

# **Reliability Planning in the Southeast and the Relationship between Reliability and Economic Planning**

## **I. Purpose:**

The purpose of this white paper is to discuss (1) the relationship between the existing regional and inter-regional reliability planning processes, (2) the interaction between these reliability processes and regional and inter-regional economic planning processes, and (3) the means by which stakeholders participate in the reliability planning processes.<sup>1</sup>

## **II. Executive Summary:**

The inter-regional reliability planning process performed in the Southeast is a “bottom-up” process. Specifically, the bulk of the substantive transmission planning occurs as transmission owners<sup>2</sup> develop their reliability expansion plans, while the SERC-wide reliability assessment essentially consists of a process that assesses whether the individual reliability expansion plans are simultaneously feasible. In accordance with Order No. 890, stakeholders are able to participate in this process by providing input into the development of the regional reliability plans. Furthermore, should the SERC-wide assessment identify projected planning criteria concerns that were not addressed in the regional reliability plans, then any such additional issues (and the corresponding solutions) are addressed at the regional level, with the stakeholders providing input in these regional forums.

With regard to the relationship between the reliability and economic planning, the basis for all economic transmission studies is a common set of transmission models developed for the reliability studies. The economic transmission studies thus identify potential economic transmission projects above and beyond those reliability-driven upgrades identified in the reliability studies, with those economic studies also analyzing the potential to advance, delay and/or modify such upgrades identified in the base reliability transmission plans. Furthermore, it remains probable that significant economic upgrades will be addressed in the same manner that they historically have been, which is that an entity desiring an upgrade to address an economic issue (e.g., congestion) will enter into a binding commitment for firm service in order to ensure that the upgrade is built. In that manner, the “economic” upgrade becomes a “reliability” upgrade that is analyzed in future reliability planning studies.

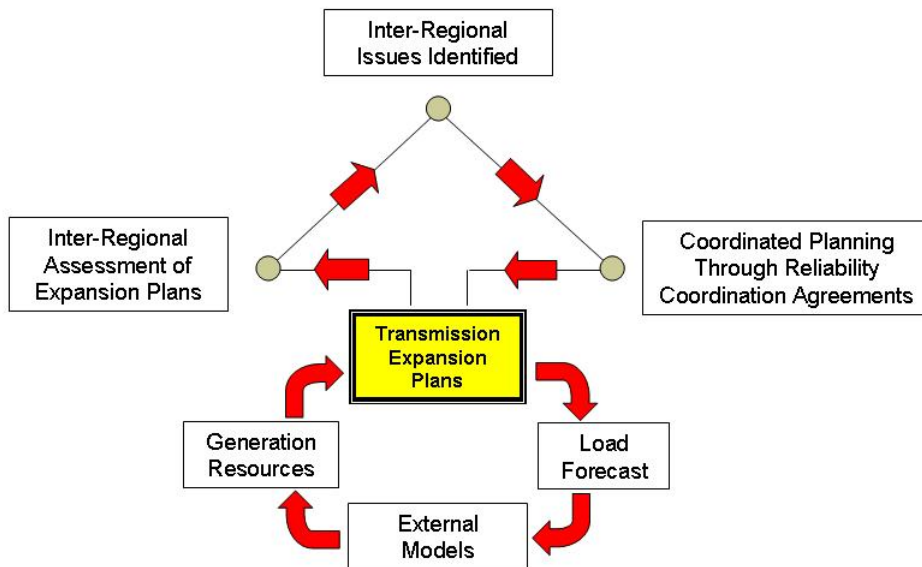
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<sup>1</sup> Stakeholder participation in regional planning processes is described in detail in each region’s planning process and in the Southeast Inter-Regional Participation document. Stakeholders wanting to participate in SERC should contact SERC for meeting and membership information.

<sup>2</sup> Not all of the sponsors of this inter-regional participation process are transmission providers for purposes of the *pro forma* OATT, so the sponsors of this process are referred to as transmission owners for purposes of this paper.

### III. Regional Reliability Planning:

The reliability plan for each region is developed by determining the required 10-year transmission expansion plan to satisfy load, resources, and transmission service commitments throughout the 10-year reliability planning horizon. The development of each regional reliability plan is facilitated through the creation of transmission models (base cases) that incorporate the current 10-year transmission expansion plan, load projections, resource assumptions (generation, demand response, and imports), and transmission service commitments within the region. The transmission models also incorporate external regional models (at a minimum the current SERC models)<sup>3</sup> that are developed using similar assumptions. Importantly, in the context of Order No. 890, stakeholders may provide input regarding the development of the regional reliability plan through the coordinated, open, and transparent regional planning processes.



<sup>3</sup> The SERC Model Development Process is discussed in additional detail later in the white paper. A copy of the SERC LTWG Procedure Manual that describes the SERC model development process in detail can be obtained from SERC.

**A. *Regional Reliability Study Process:***

The transmission models created for use in developing the regional reliability 10-year transmission expansion plan are analyzed to determine if any planning criteria concerns (including, at a minimum, NERC planning criteria)<sup>4</sup> are projected. In the event one or more planning criteria concerns are identified at the regional level, the transmission owners will develop solutions for these projected limitations. As a part of this study process, the transmission owners will reexamine the current regional reliability 10-year transmission expansion plan (determined through the previous year's regional reliability planning process) to determine if the current plan can be optimized based on the updated assumptions and any new planning criteria concerns identified in the analysis. The optimization process may include the deletion and/or modification to any of the existing reliability transmission enhancements identified in the previous year's reliability planning process. In the context of Order No. 890, projected limitations and the corresponding solutions are reviewed with stakeholders, who may propose alternative solutions, through the coordinated, open, and transparent regional planning processes.

