

**ATTACHMENT O – DRAFT**

**TRANSMISSION PLANNING AND EXPANSION PROCEDURES**

**1.0 Definitions.**

- 1.1 Balancing Authority** shall mean the responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.
- 1.2 Balancing Authority Area** shall mean the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.
- 1.3 FERC** shall mean the Federal Energy Regulatory Commission (Commission) or its successor.
- 1.4 Southwestern** shall mean the Southwestern Power Administration that owns, controls, or operates transmission facilities used for the transmission of electricity in interstate commerce and provides transmission service under the Tariff.
- 1.5 Tariff** shall mean Southwestern's Open Access Transmission Tariff through which open access transmission service and interconnection service are offered, and as amended or supplemented from time to time, or any successor tariff.
- 1.6 Transmission Expansion Plan** shall mean an approved plan by the Southwest Power Pool, Inc. (SPP) for the improvement of the Transmission System.
- 1.7 Transmission System** shall mean the facilities owned, controlled or operated by Southwestern when preceded by the term "Southwestern" or transmission facilities controlled by the SPP when preceded by the term "SPP" that are used to provide transmission service under Southwestern's Tariff or the SPP tariff. Where the words "Transmission System" are not preceded by either shall mean the facilities of both.

**2.0 General.**

The procedures in this Attachment O describe Southwestern's local transmission planning and expansion procedures for the Southwestern Transmission System and Southwestern's participation in regional planning initiatives. When used in this Attachment O, terms with initial capitalization that are not defined in Section 1.0 shall have the meanings specified in the Section in which they are used or in the Tariff.

### **3.0 Local Planning.**

#### **3.1 Scope.**

The scope of Southwestern's local planning process includes the following planning obligations:

- i. Reliability planning for the Southwestern Transmission System and the associated loads (including radial loads) in Southwestern's Balancing Authority Area in coordination with the North American Electric Reliability Corporation (NERC) and SPP and in compliance with associated planning standards.
- ii. Planning for Southwestern's transmission customers including Network Customers and Point-To-Point Transmission Service customers.

The stakeholders identified for Southwestern's local transmission planning process are:

- i. Entities with load served from the Southwestern Transmission System.
- ii. Transmission customers including Network Customers and Point-To-Point Transmission Service customers.

Southwestern's local transmission planning process is open to participation by all affected entities.

#### **3.2 Local Planning Region.**

Southwestern's local planning region includes all Southwestern owned transmission facilities and transmission facilities, generation, and loads internal to Southwestern's Balancing Authority Area.

#### **3.3 Transmission Planning Procedures.**

##### **3.3.1 Transmission Planning Model Development.**

Southwestern participates in the SPP's model development process as described in the *SPP Power Flow Model Development Procedure Manual* to develop load flow, short circuit, and stability models. During this process a series of seasonal models are developed, for a ten year planning horizon. The annual schedule for Southwestern's data submittal and

stakeholder participation, including Southwestern's involvement, for the development of these models is shown in Appendix 1.

### **3.3.1.1 Data Collection for Model Development.**

Southwestern requests that entities with loads located in Southwestern's Balancing Authority Area or served from the Southwestern Transmission System submit to Southwestern load projections for the summer and winter peaks through the ten year planning horizon and descriptions of the source(s) of power utilized to serve such loads. Throughout the model development Southwestern reviews and, where applicable, modifies the thermal ratings and electrical characteristics of transmission facilities in the Southwestern Transmission System. Southwestern coordinates the modeled tie line characteristics with neighboring Balancing Authority Areas. Southwestern also requests interchange and transaction data from neighboring Balancing Authority Areas to coordinate inclusion of this information in the models.

### **3.3.1.2 Model Development Assumptions.**

#### **3.3.1.2.1 Transmission Service.**

Existing transmission service modeled in the base cases is limited to service associated with firm contractual agreements and does not include other transfers such as emergency power, even though such transfers may be provided for in contractual agreements. Long-term reservations for transmission service are included in future models if there is a reasonable expectation that a customer will exercise its rollover rights.

#### **3.3.1.2.2 Load.**

Southwestern models all load within Southwestern's Balancing Authority Area, including load for which firm sources for power have not been identified.

