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**Transmission Expansion Planning Policy Committee
Regional Transmission Expansion
Planning Protocol**

May 22, 2012

Western Electricity Coordinating Council
155 North 400 West, Suite 200
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Executive Summary

The Regional Transmission Expansion Planning Protocol (Protocol) governs the transmission planning process used by the Western Electricity Coordinating Council's (WECC) Transmission Expansion Planning Policy Committee (TEPPC) to:

- Produce regional transmission plans consistent with agreements between WECC and the United States Department of Energy (DOE).¹
- Support Transmission Providers in meeting the transmission planning obligations of Attachment K to the Transmission Providers' Open Access Transmission Tariffs (OATT)

Sections 1 and 2 of the Protocol are introductory, covering purpose, objectives and conformance to criteria and agreements.

Section 3 of the Protocol describes TEPPC's organization, which includes a Technical Advisory Subcommittee with its Historical Analysis, Data, Modeling and Studies Work Groups. The Protocol also described the Scenario Planning Steering Group (SPSG), which is a multi-constituency group organized to provide strategic guidance to TEPPC. SPSG has representatives from environmental, land, wildlife, and technology advocates, state and provincial representatives, and selected TEPPC members. The Western subregional planning groups are also described and their relationship with TEPPC described.

Section 4 of the Protocol TEPPC describes policies and procedures for meeting, calendars, document posting, workshops and provision of information sources. The purpose of these provisions is to foster and open, transparent forum for regional transmission expansion planning.

Section 5 of the Protocol describes the Regional Transmission Expansion Planning (RTEP) process for the Western Interconnection, which utilizes a set of layered organizations to address with local, subregional and regional activities with TEPPC providing coordination among the layers of activities and organizations. RTEP will produce two types of transmission plans: (1) a 10-Year Regional Transmission Plan and (2) a 20-Year Regional Transmission Target Plan. The 10-year plan will be published in 2011. In 2013, both plans will be published. It is anticipated that the planning process will continue on a biennial cycle thereafter.

¹ These agreements resulted from WECC's proposal to the DOE's Funding Opportunity Announcement (FOA) DE-FOA0000068 to implement provisions in Title IV of the American Recovery and Reinvestment Act of 2009 (ARRA).

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The 10-year planning activity is a bottom-up process, with information flowing to TEPPC from SPSG, Transmission Providers, project developers, and Subregional Planning Groups (SPG). TEPPC will develop the 10-year plan based on the results of its Biennial Transmission Congestion Study Program (see Section 6). Diagrams are provided that: (1) show the flow of information for transmission plan development, (2) the open process for developing the study program for each cycle, and (3) the execution and review process for the study program. Additional detail on the development of the TEPPC study program is provided in Section 6.

The 20-year planning activity is primarily a top-down process. The SPSG provides TEPPC with a broad range of strategic scenarios to be evaluated that cover economic conditions, technological change, environmental issues, regulatory policy, etc. TEPPC also expects to receive requests from other stakeholders regarding 20-year studies during its open request window. These may be referred to the SPSG for consideration. The SPSG considers these overarching assumptions are used to produce forecasts of locational loads and resources that could occur at a 20-year horizon. The transmission networks needed for the horizon end-states are examined to identify the most likely network segments and the expected path capacity needs. In addition, the 20-year planning activity will assist in the identification of critical corridors to provide guidance the specific project designs considered in 10-year planning. Transmission assets have very long lives, so consideration must be given in planning a given transmission expansion to determining whether the best value is achieved by making early upgrade investments to meet ultimate needs or in making to incremental investments as the needs arise.

Section 6 of the Protocol describes the development of the Congestion Study Program that supports the 10-year planning process. The Congestion Study Program has two parts: (1) Historical Analysis of Transmission Utilization and (2) Economic Transmission Congestion Studies. The historic studies provide guidance to the economic congestion studies that use forward-looking production cost simulations to investigate potential future congestion and identify needed transmission expansion. The development of the study program is described that includes scenarios developed by the SPSGs, study requests submitted by stakeholders as described in FERC Order No. 890, transmission plans developed by the subregional planning groups, and feedback from previous TEPPC studies. A consolidated list of needed studies is developed, and that list is prioritized by TEPPC in an open meeting in which all interested parties are invited to participate. Provisions have been made for a requester to submit a request for reconsideration before the study program is finalized.

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Transmission Expansion Planning Policy Committee Regional Transmission Expansion Planning Protocol

1 Purpose and Objective

The Regional Transmission Expansion Planning Protocol (Protocol) governs the transmission planning process used by the Western Electricity Coordinating Council's (WECC) Transmission Expansion Planning Policy Committee (TEPPC) to:

1. Produce regional transmission plans consistent with agreements between WECC and the United States Department of Energy (DOE)²
2. Support Transmission Providers in meeting the transmission planning obligations of Attachment K to the Transmission Providers' Open Access Transmission Tariffs (OATT)

TEPPC's Regional Transmission Expansion Planning (RTEP) will produce a 10-year Regional Transmission Plan that is prepared starting from a Foundational Transmission Projects List³ supplied by the Subregional Planning Groups (SPG). TEPPC will also produce a 20-year Regional Transmission Target Plan. The preparation of these plans includes participation by a Scenario Planning Steering Group (SPSG), which may recommend one or more reference cases for planning studies. Both plans address potential transmission needs in the Western Interconnection under a variety of stakeholder-driven scenarios, with the 20-year plan considering a broader range of possible futures. TEPPC's support of Transmission Providers includes preparing and providing a transmission economic planning database, conducting transmission economic expansion studies, facilitating collaborative efforts among SPGs within the Interconnection, and identifying transmission modifications resulting from TEPPC's 10-year Regional Plan scenario analyses.

2 Conformance with Applicable Criteria

2.1 NERC

TEPPC's transmission planning activities conform to all applicable criteria and standards of the North American Electric Reliability Corporation (NERC).

² These agreements resulted from WECC's proposal to the DOE's Funding Opportunity Announcement (FOA) DE-FOA0000068 to implement provisions in Title IV of the American Recovery and Reinvestment Act of 2009 (ARRA).

³ The Foundational Transmission Projects List will be drawn from projects found in the 10-year plans produced by the SPGs. After review of the individual SPG's 10-year plans, the SCG will recommend to TEPPC the addition of those projects that in their view have a sufficient level of commitment or defined need that they are a reasonable starting point for TEPPC's studies.

2.2 FERC

TEPPC's transmission planning activities conform with the planning principles described in the Federal Energy Regulatory Commission's (FERC) Order No. 890,⁴ to the extent that those principles are applicable to the specific activities described in this protocol that are undertaken by TEPPC in support of Western Interconnection Transmission Providers and subregional transmission planning groups.⁵

2.3 DOE

TEPPC's development of WECC's transmission plans will conform to the agreements between WECC and DOE that implement the transmission planning provisions of the ARRA. WECC's RTEP will produce 10-year and 20-year plans with expanded participation through SPSG of environmental, land-use, wildlife, water and other non-industry interest groups.

3 Organizational Descriptions

3.1 WECC

WECC is the Regional Entity for the Western Interconnection. Its role is to assure the reliability of the bulk electric system in the Western Interconnection. The Protocol serves to support a key objective defined in WECC's Three-to-Five Year Strategic Plan, which calls for WECC to become a regional planning and policy facilitator for the Western Interconnection. WECC operates in a public, stakeholder-driven process through its committee structure to address issues of transmission planning, resource adequacy, variable generation integration, including the operational and commercial aspects of these issues.

