

2012 SERTP Study Scope Document

--FINAL--

04/19/2012

Purpose of Study

The purpose of this study is to assess potential constraints on the transmission systems of the Participating Transmission Owners for the five Economic Planning Studies as identified by the Stakeholders. This assessment will include the identification of transmission enhancements within the footprint of the SERTP sponsors necessary to accommodate the five Economic Planning Study requests. Planning staff of the Participating Transmission Owners will perform the studies. The study results will be reviewed with the Stakeholders for their input prior to the finalization of the study.

Overview of the Study Process

The scope of the proposed study process will include the following steps:

1. Assumptions

- Study assumptions selected

2. Study Criteria

- Outline the criteria by which the evaluation results will be measured

3. Case Development

- Develop the models needed to perform the evaluations

4. Methodology

- Outline the methodologies that will be used to carry out the evaluation

5. Technical Analysis and Study Results

- Perform the analyses (thermal, voltage, stability, and short circuit, as necessary for the study) and produce the results

6. Assessment and Problem Identification

- Evaluate the results to identify constraints / issues

7. Solution Development

- Identify potential solutions to the constraints / issues
- Test the effectiveness of the potential solutions through additional evaluations (thermal, voltage, stability, and short circuit as necessary) and modify the solutions as necessary such that all reliability criteria are met
- Provide cost estimate of the necessary transmission enhancements (in 2012 NPV).
- Provide associated timelines for completion of the proposed solutions

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8. Report on the Study Results

- Prepare a report on the identified system upgrades to accommodate the five Economic Planning Study requests.

Each of these study steps is described in more specific detail below.

Assumptions

The specific assumptions selected for these evaluations are:

- The load levels to be evaluated will be Summer Peak and Shoulder (93% of Summer Peak load).
- Each request will only be evaluated for the particular year identified below, as selected by the stakeholders.
- The following scenarios will be evaluated:
 - TVA Border to Southern – 500 MW
 - Year: 2017
 - Type of Transfer: Load to Generation
 - Source: Uniform load scale of TVA area.
 - Sink: Southern Generation.
 - PJM West to Southern Balancing Authority (“SBA”) – 3500 MW
 - Year: 2017
 - Type of Transfer: Generation to Generation
 - Source: New generator interconnecting to the Sullivan 765 kV substation in AEP (Bus #: 243210).
 - Sink: Generation within the SBA.
 - SBA to TVA Border – 1000 MW
 - Year: 2013
 - Type of Transfer: Generation to Load
 - Source: Generation within the SBA.
 - Sink: Uniform load scale of TVA area.
 - SCPSA Border to EES Border – 500 MW
 - Year: 2013
 - Type of Transfer: Load to Load
 - Source: Uniform load scale of SCPSA area.
 - Sink: Uniform load scale of EES area.
 - SCPSA Border to GTC – 200 MW
 - Year: 2013
 - Type of Transfer: Load to Generation
 - Source: Uniform load scale of SCPSA area.
 - Sink: GTC Generation.

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- PSS/E and/or MUST will be used for the study.
- Generation, interchange, and other assumptions will be coordinated between Participating Transmission Owners and Stakeholders.

Study Criteria

The study criteria with which results will be evaluated will be based on the following:

- NERC Reliability Standards
- Individual sponsor criteria (voltage, thermal, stability, and short circuit)

Case Development

- For all evaluations, the latest 2012 series base cases available will be used as a starting point for the analysis of the five economic study requests.

Methodology

- Initially, power flow analyses will be performed based on the assumption that thermal limits will be the most limiting constraint. Voltage, stability, and short circuit studies may be performed if circumstances warrant.

Technical Analysis and Study Results

The technical analysis will be performed in accordance with the study methodology. Results from the technical analysis will be reported throughout the SERTP footprint to identify transmission elements approaching their limits such that all Participating Transmission Owners and Stakeholders are aware of potential issues and appropriate steps can be identified to address these issues.

The SERTP will report results on elements of 115 kV and greater within their respective service area based on:

- Thermal loadings greater than 100%.
- Thermal loadings greater than 90% that change by + 5% of applicable rating with the addition of the transfer.
- Identification of potential improvements to address overloads of 100% or greater.
- Voltages appropriate to each Participating Transmission Owner's planning criteria.

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Assessment and Problem Identification

- The Participating Transmission Owners will run assessments in order to identify any constraints within the Participating Transmission Owners' footprint as a result of the five economic planning study requests. Any reliability constraints identified will be documented and reviewed by each Participating Transmission Owner.

Solution Development

- The Participating Transmission Owners, with input from the Stakeholders, will develop potential solution alternatives due to the economic studies requested by the Stakeholders.
- The Participating Transmission Owners will test the effectiveness of the potential solution alternatives using the same cases, methodologies, assumptions and criteria described above.
- The Participating Transmission Owners will develop rough, planning-level cost estimates and in-service dates for the selected solution alternatives.

Report on the Study Results

The Participating Transmission Owners will compile all the study results and prepare a report for review by the Stakeholders. The report shall contain the following:

- A description of the study approach and key assumptions for the five Economic Planning Studies
- For each Economic Planning Study, the results of that study including:
 1. Limits to the transfer
 2. Selected solution alternatives to address the limit
 3. Rough, planning-level cost estimates and in-service dates for the selected solution alternatives