**B. *Identification of Regional Reliability Transmission Enhancements:***

Once a planning criteria concern is identified or the optimization process identifies the potential for a superior solution, the transmission owner will then determine if any neighboring planning process is potentially impacted by the projected limitation. Potentially impacted regions are then contacted to determine if there is a need for an inter-regional reliability joint study. In the event one or more neighboring region agrees that they would be impacted by the projected limitation or identifies the potential for a superior inter-regional reliability solution, based on transmission enhancements in their current regional reliability plan, an inter-regional reliability joint study is initiated (via existing Reliability Coordination Agreements). In the event that no inter-regional impacts are identified, or if once contacted the potentially impacted regions(s) determine that they will not actually be impacted, the initiating transmission owner will move forward to conduct a reliability study to determine the solution for the projected planning criteria concern as described in the paragraph above. In either case, once the study has been completed, the identified reliability transmission enhancements will then be incorporated into the region's(s') 10-year expansion plan as a reliability project. Again, in the context of Order No. 890, projected limitations and the corresponding solutions are reviewed with stakeholders, who may propose alternatives, through the coordinated, open, and transparent regional planning processes.

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<sup>4</sup> Regional Planning Criteria posted on websites (Check with your respective regional planning process for further information)

#### **IV. Inter-Regional Assessments (SERC-wide) and Inter-Regional Reliability Planning Activities:**

After the regional transmission models are developed, the transmission owners within SERC create a SERC-wide transmission model and conduct a long-term reliability assessment. The intent of the SERC-wide reliability assessment is to determine if the different regional reliability transmission expansion plans are simultaneously feasible and to otherwise ensure that the transmission owners are using consistent models and data. Additionally, the reliability assessment measures and reports the transfer capabilities between regions and transmission owners within SERC. The SERC-wide assessment serves as a valuable tool for each of the transmission owners to reassess the need for additional inter-regional reliability joint studies.

##### ***A. SERC Transmission Model Development:***

The construction of the SERC transmission model is a “bottom-up” process. In particular, SERC transmission models are developed by the transmission owners in SERC through an annual model development process<sup>5</sup>. Each transmission owner in SERC, incorporating input from their regional planning process, develops and submits their transmission models to a model development databank. The databank then joins the models to create a SERC-wide model for use in the reliability assessment. Additionally, the SERC-wide models are then used in each regional planning process as an update (if needed) to the current transmission models and as a foundation (along with the MMWG models) for the development of next year’s transmission models. Importantly, given that the construction of the SERC-wide model is a bottom-up process, stakeholders provide input into this process in accordance with Order No. 890 by participating in the development of the regional reliability models discussed above.<sup>6</sup> In addition, as discussed in the Southeast Inter-Regional Participation White Paper, the participating transmission owners in that process will review with stakeholders at the inter-regional level the data, assumptions, and assessments that are then being conducted on a SERC-wide basis.

##### ***B. Additional Inter-Regional Reliability Joint Studies:***

As mentioned above, the SERC-wide reliability assessment serves as a valuable tool for the transmission owners to reassess the need for additional inter-regional reliability joint studies. If the SERC-wide reliability model projects additional planning criteria concerns that were not identified in the regional reliability studies, then the impacted transmission owners will initiate one or more inter-regional joint study(ies) (in accordance with existing Reliability Coordination Agreements) to better identify the planning criteria

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<sup>5</sup> The SERC LTWG Procedure Manual that describes the SERC model development process in detail can be obtained from SERC.

<sup>6</sup> Again, at the SERC-wide level, the model development essentially consists of ensuring that the different regional reliability models are compatible at the SERC-wide level, meaning that substantive transmission planning is performed at the regional level where stakeholders may provide input.

concerns and determine the optimal inter-regional reliability transmission enhancements to resolve the limitations. Once the study(ies) are completed, required reliability transmission enhancements will be incorporated into the region's 10-year expansion plan as a reliability project. Accordingly, planning criteria concerns identified at the SERC-wide level are "pushed down" to the transmission owner level for detailed resolution. In accordance with Order No. 890, identified planning concerns and corresponding solutions are reviewed with stakeholders, who may propose alternative solutions, through the coordinated, open, and transparent regional planning processes.

**V. Inter-Regional and Regional Economic Planning and Its Relationship to Reliability Planning:**

Stakeholder-requested regional economic studies will be conducted in accordance with each region's planning process. Studies that are inter-regional in nature will be conducted in accordance with the Southeast Inter-Regional Participation Process. The basis for all economic transmission studies (regional and inter-regional) will be the same transmission models developed for use in reliability planning studies and assessments. The intent of the stakeholder-requested economic transmission studies is to identify potential economic transmission projects that are above and beyond the base reliability transmission expansion plan. Additionally, the stakeholder-requested economic transmission studies will investigate the potential for the advancement and/or the modification of existing reliability enhancements; however, only the difference between the reliability upgrade and the new transmission enhancement will be identified as an economic transmission project as part of the stakeholder-requested economic transmission study.

Importantly, it remains probable that significant economic upgrades will be addressed in the same manner that they historically have been. Specifically, the traditional approach has been for an entity that would like a particular upgrade to be constructed to address an economic issue (e.g., congestion) to enter into a binding commitment for long-term firm service (e.g., point-to-point transmission service or the addition of a new network resource under the OATT) to ensure that the upgrade is built. Once such a firm commitment is made, such "economic" upgrades automatically become "reliability" upgrades that are included in the region(s) reliability transmission plan. While Order No. 890 contemplates the identification and cost allocation for the construction of economic upgrades separate from traditional OATT service requests, the traditional OATT process remains a viable option for pursuing the construction of economic upgrades that are identified in the economic planning studies that are performed pursuant to Attachment K.