3.1.1 WECC Membership

WECC is comprised of a diverse set of electric industry stakeholders from across the Western Interconnection including two Canadian provinces and a portion of Mexico's Northern Baja. WECC is governed by a hybrid stakeholder Board of Directors (Board) consisting of 32 directors with representation from the following seven membership classes:

- Large Transmission Owners,
- Small Transmission Owners,
- Transmission Dependent Energy Service Providers,
- End Users,
- Representatives of State and Provincial Governments,
- Canadian Members, and

⁴ FERC Order No. 890-A, ¶ 181

⁵ TEPPC will not take positions on cost allocation.

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- Members at Large

Canadian and Mexican interests are represented in their own classes as well as within other classes. WECC also has seven non-affiliated members representing a variety of skills and backgrounds. See Appendix A, Section 1 for additional information on WECC governance and representation.

3.1.2 WECC Staff

WECC maintains a permanent professional staff that provides administrative and technical support to all WECC activities including support of TEPPC's activities, including those of TEPPC subcommittees and work groups.

3.2 TEPPC

For over forty years, the Western Interconnection has operated as a single, large, synchronized electrical network. WECC has long recognized the need for an interconnection-wide approach to transmission expansion planning. WECC coordination of planning activities focused for many years on technical reliability studies – i.e., power flow and dynamic stability – and the provision of common databases, which are managed by the Planning Coordination Committee (PCC).

In recent years, it has become apparent to stakeholders that the economic dimensions of the transmission planning process need to be examined beyond the boundaries of any single company or Balancing Authority area. During 2005 and early 2006, WECC organized TEPPC to address this broader view of system planning to provide interconnection-wide economic study and data services, and transmission expansion planning leadership. TEPPC became a formal committee of the WECC Board in April 2006 and operates under a charter from the WECC Board that outlines four main functions:

- Oversee and maintain a public database for production cost and related analysis/data,
- Develop and implement interconnection-wide expansion planning policies and processes in coordination with the Planning Coordination Committee (PCC), other WECC committees, and Subregional Planning Groups (SPG)
- Conduct transmission studies
- Prepare interconnection-wide transmission plans with participation from SPSG in both planning studies that produce transmission plans

In addition to providing the means to model transmission implications of various load and resource scenarios at a regional level, the activities of TEPPC support transmission owner/operator and SPG regional planning compliance with FERC Order No. 890. More recently, TEPPC's duties have been expanded to include the preparation of the regional transmission plans listed above. RTEP expands stakeholder input processes through formation of the SPSG, which includes formal participation by state and provincial, environmental, and technology advocacy representatives in study, plan formulation, and review processes. In addition, TEPPC

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assures broad stakeholder involvement through other communication and outreach activities such as the monthly regional coordination teleconference and topical workshops and seminars as needed. Additional information describing the TEPPC Charter is found in Appendix A, Section 2.

3.2.1 TEPPC Membership and Governance

TEPPC is a Board Committee that has a balanced membership comprised of individuals WECC member organizations and stakeholders. The Committee's membership is comprised of:

- Two WECC Board Members,
- One representative from each of the WECC recognized SPGs,⁶
- One representative from a Public Utility Commission,
- One representative from a State or Provincial Energy Department or Office,
- One transmission owner,
- One load serving entity representative,
- One generator owner representative,
- One consumer representative,
- One expert in the Integrated Resource Planning (IRP) processes
- One wholesale market expert, and
- One environmental representative.

The WECC Board approves the appointment of all TEPPC members with recommendations being made to the Board by the TEPPC Chair as described in the TEPPC Charter. With minor exceptions,⁷ all meetings of TEPPC are open to stakeholder participation, however only TEPPC Members may vote in TEPPC meetings when a vote is required. The TEPPC Charter provisions for required meetings, meeting notices, agendas, voting quorum, etc. are covered in detail in Appendix A, Section 2.

3.2.2 TEPPC Subcommittees and Work Groups

TEPPC has established a Technical Advisory Subcommittee (TAS) to collect and disseminate data needed for economic studies of transmission expansion and produce studies of future transmission system needs using analysis of historical data, production cost simulation, and other study techniques and tools as needed. TAS provides a broad forum for stakeholder participation in TEPPC's study activities. TAS has four work groups:

⁶ Information on TEPPC recognition of SPGs is located in Appendix A, Section 4

⁷ The TEPPC Chair may call a closed session to protect confidentiality of proprietary information or to receive attorney-client communications.

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- Data Work Group (DWG)
- Modeling Work Group (MWG)
- Studies work Group (SWG)

Membership in TAS and its work groups is open to all stakeholders. All TAS and work group meetings are open. Under RTEP, members of SPSG will receive notice of TAS activities, and it is anticipated that SPSG members will participate in both TAS and work group meetings. These groups operate primarily by consensus with informal voting as needed among all participants. All stakeholders are encouraged to be active participants in TAS and in work group activities, lending their time and expertise to the combined planning effort.

3.3 Planning Coordination Committee (PCC)

PCC is a WECC Standing Committee established by the Agreement of the Western Systems Coordinating Council (WSCC) dated August 4, 1967. WSCC became WECC on April 18, 2002 when it merged with the Southwest Regional Transmission Association and the Western Regional Transmission Association. PCC's purposes are to:

- Recommend criteria for the guidance of the members, subject to Board of Directors approval, for adequacy of power supply and for such elements of system design as affect the reliability of the interconnected bulk power systems.
- Accumulate necessary data and perform regional electrical performance studies of the operation of the interconnected systems necessary to determine the reliability of the western regional bulk power network.
- Evaluate proposed additions or alterations in facilities in relation to established reliability criteria.
- Identify and investigate the adequacy and reliability impacts of delay on the timing and availability of power generation and transmission facilities.
- Review reports and recommendations prepared by subcommittees and others concerning reliability and adequacy of power supply and forward same with comments and/or recommendations to the Board of Directors in a timely manner.
- Prepare appropriate reports and maps of certain planning information for governmental regulatory agencies, reliability councils, and others as required.
- The above responsibilities shall not conflict with the responsibilities of the individual Members, pools, and associations to carry out their own coordination of planning and operation within their respective areas.⁸

PCC has three standing subcommittees: the Loads and Resource Subcommittee (LRS), the Reliability Subcommittee (RS), and the Technical Studies Subcommittee (TSS). PCC and TEPPC have complementary responsibilities for regional transmission planning as described in 5.3.3 below. The overall TEPPC planning

⁸ WECC Planning Coordination Committee Handbook, revised August 2005, page II-2.

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process encourages the development of transmission projects in response to needs identified under a wide range of future conditions and energy policies. PCC's Three Phase Rating Process establishes path ratings used in technical allocation of increased system transfer capacity among proposed projects and in system operation by applying the reliability criteria to technical engineering studies of specific proposed facilities. The actual development (financing, permitting, and construction) of transmission projects remains the responsibility of project stakeholders and regulatory bodies.

3.4 Variable Generation Subcommittee (VGS)

The purpose of the Variable Generation Subcommittee (VGS) is to identify issues and opportunities related to the presence of variable generation sources in the Western Interconnection and facilitate the development and implementation of solutions that add distinct value to WECC members. The VGS focuses on the regional reliability and market challenges of renewable energy integration and other emerging issues. Key functions of the VGS include:

- Solicit issues, analysis, and other information from members to determine items of regional interest for planning, operations, and market interface.
- Coordinate assignments across WECC for the assembly of information, the analysis of issues, and to provide recommendations concerning renewable energy integration.
- Integrate pertinent information and analysis performed by WECC staff, committees, the membership, and others into informational documents that will communicate the state of renewable integration, and to identify and prioritize the reliability and market impacts of identified issues.

