**Scenario 1**

**Scenario Title:** Inter-Regional Capabilities and Constraints during Winter Conditions

**Scenario Submitted by:** Example Scenario 1

**Study Case:** 2025 Winter Peak

General Description and Premise

This scenario would assess the Eastern Interconnection’s ability to transfer large amounts of power among regions of interest during winter peak conditions when natural gas supplies for electric generation may become limited. Winter operations are growing in complexity as gas-fired generation, renewables, and demand-side options continue to increase as percentage of the overall generation mix. Many factors come in to play during winter conditions. Gas pipeline capacity is more constrained during winter than summer conditions. Wind resources generally have higher capacity factors while solar resources have shorter production hours. Load profiles are different and may impact the availability of demand-side options. Facility ratings are typically higher, enabling flow patterns that may not be feasible at other times. This scenario would provide both an assessment of inter-regional capabilities and constraints for 2025 winter conditions, and also would provide suitable modeling to enable independent analysis by transmission planners and other industry analysts.

In this scenario, the EIPC SSMLFWG planners would utilize the 2025 Winter Peak Roll-up Case of the Eastern Interconnection developed in 2015. The EIPC SSMLFWG would then assess the ability of the system to move power among specific regions of interest during winter peak conditions and identify associated transmission constraints during times when natural gas supplies for electric generation are constrained on a regional basis. The results of the analysis may identify potential constraints between regions during winter peak conditions. The results may also provide insight into the ability to access neighboring regions for assistance during severe winter conditions. In addition to the EIPC SSMLFWG analysis conducted through the scenario, the modeling will be available to planners and other interested parties to conduct independent analyses of specific winter conditions and resource scenarios.

Questions to be Answered Based on Power Flow Analysis

1. What constraints arise when natural gas fired generation becomes regionally limited during winter conditions?

Modeling Parameters

* Starting point is the 2025 roll-up winter peak steady state load-flow model.
* Up to 5000MW of natural gas fired generation that is on-line in the 2025 base case will be removed from service and transfers into the region will be simulated.
* Regional gas limitations will be simulated in the following areas of the Eastern Interconnection: northeast (Zone C), central (Zone D), southeast (Zone A and E), midwest (Zone B), southwest (Zone F).
* Transfers will be based upon the PAs defined in Table 1 below (Participation in the area is based upon PAs that are parties to the EIPC) and originate in regions adjacent to the region where the natural gas limitations are assumed.

Table 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F |
| FPL | MAPPCOR | ISONE | PJM | DEC | SPP |
| JEA | MISO | NYISO |  | DEP |  |
| DEF | ATC | IESO |  | LGE/KU |  |
|  |  | NB |  | GTC |  |
|  |  |  |  | PS |  |
|  |  |  |  | SCEG |  |
|  |  |  |  | SC |  |
|  |  |  |  | SOCO |  |
|  |  |  |  | MEAG |  |
|  |  |  |  | ALCOA |  |
|  |  |  |  | TVA |  |
|  |  |  |  | EEI |  |

Resource Modifications

* Transfers will be modeled as uniform generation to generation shift between areas of interest.
* Transfer sources will include available generation, including off-line units, honoring machine operating limits.
* Transfer sinks will be allocated among the sink PAs based on a ratio share of the amount of natural gas resources located within each PA.

**Scenario 2**

**Scenario Title:** Inter-Regional Capabilities and Constraints during Summer Peak Conditions

**Scenario Submitted by:** Example Scenario 2

**Study Case:** 2025 Summer Peak

General Description and Premise

This scenario would assess the Eastern Interconnection’s ability to transfer large amounts of power among regions of interest during summer peak conditions with large amounts of coal generation off-line. Summer operations are growing in complexity as gas-fired generation, renewables, and demand-side options continue to increase as percentage of the overall generation mix. Many factors come in to play during summer conditions. Generation resource margins are critical during summer periods. Wind resources generally have higher capacity factors and solar resources have longer production hours than in winter. This scenario would provide both an assessment of inter-regional capabilities and constraints for 2025 summer conditions, and also would provide suitable modeling to enable independent analysis by transmission planners and other industry analysts.

In this scenario, the EIPC SSMLFWG planners would utilize the 2025 Summer Peak Roll-up Case of the Eastern Interconnection developed in 2015. The EIPC SSMLFWG would then assess the ability of the system to move power among specific regions of interest where large portions of coal fired generation are assumed to be off-line during summer peak conditions and identify associated transmission constraints. The results of the analysis may identify potential constraints between regions during summer peak conditions and may also provide insight into the ability to access neighboring regions for assistance during periods of significant resource outages during summer conditions. In addition to the EIPC SSMLFWG analysis conducted through the scenario, the modeling will be available to planners and other interested parties to conduct independent analyses of specific summer conditions and resource scenarios.

Questions to be Answered Based on Power Flow Analysis

1. What constraints arise when coal fired generation becomes regionally limited during summer conditions?

Modeling Parameters

* Starting point is the 2025 roll-up summer peak steady state load-flow model.
* Up to 5000MW of coal fired generation that is on-line in the 2025 base case will be removed from service and transfers into the region will be simulated.
* Regional gas limitations will be simulated in the following areas of the Eastern Interconnection: northeast (Zone C), central (Zone D), southeast (Zone A and E), midwest (Zone B), southwest (Zone F).
* Perform 5000 MW regional transfers on the 2025 summer peak model.
* Transfers will be based upon the PAs defined in Table 1 from Scenario 1.
* Transfers will be based upon the definitions in Table 1 and originate in regions adjacent to the region where the coal fired limitations are assumed.

Resource Modifications

* Transfers will be modeled as uniform generation to generation shift between areas of interest.
* Transfer sources will include available generation, including off-line units, honoring machine operating limits.
* Transfer sinks will be allocated among the sink PAs based on a ratio share of the amount of coal resources located within each PA.