**3.3.1.2.3 Generation.**

In the ten year planning model, if generation is not sufficient to adequately provide for forecasted load within Southwestern’s Balancing Authority Area, the following guidelines are implemented to compensate:

- i. The overload capacity of the hydroelectric generators in Southwestern’s Balancing Authority Area is used if made available by the U.S. Army Corps of Engineers.
- ii. Adjacent Balancing Authority Areas are contacted to determine if they have excess generation, and, if agreeable, a transaction is created in the models from an adjacent Balancing Authority Area to Southwestern’s Balancing Authority Area.

**3.3.1.3 Transparency of Model Development.**

Southwestern’s submits data related to model development electronically to SPP either through a website interface hosted by SPP or via e-mail. Southwestern also submits various supporting files to SPP that document Southwestern’s compliance and participation in the model update process. Any entity, including Southwestern and Southwestern’s stakeholders, that obtains access to the SPP–Modeling and Data Coordination website may access all files that have been submitted by Southwestern and other Balancing Authority Areas. Access to this website is granted by SPP.

**3.3.2 Transmission Planning Criteria.**

The NERC reliability standards and the *SPP Criteria*, as amended from time to time and posted on SPP’s website, form the basis for Southwestern’s determination of any reliability violations. Voltage limits used in Southwestern’s transmission planning studies are as follows:

	<u>Minimum (in per unit)</u>	<u>Maximum (in per unit)</u>
Base Case	0.95	1.05
Contingency Cases	0.90	1.05

When determining ratings for Southwestern's transmission lines and facilities, Southwestern considers both the thermal limits of the transmission line conductors and terminal equipment in accordance with *SPP Criteria* Section 12; however, though *SPP Criteria* specifies the maximum allowable line loading for normal and contingency conditions based on a maximum allowable conductor temperature of 85 °C, Southwestern analyzes transmission line plan & profile charts to determine if higher temperature ratings, such as 100 °C, are permissible during contingencies without violating NERC clearance criteria.

In Southwestern's planning process, the allowable transformer loading during both normal and contingency conditions is 100 percent of nameplate rating.

### **3.3.3 Transmission Planning Studies.**

Southwestern analyzes the Southwestern Transmission System annually based on the load flow models developed in coordination with the SPP. Southwestern considers the following contingencies in its assessment of the Southwestern Transmission System:

- i. Single contingencies: All branches, including transmission lines, transformers, and related facilities, within Southwestern's Balancing Authority Area, and in any Balancing Authority Area directly interconnected with Southwestern, are removed from service individually.
- ii. Generation Unit Outages: Generating units within Southwestern's Balancing Authority Area are removed from service individually, or where two generating units share a common step-up transformer, they are removed from service in pairs. For this analysis, area interchange control is disabled.
- iii. Double Circuit Outages: Outages of both circuits on double circuit lines are studied when the lines are double circuited for

a significant distance. In the Southwestern Transmission System, this includes an outage of the Bull Shoals-Dardanelle and Bull Shoals-Buford Tap 161 kV lines, which are on double circuit structures for approximately 10 miles, and an outage of the Dardanelle-Bull Shoals and Dardanelle-Clarksville 161 kV lines, which are on double circuit structures for approximately 20 miles.

In addition, Southwestern assesses the performance of the Southwestern Transmission System for outages of entire bus sections and substations. For this assessment, controlled loss of load is allowed if it is necessary to maintain Transmission System voltage and loading within specified limits.

Southwestern uses the ACCC feature of the PSS/E simulator model to perform Southwestern's assessment of the Southwestern Transmission System.

The results of Southwestern's assessment are reported annually in Southwestern's FERC Form 715 filing. In addition, the results are used to provide input into SPP's assessments, including the NERC mitigation review, the SPP Transmission Expansion Plan, system impact studies performed by SPP, and any other regional studies in which Southwestern participates.

SPP performs an AC contingency analysis on the final models for the current year summer peak and the long-term summer peak of the ten year planning horizon. Based on the results of this analysis, Southwestern's mitigation plan is submitted to SPP by the last week of February.

#### **3.3.4 Stakeholder Participation.**

Southwestern annually requests data submissions from Southwestern's customers by both letter and e-mail to be included in the model development process as described in Section 3.3.1 and Appendix 1.