3.5 Scenario Planning Steering Group (SPSG)

The SPSG is a multi-constituency steering group that provides strategic guidance and direct participation in RTEP. The SPSG will provide input on the scenarios to be modeled, the modeling tools to be used, and key assumptions for the study scenarios. They will review and provide input on reference case, load and transmission assumptions and participate in the analysis of study results, the development of criteria for transmission plans, and in the review and comment processes for TEPPC reports and transmission plans.⁹ Selected members of TEPPC are members of SPSG to provide cross-pollination of ideas and ensure that a two-way channel for communication. It is expected that SPSG members will participate regularly in TEPPC activities. It is the responsibility of the SPSG to assure that input from non-traditional stakeholders – specifically Non-Governmental Organizations (NGO) and Native American tribes and First Nations – is incorporated into planning processes in the Western Interconnection. To facilitate this participation, the SPSG will manage and monitor NGO participation in regional and subregional planning activities. The SPSG's responsibilities are to:

⁹ More detail on the SPSG participation in TEPPC activities is provided throughout Section 5.

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- Lead the scenario development process¹⁰
- Review consistency of study work with recommended scenarios
- Assure that scenarios satisfy the agreements with DOE
- Serve as a liaison to the interest groups they represent
- Perform regularly scheduled outreach activities
- Manage and assure broad NGO, tribal and First Nations participation in regional planning activities

3.5.1 SPSG Membership

The selection of SPSG membership is a coordinated effort among Federal Agencies, NGOs, states, provinces, SPGs, WECC, and the Western Governors Association (WGA). The composition of the SPSG is shown in Table 3-1. The SPSG is designed to add new voices to the planning discussions particularly from land, wildlife, conservation stakeholders and technology advocates as well as facilitate additional participation of state and provincial representatives. Solicitation for members is broadly distributed. Individuals who wish to serve on the SPSG will self-nominate, and selection will be based on documentation verifying that they have reached out to other organizations and received broad-based support for their nomination. The TEPPC Chair will submit to the WECC Board the nominations and a recommendation for an initial slate of representatives for the SPSG. All SPSG members must be approved by the WECC Board before participating on the SPSG. When vacancies occur, the TEPPC Chair will recommend individuals to the WECC Board for approval to fill the vacancies. Each SPSG representative must:

- Be able and willing to represent the viewpoints of multiple organizations with similar interests in the Western Interconnection
- Have an understanding of the technology and policy considerations addressed in SPSG
- Be willing to reach out to other organizations with similar interests to assure their views are represented at the SPSG
- Ensure information on planning activities is disseminated back to their respective constituency
- Consider the balance of interests from land, wildlife, conservation, consumer, technology and policy perspectives

Table 3.1, Composition of Scenario Planning Group (SPSG)

Number from Segment	Number on TEPPC	Interest Segment Represented
Members of SPSG		

¹⁰ There will be an ongoing interaction between the SPSG and TAS throughout the study process, as TAS turns scenarios into detailed study proposals and SPSG reviews those proposals and study results.

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5	0	Technology Advocates, i.e., wind, solar, geothermal, nuclear, coal, energy efficiency, or demand side management advocates
1	0	Transmission Owner/Operator
1	0	Lands protection advocate
1	0	Wildlife advocate
8	2	State Officials (PUC, Energy Office, Consumer Council)
1	0	Tribal Representative
1	0	Provincial Official
1	0	Canadian Utility Representative
2	1	Consumer Advocates
1	1	Environmental Representative
1	1	WECC Board member
1	1	SPG representative
1	1	LSE representative
25	7	Total SPSG Members
Ex-Officio Members		
1	0	Department of Energy
1	0	Department of Agriculture – US Forest Service
1	0	Department of Interior – Bureau of Land Management
3	0	Total Ex-Officio Members

3.5.2 SPSG Governance

A charter for the SPSG was developed by and approved by TEPPC on July 13, 2010. To the extent possible, the SPSG will operate by consensus. In the event that consensus is not reached on issues, the SPSG will bring those issues to TEPPC for resolution by vote of the TEPPC members.

3.6 Subregional Planning Groups (SPG)

Given the geographic scale of the Western Interconnection, no single regional activity could address the needs of all participants. The West's geography imposes an inherent sparsity on the transmission network, and there is a wide diversity in climate, customer demographics, and resource concentration. What members of one SPG may see as a high priority may not have sufficient impact across the Western region to warrant study by a regional group. For this reason, the formation of TEPPC did not lessen the need for more locally focused subregional groups. The transmission planning processes in the Western Interconnection strive to balance the top-down and bottom-up perspectives through an integrated three-tiered planning process consisting of individual Transmission Providers, SPGs, and interconnection-wide planning at the WECC

The SPGs have been organized to address common issues within a particular portion of the Western Interconnection and have a close relationship with smaller load serving entities such as municipal utilities and rural electric cooperatives. SPG planning has been a major driver of the development of transmission enhancements and upgrades throughout the Western Interconnection, particularly at voltages above 200 kV. The SPGs provide a forum for the participation of the smaller utilities and groups whose interests do not extend to the entire Western Interconnection. The participation of these smaller entities within SPGs enlarges the reach of the overall regional planning process. Each SPG gathers and identifies the aggregate needs of customers both internal and those crossing their SPG footprint. This gives a bottom-up view that can be provided to TEPPC's RTEP process.

The SPG Coordination Group (SCG) (Section 3.7) coordinates SPG planning and facilitates the preparation of the SPG's recommended Foundational Transmission Projects List that provides a minimum transmission system starting point for TEPPC forward-looking congestion studies. The minimum recommended transmission additions provided by the SCG are a supplement to the TEPPC 10-year Regional Transmission Plan and provides a reference point from which studies will be conducted, much as the SPSG will provide reference load and resource conditions for TEPPC studies. Participation in developing, executing and analyzing TEPPC study is open to all interested parties. The specific provisions for SPSG participation and review described within this Protocol seek to facilitate a broad range of participation by parties not traditionally participating in transmission planning. As a result of its studies, TEPPC may add to or modify the SCG recommendations when it creates the WECC 10-Year Regional Transmission Plan. This layered planning approach using both TEPPC and SPG process serves to broaden overall participation by balancing the

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bottoms-up and top-down approaches to transmission planning for the 10-year horizon.

Apart from exchange of technical planning information described above, the formal relationship between TEPPC and the SPGs includes consideration and recommendation by the TEPPC chair, and approval by the WECC Board, of nominated SPG representatives to become members of TEPPC. TEPPC's requirements for SPG recognition are provided in Section 4 of Appendix A. The SPGs described below currently have a TEPPC representative and work with WECC and the Subregional Coordination Group to assure a cohesive, regional approach to transmission planning. The best plan for the Western Interconnection can only be accomplished by having most if not all interconnection wide Transmission Providers and their customers participate in the TEPPC and SPG planning processes.

3.6.1 Alberta Electric System Operator

The Alberta Electric System Operator (AESO) facilitates a fair, efficient and openly competitive market for electricity and provides for the safe, reliable and economic operation of the Alberta Interconnected Electric System (AIES). The AESO is responsible for the planning of the transmission system in Alberta to determine when the system must be expanded or enhanced, and prepares a Needs Identification Document (NID) for approval. Subject to approval of the NID by the Alberta Utilities Commission, the AESO directs the transmission facility owners to obtain the necessary permits and develop the identified transmission. The AESO provides open and non-discriminatory access to Alberta's interconnected power grid for generation and distribution companies and large industrial consumers of electricity.

