roll Up.

This scenario assumes full deployment of distributed generation (DG) technologies where technically feasible; solar PV, both rooftop and utility scale; smart grid deployment (including VOLT / VAR integration and conservation voltage reduction); energy efficiency technologies and systems across all end use sectors; and peak load shaving/demand response programs. DG technologies also include combined heat and power; microturbines; reciprocating engines; thermally activated devices/systems; and fuel cells. Smart grid deployment includes installation of advanced meters throughout the Eastern Interconnection, supporting aggressive energy efficiency, peak load shaving, and demand response for all electricity customers.

DG systems can provide electric system reliability; reductions in peak power requirements; ancillary services; improved power quality; reduced land use and right-of-way acquisition costs; and reduced vulnerability to terrorism. This scenario could capture the value of these benefits, including technical, institutional, and financial benefits. Energy efficient products, services, and systems are now well-integrated into almost every national and state energy program. Yet, full deployment across all end use sectors and across all economic sectors remains elusive. This scenario addresses energy efficiency and demand response as a result of the installation of advanced meters, resulting from the Smart Grid Investment Program, providing measurable program implementation rather than hoped-for results.

Questions to be Answered

- Will this scenario allow removal of transmission facilities and/or no new transmission buildouts? If so, where, how many, sizes, etc.?

- What is the impact on transmission facilities, particularly in the geographic region in which the DG is sited? What is the impact in areas with less aggressive assumptions (i.e. do transmission constraints occur)?
- What are the peak load impacts of this scenario?
- How might peak shaving resulting from this scenario affect the transmission system?
- Does siting in congested areas make a difference?

Modeling Parameters

TBD.

Could assume that planned generation in regions with aggressive deployment stay in the model and assume increased load growth in regions without aggressive DR.

Answers needed to define parameters:

- At which point, expressed in a percentage, do these technologies impact the system?
- Which regions are more congested than others?

Scenario 2

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Scenario Title: Significantly Increased Hydropower Imports from Canada Combined With Aggressive Wind Deployment
Scenario Submitted by: Eastern Interconnection States' Planning Council
Study Case: 2025 Summer and Winter Peak

General Description and Premise

This scenario would assess the Eastern Interconnection's transmission needs if there were national policies in place to import large amounts of Canadian hydro and wind was aggressively developed. This scenario assumes that Canadian hydro is imported across the northern border and is approved for transmission into the U.S. These hydro projects would provide transmission system support and relieve some of the pressure to depend on natural gas resources, as well as filling the gap left by coal plant closures and early retirement of nuclear plants, particularly in the summer peak.

This scenario also includes aggressive wholesale wind deployment throughout the EI, particularly in the mid-west, integrated onto the grid and transmitted to eastern states.

Questions to be Answered

- Will increased Canadian hydro relieve pressure on the amount of electricity transmission required to transport wind resources from the western part of the EI to the eastern part? If so, to what degree?

- Does the partnership of wind with hydro resources result in a savings in transmission costs?
- Which sub-region(s) within the EI will see resulting transmission savings? Will one or more sub-regions benefit more than others? Which ones?
- Are there any geographically areas of the transmission system that could share transmission resources for both hydro and wind?

Modeling Parameters

- How much wholesale wind is in the base case? How much is an aggressive but realistic increase?
- How much Canadian Hydro is in the base case? How much is an aggressive but realistic increase?
- How does distance to transmission for wind generation impact the case?