Southwestern also requests data from neighboring Balancing Authority Areas. Southwestern's customers and stakeholders respond either by mail or e-mail. Southwestern incorporates the responses into the power flow data that is submitted to SPP in accordance with Appendix 1.

Other opportunities are available to Southwestern's stakeholders for participation in Southwestern's local planning process during discussions and meetings at the local transmission planning summits facilitated by SPP. The SPP planning summits are held quarterly, in conjunction with the SPP Transmission Working Group (TWG) meetings, with each quarterly summit corresponding to four regions of the SPP Footprint. Such meetings allowing the transmission owners in each region, including Southwestern, to present local planning issues and cost effective alternatives at least on an annual basis and provide an opportunity for stakeholders to provide input and feedback as well as propose alternative projects.

If a stakeholder wishes to establish a new interconnection or point of delivery, they may submit an application for interconnection according to Southwestern's Tariff or may contact Southwestern to inquire about how to submit an interconnection request. Furthermore, if an upgrade or project coordinated by Southwestern affects delivery to one or more of Southwestern's stakeholders, Southwestern will contact the affected stakeholders to solicit their comments.

### **3.3.5 Design and Construction Criteria.**

Southwestern designs and constructs new transmission facilities according to Southwestern's *Design Manual – Standard 330-04, Volume 1* and guide specifications for specific equipment. These guides and the design manual can be made available to any entity, including Southwestern's stakeholders, upon request.

## **4.0 Regional Planning.**

### **4.1 Scope.**

The scope of Southwestern's regional planning process includes the following planning obligations:

- i. Reliability planning for the bulk power system in coordination with NERC and SPP and in compliance with associated planning standards.
- ii. Planning for regional power transfer capability including Balancing Authority Area import/export capability.

The stakeholders Southwestern has identified for participation in Southwestern's regional transmission planning process are:

- i. Entities with load served from the Southwestern Transmission System.
- ii. Transmission customers including Network Customers and Point-To-Point Transmission Service customers.
- iii. Entities, including neighboring Balancing Authority Areas and utilities, which Southwestern has transmission and generation interconnections.

Southwestern's regional transmission planning process is open to participation by all affected entities.

### **4.2 Regional Planning Area.**

Southwestern's regional planning area includes the SPP Footprint and those transmission facilities that are not a part of SPP, but which are in close electrical vicinity to the Southwestern Transmission System and could impact reliability of the Transmission System. This includes the facilities of neighboring Balancing Authority Areas and those utilities with which Southwestern is interconnected.

All of Southwestern's facilities are included in regional assessments performed by SPP; therefore, Southwestern participates in the regional planning process facilitated by SPP. Southwestern also participates in ad hoc regional planning groups and initiatives to promote increased regional coordination.

### **4.3 Transmission Planning Procedures.**

Southwestern participates in the annual stakeholder process facilitated by SPP to develop the SPP Transmission Expansion Plan. SPP provides notice of the



commencement of the process via e-mail to the SPP TWG, which includes Southwestern and other stakeholders, and other SPP Transmission Expansion Planning stakeholder distribution lists. SPP also posts announcements about this process on the SPP website. Access to and the various e-mail distribution lists is granted by SPP.

#### **4.3.1 Transmission Planning Model Development.**

Model development for regional transmission planning is the same as that for Southwestern's local planning and is described in Section 3.3.1 and Appendix 1.

#### **4.3.2 Transmission Planning Criteria.**

Southwestern uses the same criteria for regional planning as that used for local planning, as described in Section 3.3.2.

#### **4.3.3 Transmission Planning Studies.**

SPP performs reliability assessments for the Transmission System and evaluates historical congestion data. These assessments determine system limitations and inadequacies as well as commercial challenges, areas of the system required to be improved, and opportunities to improve the Transmission System. Based on these assessments, SPP shares the reliability needs and improvement opportunities with stakeholders and solicits feedback on these findings from stakeholders, including potential alternatives for the improvements to the Transmission System that are initially suggested by SPP as a part of this process.