The AESO facilitates Alberta's competitive wholesale electricity market, which has more than 200 participants and about \$9 billion in annual energy transactions. The AESO's mandate is to ensure a fair, open and efficient market for the exchange of electric energy in Alberta and effective relationships with neighboring jurisdictions.

The AESO is a statutory corporation, governed by an independent Board. The AESO Board is made up of members appointed by Alberta's Minister of Energy in accordance with the Alberta *Electric Utilities Act*. As a not-for-profit entity, the AESO is independent of any industry affiliations and owns no transmission or market assets.

3.6.2 Columbia Grid

ColumbiaGrid was formed in 2006 to improve the operational efficiency, reliability, and planned expansion of the Northwest transmission grid. ColumbiaGrid has substantive responsibilities pursuant to a series of Functional Agreements with Members and other Qualified Non-Member Parties. These agreements relate to planning, reliability, OASIS, and other development services. ColumbiaGrid's subregional planning responsibilities are set out in the Planning and Expansion Functional Agreement (PEFA), which coordinates planning activities on a regional basis through a single-system approach. Participation in the PEFA is open to all qualified non-member

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parties as defined in the PEFA, including Northwest Transmission Providers, transmission customers, and others. In addition to ColumbiaGrid, the current parties to the PEFA (Planning Parties) include:

- Avista Corporation
- Bonneville Power Administration
- Chelan County Public Utility District
- Cowlitz Public Utility District
- Douglas County Public Utility District
- Grant County Public Utility District,
- Puget Sound Energy, Inc.
- The City of Seattle (acting by and through its City Light Department)
- Snohomish County Public Utility District
- The City of Tacoma Department of Public Utilities Light Division (dba Tacoma Power).

The Planning Parties include transmission owners subject to the Commission's ratemaking jurisdiction (i.e., public utilities with an OATT), as well as those that are not. The planning process outlined in the PEFA relies on the use of study teams that are open to all stakeholders and interested parties. The process also requires notification of affected parties and requires that adverse impacts from projects be identified and mitigated.

3.6.3 Northern Tier Transmission Group

The Northern Tier Transmission Group (NTTG) is comprised of transmission owners, regulatory utility commissions, and state consumer advocacy groups serving the northwest and mountain states. They are committed, with the active cooperation of and open participation of affected stakeholders, to improving the operations of and charting the future for the transmission network that links their service territories. Participants in NTTG are committed to increasing efficient use of the grid and to developing the infrastructure needed to deliver new renewable and thermal power resources to consumers.

Northern Tier Transmission Group Steering Committee membership includes:

- Deseret Power Electric Cooperative
- Idaho Power Company
- Idaho Public Utilities Commission
- Montana Consumer Counsel
- Montana Public Service Commission
- NorthWestern Energy
- Oregon Public Utility Commission
- PacifiCorp
- Portland General and Electric
- Utah Associated Municipal Power Systems

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- Utah Public Service Commission
- Wyoming Public Service Commission

NTTG's Planning Committee is responsible for coordinating transmission planning within the NTTG footprint, coordination with other subregional planning groups and the WECC planning committees. The committee reports to the NTTG Steering Committee, and its current membership includes:

- Basin Electric Black Hills Power
- Deseret Power Electric Cooperative
- Grasslands Renewable Energy
- Idaho Office of Energy Resources
- Idaho Power Company
- Montana Public Service Commission
- Northwestern Energy
- PacifiCorp
- Portland General
- Sea Breeze Pacific
- TransCanada
- Utah Associated Municipal Power Systems
- Wyoming Public Service Commission

3.6.4 WestConnect

WestConnect is comprised of utility companies providing transmission of electricity in the Southwestern United States working collaboratively to assess stakeholder and market needs and develop cost-effective enhancements to the Western wholesale electricity market. WestConnect has three SPGs that coordinate transmission planning among three planning areas: Southwest Area Transmission (SWAT), the Colorado Coordinated Planning Group (CCPG) and the Sierra Subregional Planning Group (SSPG). The transmission owner participants within the WestConnect footprint include:

- Arizona Public Service
- Arkansas River Power Authority
- Basin Electric Power Cooperative
- Black Hills Corporation
- Colorado Springs Utilities
- El Paso Electric
- Imperial Irrigation District
- Transmission Agency of Northern California
- NV Energy
- Platte River Power Authority
- Public Service of Colorado (Xcel Energy)
- Public Service of New Mexico

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- Sacramento Municipal Utility District
- Salt River Project
- Southwest Transmission Cooperative
- Tri-State Generation and Transmission Association, Inc.
- Tucson Electric Power and
- Utah Association of Municipal Power Systems
- Western Area Power Administration
(Desert Southwest, Rocky Mountain and Sierra/Nevada Regional Offices)

3.6.5 California Independent System Operator

The California Independent System Operator (CAISO) is a not-for-profit public benefit corporation brought on line in 1998 when the state restructured its electricity industry. CAISO is regulated by the Federal Energy Regulatory Commission (FERC). The CAISO's Transmission Planning Process is an integrated, open, participatory and transparent process that focuses on ensuring reliable, economically efficient, and non-discriminatory use of the transmission system. The CAISO conducts subregional planning by aggregating the assessment of transmission needs of its Participating Transmission Owners and Load Serving Entities (LSE) within the CAISO Balancing Authority. Equally important, the CAISO plans for the needs of the CAISO Balancing Authority through the reciprocal exchange of transmission plans and other information among the CAISO, Participating Transmission Owners, transmission systems neighboring the CAISO, and established subregional planning entities.

3.6.6 British Columbia Coordinated Planning Group

The BCCPG is a forum for enabling the coordination of transmission planning activities with the aim of ensuring a high degree of reliability of the electric system. Within BC, the BCCPG enables coordination and, where appropriate, integration of the transmission planning functions of transmission owner members. Outside BC, the BCCPG represents the interests of its transmission owner members to the Western Interconnection through participation in the WECC's Transmission Expansion Planning Policy Committee (TEPPC) as well as the Sub-Regional Coordination Group (SCG).

BCCPG is a voluntary organization and membership is open to all parties that have an interest in participating in a stakeholder process for promoting the efficient development of the electric transmission system within the BCCPG footprint. Member organizations can include Transmission Owners and other stakeholder organizations. To become a member of BCCPG, please notify us in writing and request to be added to the BCCPG membership list.

Current members of the group include:

- British Columbia Hydro and Power Authority*
- FortisBC Inc.
- Rio Tinto Alcan Inc.

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- Teck Metals Ltd.
- Columbia Power Corporation**

3.7 TEPPC Requirements for SPG Membership

TEPPC and SPGs complement and support each other, providing processes and forums for open, transparent transmission planning at the regional and the subregional levels, respectively. For recognition as a representative of a subregional group as a member of TEPPC, a SPG must meet FERC Order No. 890 planning principles¹¹ and be fully compliant with OATT standards of conduct.¹² SPGs are forums for open discussion of transmission needs, concerns, plans, and issues. TEPPC maintains a list of SPG with links to their Web sites. The SPGs are to encourage participation by all stakeholders including customers and local, state and federal agencies within the scope of their portion of the interconnected network. Specifically, the SPGs and TEPPC will:

- (a) Conduct, at least biennially, transmission system expansion studies and plan development in accordance with NERC/WECC planning criteria,¹³
- (b) Coordinate efforts such that the transmission planning study activities of each SPG are synchronized with the TEPPC study cycle,
- (c) Support a single repository of all system expansion reports and information for the entire Western Interconnection,
- (d) Commit to coordinate and share information and assumptions for planning studies and efforts between each SPG and input to WECC,
- (e) Maintain individual planning processes and procedures, but work to coordinate planning efforts between groups,
- (f) Support SPG and Interconnection-wide planning,
- (g) Collaborate with each other to the greatest extent possible, and
- (h) Where appropriate, in coordination with WECC TEPPC and other SPGs, develop coordinated transmission studies and plans.

