Purpose of Study

The purpose of this evaluation is to assess potential constraints on the transmission systems of the participating transmission owners for the stakeholder requested economic planning studies selected by the Regional Planning Stakeholder Group ("RPSG"). This assessment will include the identification of transmission enhancements within the footprint of the participating transmission owners necessary to accommodate the economic planning study requests. Planning staff of the participating transmission owners will perform the studies. The study results will be reviewed with the SERTP 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 reliability criteria are met
   - Provide cost estimates of the necessary transmission enhancements (in current year NPV)
   - Provide associated timelines for completion for each of the proposed solutions

8. **Report on the Study Results**
   - Prepare a report on the identified system upgrades to accommodate the 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:

- Each request will only be evaluated for the particular year identified below, as selected by the RPSG.
- The load levels to be evaluated will be Summer Peak unless otherwise indicated below. Additional load levels may be evaluated as appropriate.
- The following scenarios will be evaluated:

1) MISO North Region to LGEE Generation – 300 MW
- Year: 2025
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within MISO North
- Sink: Generation within LGEE

2) PJM to LGEE Generation – 300 MW
- Year: 2025
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within PJM
- Sink: Generation within LGEE

3) TVA to LGEE Generation – 300 MW
- Year: 2025
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within TVA
- Sink: Generation within LGEE

Study Criteria

The study criteria with which results will be evaluated will include the following reliability elements:

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

Case Development

- For all evaluations, the latest series SERTP regional models available will be used as a starting point for the analysis of the economic planning 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.
- PSS/E, TARA, and/or MUST will be used for the study.

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 study area 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 report will include, at a minimum, results for monitored transmission elements within the participating transmission owners' footprint based on:

- Thermal loadings greater than 90% for facilities that are negatively impacted by the proposed transfers and change by +5% of applicable rating with the addition of the transfer(s)
- Voltage limitations appropriate to each participating transmission owner's planning criteria

Assessment and Problem Identification

- Each participating transmission owner will run assessments in order to identify any constraints within the participating transmission owners' footprint as a result of the economic planning study requests. Each participating transmission owner will apply their respective reliability criteria for its facilities and 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 transmission solution alternatives due to the economic studies requested by the RPSG.
- The participating transmission owners will test the effectiveness of the potential transmission 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 economic planning studies
- For each economic planning study, the results of that study including:
    1. Limits to the transfer
    2. Selected transmission solution alternatives to address the limit
    3. Rough, planning-level cost estimates and in-service dates for the selected transmission solution alternatives