Southwestern also performs assessments of the Southwestern Transmission System. These assessments use the same models as those used by SPP for the transmission expansion planning process facilitated by SPP. As part of these assessments, Southwestern evaluates potential alternatives to mitigate any deficiencies in the Southwestern Transmission System. Southwestern provides feedback to SPP regarding various alternatives based on the results of these assessments. SPP distributes data files to transmission owners, including Southwestern, which contain a list

of facilities that require upgrades due to reliability criteria violations under base case or contingency-case conditions. The transmission owners, including Southwestern, respond with suggestions for potential Transmission System improvements.

Upon completion of the analysis and stakeholder review of the results, SPP prepares a draft SPP Transmission Expansion Plan for review by the stakeholders and invites comments to be submitted to SPP. The stakeholder review includes review and endorsement by the SPP TWG, the Markets and Operations Policy Committee, and the Regional State Committee. After considering input from the stakeholders through this review process, SPP prepares a recommended SPP Transmission Expansion Plan for review and approval by the SPP Board of Directors.

#### **4.3.4 Stakeholder Participation.**

The SPP TWG meets quarterly with additional meetings held as needed, and notices of SPP TWG meetings are coordinated by the SPP. These meetings are open to all affected stakeholders, except for portions of meetings in which market sensitive information may be disclosed. The SPP TWG is responsible for coordinated planning among the transmission owners, including Southwestern, in the SPP Footprint. SPP Criteria and Attachment O of the SPP Open Access Transmission Tariff require transmission owners to contact the SPP TWG whenever new transmission facilities that impact interconnected operation are in the conceptual planning stage so that the optimal integration of any new facilities and potentially benefiting parties can be identified. Southwestern is not bound by Attachment O of the SPP Open Access Transmission Tariff, but Southwestern voluntarily complies in accordance with the SPP/Southwestern Agreement. The SPP TWG has a process by which it reviews the studies of proposed interconnections or other transmission facilities that impact interconnected operation. The SPP TWG reviews the proposal to make sure reliability issues are adequately addressed and SPP

performs a First Contingency Incremental Transfer Capability (FCITC) screening analysis to assess the impact of a proposal on Available Transfer Capability (ATC). The SPP TWG's review of proposals may occur during the regular quarterly meetings or via teleconference and/or email.

SPP discusses the regional assessment study scope with the TWG, which includes Southwestern, and stakeholders at the transmission planning summits. SPP solicits input on the regional assessment study scope from stakeholders, and after consideration of stakeholder input, the study scope is finalized and posted on the SPP website. The finalized study scope includes:

- i. Expansion plan objectives for the following:
  - a. Reliability planning.
  - b. Market need and economic benefit screening.
- ii. Assumptions for the following reliability assessments:
  - a. Power flow modeling, including assumptions for load, transmission upgrades, and transmission service requests modeled.
  - b. Stability modeling, including data assumptions for generation modeled.
- iii. Methodology for the reliability assessment, including:
  - a. Contingencies analyzed.
  - b. Facilities monitored.
- iv. Methodology for market need and economic benefit screening.

SPP incorporates feedback from stakeholders, including Southwestern, as SPP analyzes potential alternatives for improvements to the Transmission System. SPP then makes a comprehensive presentation of viable transmission solutions to the stakeholders and solicits further input from them.

## **5.0 Operational Planning Studies and Assessments.**

Southwestern uses seasonal load flow models to identify operating constraints and possible reliability violations that may exist in the upcoming season. In the event a reliability violation is identified, Southwestern develops alternatives to remove the violation and presents the mitigation plan to SPP for review and approval.

## **6.0 Participation in Regional Transmission Planning Groups.**

Southwestern actively participates in regional planning groups, in the development of the SPP Transmission Expansion Plan, and in special regional studies. The primary regional transmission planning group with which Southwestern participates is the SPP TWG (in addition to participation with SPP in model development and the transmission expansion planning process). The SPP TWG provides technical advice and assistance to SPP in all aspects of its regional and local planning functions, including but not limited to:

- a) Coordinated planning among the transmission owners and SPP;
- b) Regional and local planning criteria;
- c) ATC calculations; and
- d) Flowgate ratings.

Any other applicable regional planning groups and regional planning studies that Southwestern participates in are on an ad hoc basis.