3.8 SPG Coordination Group (SCG)

In part to facilitate the creation of 10-year transmission plans for the Western Interconnection, the TEPPC-recognized SPGs created the SPG Coordination Group (SCG). The SCG Charter is posted on the WECC Web site. WECC staff and TEPPC participate in an ex-officio capacity to provide continuity between TEPPC and the

¹¹ FERC Order No. 890-A, ¶181. Canadian entities must show that through relevant their charters, regulations, and law they meet, in practice, the spirit of Order 890 principles.

¹² TEPPC Requirements membership for SPG membership are posted at <http://www.wecc.biz/committees/BOD/TEPPC/Shared%20Documents/Subregional%20Planning%20Group%20Requirements.rtf>

¹³ Where applicable to Canadian Entities.

SCG. The SPGs perform reliability assessments, develop transmission alternatives, make technical and economic¹⁴ evaluations of those alternatives, and develops ten-year plans to provide reliable service for their respective areas in accordance with their charters and directions received from their members. Working together through the SCG, the SPGs will evaluate their individual 10-year plans to select projects to be recommended to TEPPC as a Foundational Transmission Projects List that can be used as the minimum starting point for the TEPPC 10 year planning studies. The Foundational Transmission Project List will be reviewed by TAS and the SPSG as part of reference case preparation. In addition, the SCG will provide a list of “potential” projects not included in the foundational set that can be utilized by TEPPC to supplement and compliment TEPPC’s 10-year and 20-year planning studies.

4 TEPPC Meeting and Communications

4.1 TEPPC Meetings

The requirements for TEPPC meetings are described in the TEPPC Charter (Appendix A, Section 2.2).¹⁵ Regular meetings are scheduled at the beginning of the year with other meetings scheduled as needed for the business of the committee.¹⁶ The general provisions are that meetings are noticed a minimum of three weeks in advance by e-mail and may be held in person or by conference call at the discretion of the TEPPC Chair. The e-mail notice to TEPPC members and Board members provides information on the time and place of the meeting along with an agenda of the items for which possible action may be taken. This information is also posted to the TEPPC Web page. While stakeholders may attend TEPPC meetings, only the Board-designated committee members or their designated proxies may vote. TEPPC maintains a list of correspondents who have expressed interest in TEPPC activities. The correspondents also receive notice of meetings. Parties may request their addition to the correspondents list using the link provided on the TEPPC Web page.

4.1.1 Open Meetings

All regular TEPPC meeting are open to the public.¹⁷ TAS, SPSG and work group meetings are also open to the public. Many meetings are held by teleconference or webcast to facilitate wider participation of interested parties and to minimize meeting expenses.

4.1.2 Meeting Calendars

¹⁴ Economic evaluations activities vary among the SPGs. Most make capital cost comparisons of alternatives; some conduct production cost simulations focused on their subregional network; and one or two of the SPGs examine cost allocation ramifications of transmission expansion alternatives.

¹⁵ The most recent Board-approved TEPPC charter is found on the WECC Web site under TEPPC Documents, <http://www.wecc.biz/committees/BOD/TEPPC/Shared%20Documents/Forms/AllItems.aspx>

¹⁶ TEPPC meetings are usually held quarterly with added meetings held as necessary.

¹⁷ The TEPPC Chair may call a closed session to protect confidentiality of proprietary information or to receive attorney-client communications.

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The time and place of TEPPC, SPSG, TAS and work group meetings are posted on the WECC Web site. Each work group has its own Web page, which is linked to TAS and TEPPC Web pages. On each Web page, there is a calendar link that opens the calendar for that group. Links on the calendar pages take the user to pages with meeting details. Meeting announcements, agendas and meeting materials are posted on the meeting Web pages. In addition, TEPPC, SPSG, SCG, TAS, and work group meetings appear on the master calendar on the WECC home page. TEPPC will also establish a coordinated regional planning meeting calendar in conjunction with the SPGs to minimize the occurrence of duplicative or overlapping regional planning meetings.

4.1.3 Document Posting

Documents associated with each TEPPC meeting are posted on the WECC Web site. Meeting dates are shown in a table on the TEPPC Web page with active links from the meeting date to a separate Web page listing relevant documents for the meeting. Other documents of significant interest to TEPPC participants and correspondents are also posted on the WECC Web site, with links provided on the TEPPC Web page. To facilitate communication, the TEPPC Web page includes links to the Web sites of the Western Interconnection's SPGs.

4.2 Workshops and Webinars

TEPPC will provide topical workshops – in person or via webcast – as needed to facilitate dissemination of information and discussion of issues related to future transmission needs. Such workshops may be hosted by TEPPC, TAS or TAS work groups as appropriate. In the past, such workshops and webinars have covered topics that include the TEPPC portable database format, wind energy development and modeling, major transmission project proposals, and compliance with Order No. 890 requirements. TEPPC will continue to host such workshops and webinars subject to expressed interest among the TEPPC and its stakeholders. Requests to host future workshops and webinars are welcome and should be made to the TEPPC Chair for consideration.

4.3 Transmission Project Portal

As future transmission needs are identified, parties with an interest in meeting those needs will come forward with proposals for demand-side solutions, new generation or investments in transmission infrastructure. As these projects are announced, TEPPC will provide an project portal for posting information regarding major projects. The information portal will provide basic information on these projects and provide links to more detailed information as supplied by the project's sponsors. The portal can be accessed on the WECC Web site.¹⁸

¹⁸ Transmission Project Portal,
<http://www.wecc.biz/Planning/TransmissionExpansion/Transmission/Pages/default.aspx>

4.3.1 Portal Content for Information Only

TEPPC's provision of information through this portal neither provides nor implies any endorsement or recommendation of any particular project. The portal's purpose is to provide, to the extent possible, a single source where basic information on all known major projects can be obtained. It also provides internet links and other contact information to aid interested parties interested in obtaining more information. In this information dissemination role, TEPPC acts as an incubator for proposals and a means for communication among project developers and parties who have an interest in the posted projects.

4.4 TAS and Work Group Meetings

Stakeholder participation in TAS meetings and the meetings and activities of its four work group activities is encouraged, and there are no limitations on membership in TAS or its work groups. Stakeholder participation provides significant input and in-kind professional support to the work groups. Parties who wish to join TAS or one of the work groups may contact WECC staff, the TEPPC facilitator, or the TAS Chair to be added to the membership list for TAS or any of its work groups. TAS meetings and work group meetings are open to the public. Dates, locations and times of these meetings are posted on the Web pages of each group as noted in 4.1 above, and notice of TAS and work group meetings are sent by e-mail to all parties listed as members. Documents for meetings of TAS and its work groups are distributed with meeting notices or in subsequent e-mail distributions. Major documents are also posted on the WECC Web site.

5 Transmission Planning Processes

5.1 Overview of WECC Regional Transmission Expansion Planning (RTEP) Processes

WECC has a long history of coordinated transmission planning. Owners and operators of the transmission network, state and provincial agencies, and others worked together through WECC to plan the future transmission facilities. The coordination of activities includes:

- Informing others of future plans – examples include project annual progress reports, and the WECC Significant Additions Report
- Providing opportunities for other parties to participate in transmission project development through project coordination reviews
- Developing standards for rating new elements of the transmission system through the PCC Project Rating Review (a.k.a. three-phase path rating process)
- Conducting transmission rating studies with peer group participation and oversight through Project Rating Review study groups

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- Conducting studies of transmission congestion using both historical analysis and production cost simulation through TEPPC annual study plans

The last item was added to WECC planning activities with the creation of TEPPC. The process for conducting economic studies of transmission system congestion was defined in the previous version of this Protocol that addressed the requirements of Attachment K of the Transmission Providers OATTs.¹⁹ With the passage of the transmission planning provisions contained in the ARRA of 2009,²⁰ additional planning requirements have increased the scope of WECC transmission planning activities. These new elements include:

1. Biennial publication of a 10-Year Regional Transmission Plan with the first 10-year plan report due in June 2011 and
2. Biennial publication of a 20-Year Regional Transmission Target Plan with the first 20-year plan report due in June 2013

The production of the biennial plans will require additional activities, i.e., collection of added input, the execution of studies, and additional analysis, evaluation and review. The development of RTEP process has substantially broadened participation in transmission planning through the creation of the SPSG (see 3.5 above) and the formation of the SCG (see 3.8 above). The separate processes for creating plans for the two planning horizons, 10-year and 20-year, are described in subsections 5.2 and 5.3 below. The differing objectives and associated analytic studies associated with those planning horizons are also described in those subsections.

5.2 Western Interconnection Planning Activities

The geographic scale of the Western Interconnection, with its wide diversity in climate, customer demographics, and resource concentration, requires a division of planning duties. This division of Western Interconnection planning activities is shown in Figure 5.1 at both by system level and by planning time-horizon. Any party is free to participate at any of the three levels of planning activities. However, the division of responsibility provides opportunity for those with limited interests to participate only where their greatest interest lies.

5.2.1 Regional Planning Activities

TEPPC regional planning activities for all three time horizons: the near-term and historical evaluation of congestion, medium-term congestion studies with development of a 10-year plan, and long-term studies with development of a 20-year target plan. SPSG will be major participant in these activities. The regional activities also include the PCC's LRS forecasts and project coordination and path rating reviews, and the technology assessments and resource integration activities of VGS. These latter planning activities go beyond TEPPC's publication of transmission plans and bridge the gap between concept and actual operations of new facilities. The PCC processes

¹⁹ Attachment K filings were added regional transmission planning requirements to the OATTs as a result of standards promulgated by FERC in its Order No. 890.

²⁰ American Recovery and Reinvestment Act of 2009, Title IV

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provide detailed technical evaluation of project compliance with reliability standards in the establishment of path ratings and operational limits. VGS investigates the operating characteristics of new generation technologies whose output variability is outside the direct control of system operators. Although conducted in parallel, PCC and VGS activities complement TEPPC's activities with information cross-feeds through WECC staff to assure comparability and avoid duplication of effort.

TEPPC's regional planning also includes a planning level process for comparing the environmental and cultural risks of future transmission alternatives. The goal of the comparison process, developed by the SPSG's Environmental Data Task Force (EDTF), is to inform decision-makers of the relative environmental and cultural risk of transmission alternatives being considered during transmission planning. Details of the comparison process are available on the EDTF web site.

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Figure 5.1, Western Interconnection Regional Planning Activities

	<i>Short Term 0-5 Years</i>	<i>Medium Term 6-10 Years</i>	<i>Long Term 20 Years</i>
Regional Activities (WECC)	<ul style="list-style-type: none"> • Path Rating Approval Process for OTC /TTC (PCC) • Historical flow and congestion studies (TEPPC) • Near-term congestion simulation studies (TEPPC w/SPSG) • Resource integration studies (VGS) 	<ul style="list-style-type: none"> • Project Review Process (PCC) • Path Rating Process for OTC /TTC (PCC) • System reliability assessments (PCC) • 10-year congestion simulation studies (TEPPC w/SPSG) • 10-year Regional Transmission Plan 	<ul style="list-style-type: none"> • Long term transmission needs study (TEPPC w/SPSG) • 20-year Target Transmission Plan • LSE Planning Coordination (WIRPF)
Subregional Activities (SPGs)	<ul style="list-style-type: none"> • Path rating studies (SPGs) • Subregional near-term reliability assessments (SPGs) • Project design plan development (SPGs) 	<ul style="list-style-type: none"> • Biennial subregional transmission capacity assessments (SPGs) • 10-year Attachment K Transmission Plans (SPGs) • Recommended Foundational Transmission Projects List for 10-year Studies (SCG) 	<ul style="list-style-type: none"> • Participation in TEPPC 20-year study and plan development
Local Activities (Transmission Providers)	<ul style="list-style-type: none"> • Path rating studies (SPGs) • Generator Interconnection and Transmission Service Request Studies under OATT • Operating studies • Reliability compliance studies 	<ul style="list-style-type: none"> • Path rating studies (SPGs) • Generator Interconnection and Transmission Service Request Studies under OATT • Attachment K Stakeholder requested studies • Reliability compliance studies 	<ul style="list-style-type: none"> • Long-term studies of potential transmission and sub-transmission needs (e.g. saturation studies)

5.2.2 Subregional Planning Activities

Subregional planning activities are conducted by SPGs. Although each SPG operates under different governing structures established by their member Transmission Providers, each serves the same purpose of allowing Transmission Owners within a given subregion to perform more detailed analysis than is performed at the WECC level. The SPGs develop plans to address reliability concerns identified in their assessments. Their planning obligations arise from their members obligations to provide reliable service. The SPG provides a mechanism that allows for joint consideration of issues among its members and stakeholders. The SPGs have organized the SCG to further facilitate the joint consideration of issues that reach across the borders of a single SPG.²¹

5.2.3 Local Planning

Local planning activities are performed by individual Transmission Providers to address local concerns. Provisions for planning at the local level are covered by the provisions of Attachment K to each Transmission Provider's OATT

5.3 The 10-Year Regional Transmission Plan

5.3.1 Objective of 10-Year Planning

The 10-year and 20-year processes differ in scope and procedure because they are focused on separate objectives. Under present conditions, seven to nine years are required to take a major transmission project from conception through construction to actual operation. As a result, the 10-year planning activities focus on specific projects. TEPPC's 10-year planning is a bottom-up process that incorporates coordinated 10-year regional reliability plans based on SPG reliability assessments with SPSG input and participation. The 10-year planning process assesses both congestion and congestion solutions under a credible, selected range of 10-year scenarios, to produce a 10-year Regional Transmission Plan. Congestion solutions examined may be informed by SPG information, additional project proposals, TEPPC study requests, SPSG activities, environmental and land use data, or the TEPPC study process itself. The 10-year studies are based largely on available WECC data – load forecasts, loads and resource plans, and power flow and dynamic stability study data.

5.3.2 Outline of 10-Year Regional Transmission Plan

The major components of a 10-year plan are:

- Purpose and nature of the 10-Year Regional Transmission Plan
 - Plan development and update process
 - Assumptions and considerations
 - Significance and intended use of the plan.

²¹ The DOE grant will support state participation in the activities of the SPGs through the SPSC.