## **7.0 Dispute Resolution.**

If a stakeholder has a dispute regarding Southwestern's actions in either local or regional planning, they may seek dispute resolution with Southwestern in a dispute resolution process as outlined in Section 12 of Southwestern's Tariff.

## **8.0 Cost Allocation.**

All provisions of this Section 8.0 shall be subject to the Federal statutory regulations applicable to Southwestern including Southwestern's availability of funds, advance funding, and budgetary requirements as outlined in the Tariff, including Attachment K, General Provisions Applicable to Transmission Service.

For cost allocation in Southwestern's local planning process, Section 27 of the Tariff outlines the Point-To-Point Transmission Service customers' share of the responsibilities of the costs of new facilities. Section 28.2 of the Tariff outlines the conditions by which

Southwestern upgrades facilities for Network Customers. The cost of reliability upgrades is incorporated in Southwestern's rates for transmission service.

For the regional planning process facilitated by SPP, a cost allocation method has been developed by the SPP Cost Allocation Working Group. Southwestern's participation in this cost allocation methodology is provided for in the SPP/Southwestern Agreement, which recognizes Southwestern's legal and regulatory obligations.

## **9.0 Confidentiality.**

Southwestern complies with Federal statutes, including the Freedom of Information Act, for confidentiality of sensitive information. Furthermore, since Southwestern coordinates with SPP, Southwestern participates in and complies with SPP's confidentiality processes.

All public electronic forums provided to Southwestern's stakeholders and facilitated by SPP incorporate password protected access for the distribution and retrieval of confidential information related to the regional planning process and modeling or project data. A confidentiality agreement must be executed to receive password protected access. The form of confidentiality agreement is posted on SPP's website at:

<http://www.spp.org/publications/ConfidentialityMDWG.pdf>

SPP follows the guidelines set forth by FERC Order 683 to determine what information and data should be treated as confidential and sensitive. SPP members and SPP market participants are screened prior to receiving access to confidential information. Individuals who are not confirmed to be part of one of a pre-screened organization are directed to the following FERC website for verification:

<http://www.ferc.gov/legal/ceii-foia/ceii.asp>

## **Appendix 1 – Annual Schedule for Local and Regional Model Development**

For load flow and short circuit model development, data is submitted by Southwestern to SPP three different times (“pass 1”, “pass 2”, and “pass 3”) according to the following schedule (Southwestern submits data in compliance with NERC reliability standards):

Southwestern receives an annual notification from the SPP in August requesting that each transmission owner update its model data and specifying where current models, which are available to Southwestern and other stakeholders electronically, can be retrieved electronically. In September, Southwestern distributes data requests to entities with loads served by the Southwestern Transmission System and contacts all neighboring Balancing Authority Areas which have power transactions with Southwestern in order to coordinate interchange and transaction values in the models. Southwestern electronically provides model data, and supporting files, to SPP no later than the end of the third week of September. Additional follow-up data updates are forwarded by Southwestern to SPP by the end of the first week of October. During the first and second weeks of October, SPP updates the models using data submitted by Southwestern. The updated models, or “pass 1” models, are made available to Southwestern and other stakeholders at the end of the third week of October.

A second request for data, the “pass 2” request, is sent to Southwestern by SPP after the “pass 1” models are made available. Southwestern provides its “pass 2” data to SPP no later than the first week of November. SPP merges the NERC/Multiregional Modeling Working Group power flow models into the developing SPP models by the end of the third week of November and also incorporates any additional “pass 2” data at this time.

SPP makes the “pass 2” models available to Southwestern and other stakeholders at the end of the third week of November and sends a request to Southwestern for “pass 3” data at this time. Southwestern’s “pass 3” data is due to SPP no later than the end of the last week of November, when SPP incorporates the “pass 3” data into the models during the first two weeks of December. SPP makes these final power flow models available by the second week of January.

For stability model development, data is submitted by Southwestern to SPP according to the following schedule (Southwestern submits data in compliance with NERC reliability standards):

SPP requests stability model changes annually during the first week of December.

Southwestern submits its stability data to SPP by the end of the first week of January.

SPP updates the stability models and makes them available to Southwestern and other stakeholders by the first week of March.

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