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- SPG Foundational Transmission Projects List
 - Minimum system additions found in SPG 10-year plans that have a sufficient level of commitment or defined need that they can reasonably assumed to be in place during the study year. This list serves as the base condition for study, subject to review by TAS and SPSG when a study reference case is build.
- Regional transmission additions under consideration
 - Capacity needs identified in TEPPC congestion studies
 - Projects undergoing PCC rating review not included in the Recommended Transmission Additions List
 - Projects proposed for TEPPC study and evaluation

The 10-Year Regional Transmission Plan will represent the best available information on planned or potentially valuable EHV²² level additions to the Western Interconnection. A major thrust of the 10-Year planning process is to bring parties together so that multiple needs can be met by a given transmission project and that consideration is given all factors²³ that bear on siting and construction of transmission projects. The SPG assessment and design activities and the PCC's coordinated project reviews provide additional opportunities to involve a broad set of stakeholders for participation in transmission system expansion. The 10-year planning process also will consider the comparative environmental and cultural risks and benefits of transmission alternatives

The TEPPC transmission plans will provide an expected view of the future network but they are not construction commitments, agreement, or schedules. Such commitments are outside WECC's authority and will be made by project developers, regulators, and stakeholders. Plans will also change from cycle to cycle. Over the 10-Year period a plan covers, adjustments will have be made in each planning cycle to recognize changing economic and technology conditions. For example, a transmission project identified as potentially valuable under some future conditions may be included in the plan. It may undergo pre-construction activity and yet ultimately never be constructed because conditions changed from that expected and another project superseded it or expected reason for the project did not materialize. Furthermore, any one element or "congestion solution" in the regional 10-year plan may represent a composite or generalization of specific projects or solutions that have been proposed or may be proposed at a later date.

While centralized studies of regional transmission are conducted by TEPPC for the Western Interconnection, this is not the same as a centrally-planned system because there is no contractual or legal basis for enforcing a single interconnection-wide plan. There may be in each 10-Year Plan competing views with regard to the best projects, i.e., descriptions of different transmission lines or non-wire solutions (demand-side

²² EHV (extra-high Voltage) is operated at 230 kV and above. EHV facilities make up the backbone or bulk transmission system.

²³ Such factors include state policies, environmental constraints, best future use of corridor, etc.

programs, energy efficiency projects, etc.), that seek to meet similar goals. The 10-Year Plan may describe these alternative views and, if applicable, the scenarios that suggest the need for one alternative or another. TEPPC studies will provide an indication of overall capacity needs, but the decision to build one or more major projects to address the need will lie, as it always has, with investors, customers, and regulators. While not without its challenges, competition for the opportunity to meet transmission capacity needs brings forward new ideas that improve the overall quality of those projects that are eventually built.

5.3.3 The Development of a 10-Year Plan

The information flows associated with development of the 10-Year Regional Transmission Plan are illustrated in Figure 5.2. TEPPC activities are shown in the center with the SPG contributions on the left and PCC activities on the right. Figure 5.2 shows the movement of information between SPGs, PCC, and TEPPC, with ovals representing the processes and rectangles representing deliverable documents. The decision-making processes, for the TEPPC activities that are surrounded by a dotted line, are shown in more detail in Figure 5.3 and Figure 5.4.

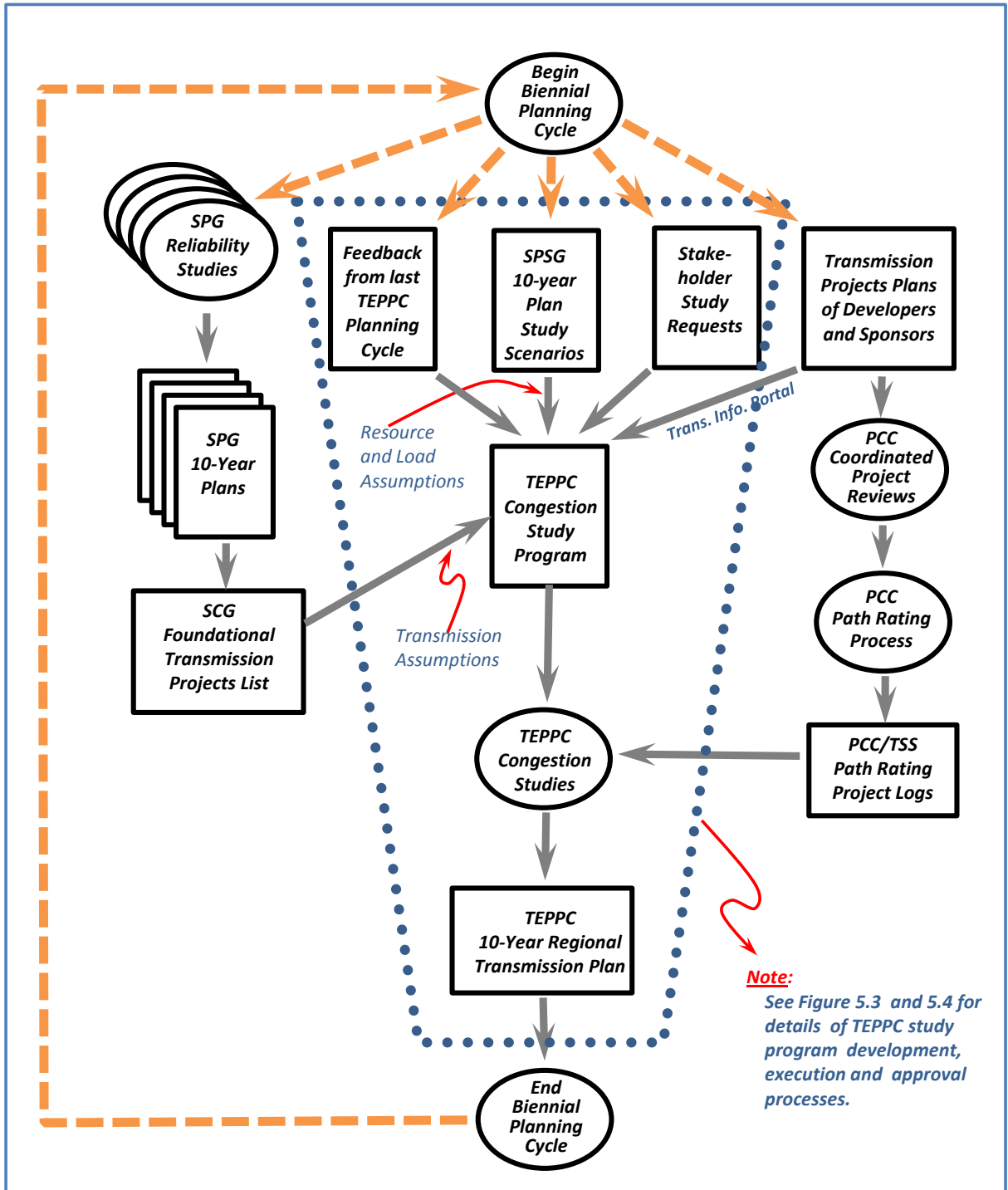
(a) SPGs – As part of the subregional planning activities, the SPGs conduct biennial study programs that make an assessment of transmission needed to provide reliable service and to integrate the resources that appear in Integrated Resource Plans or similar documents.²⁴ Working together through the SCG, the SPGs recommend a Foundational Transmission Projects List that is based on the combination of their individual 10-year plans. This list will be provided to TEPPC for its use for use in building the minimum or reference transmission network to be used in the congestion study program. Nothing in the recommendation made by the SPGs limits the TEPPC study program. Rather, the work done by the SCG simplifies the process of creating a reference network configuration for congestion studies. The SPSG may request evaluation of any of the data used to make up the reference or base case for a given set of studies.

(b) TEPPC – TEPPC's develops a congestion study program that serves as the basis the development and publication of the TEPPC 10-Year Regional Transmission Plan. The congestion studies utilize both historical analysis of path flows and schedules and production cost simulation for future conditions out to the 10-year planning horizon. The study program is developed after consideration of multiple information sources, as described in more detail in Figure 5.3.

²⁴ Planning by SPGs and Transmission Providers considers environmental factors, use of transmission corridors, needs of consumers, state regulatory policies, etc. in order to produce reasonable and reliable plans for transmission service to their customers.

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Figure 5.2, Information Flows for the 10-Year Plan Development Process



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(c) PCC – Figure 5.2 illustrates the PCC planning activities that operate in parallel with the TEPPC process. PCC’s processes are focused on the details of specific transmission projects and operate through peer review in project specific study groups and by PCC’s TSS. Unlike the TEPPC study program, PCC’s activities are not cyclical in nature but episodic since they are project driven.

The first stage in the PCC process is the Project Coordination Review. The purpose of this stage is to announce a proposed project, sponsor, and initiate the coordination process that affords stakeholders an opportunity to participate in or review a project. Project sponsors may request that a subregional planning group or TEPPC serve as the host forum for project coordination review or they may form a project coordination review group under PCC auspices. Project coordination review brings together interested parties to examine a proposed project and consider opportunities for (1) financial and/or planning participation in projects, (2) combining projects with similar objectives, and (3) best use of right-of-way, alternatives, etc. These reviews may be hosted by single-purpose project review groups, an SPG, or by TEPPC. These hosted forums are open to participation by all interested parties, and PCC provides a set of coordination guidelines to be met by the project review. A project report is submitted to PCC and TSS for verification that the planning guidelines have been followed. TEPPC is notified that the process has been completed.

The second stage of the PCC process is the Project Path Rating Review – often called the three-phase rating process. This process is administered by PCC, but the actual studies are conducted by the project sponsors with participation by interested parties. These detailed power flow and dynamic stability studies are used to establish the physical ratings to be used for system operation after a project is energized. The databases developed by PCC are integral to the rating process because they are the base cases (network topology) from which the rating study cases are built. The rating studies have three phases. Phase 1 establishes a *Proposed Rating*. Additional study in Phase 2 produces a *Planned Rating*. Phase 3 studies result in an *Accepted Rating* that will be used when facilities are placed into service. The project sponsor’s rating studies are peer reviewed by participating parties and by TSS before the appropriate rating grade approved in each phase of the process by PCC. TSS maintains a set of logs to track project progress through the path rating process.

(d) Study Program Development – The study program development process is shown in detail in Figure 5.3. Each study program will be based on four sources of information: (1) the SPG 10-year plans discussed above, (2) feedback from the previous TEPPC planning cycle, (3) study scenarios developed by the SPSG, and (4) study requests made by stakeholders. SPSG scenarios will be developed with input from each of the interest groups represented within its diverse membership.²⁵ Stakeholder study requests will also be accepted each year in order to meet the requirements of FERC Order No. 890 for customer requested studies. The SWG will

²⁵ Ordinarily, the SPSG will produce its scenarios prior to the deadline for receipt of stakeholder requests. However, because of the delay in DOE awards, the SPSG will not be formed in 2010 until after the initial evaluation of study requests. As a result, adjustments to the study program may occur during 2010 to permit SPSG to provide study input after the group become functional.

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work with the SPSG to combine the Order No. 890 study requests, the SPSG study scenarios, and the feedback from prior studies to develop a list of potential study cases that would be needed to address all requests and recommendations. The list will be evaluated by TAS and submitted to TEPPC for its consideration. TEPPC will prioritize the study list as discussed in Section 6.4 below and issue a proposed Study Program. After an opportunity for reconsideration is provided, TEPPC will finalize the Study Program.

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Figure 5.3, Study Program Development Process

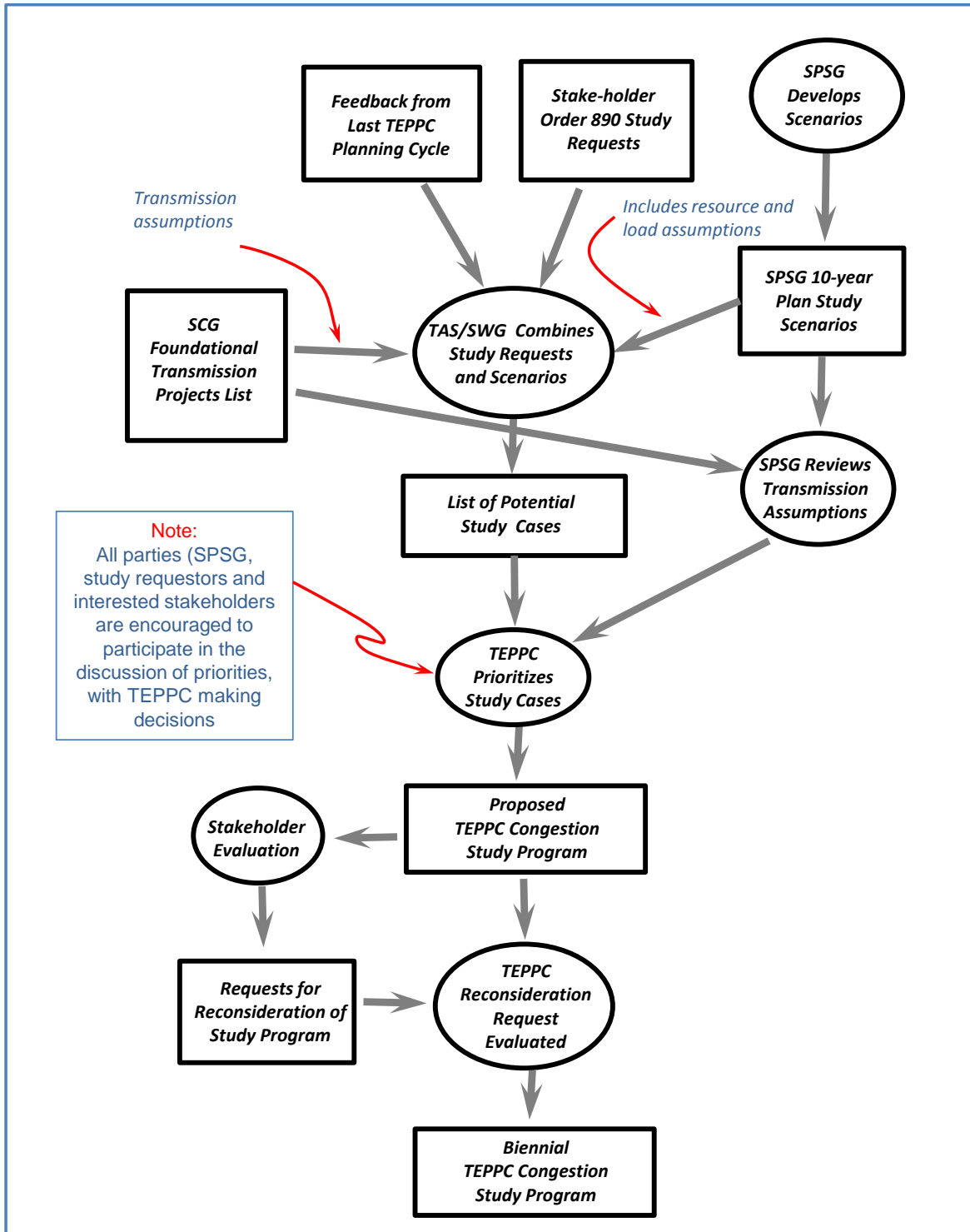
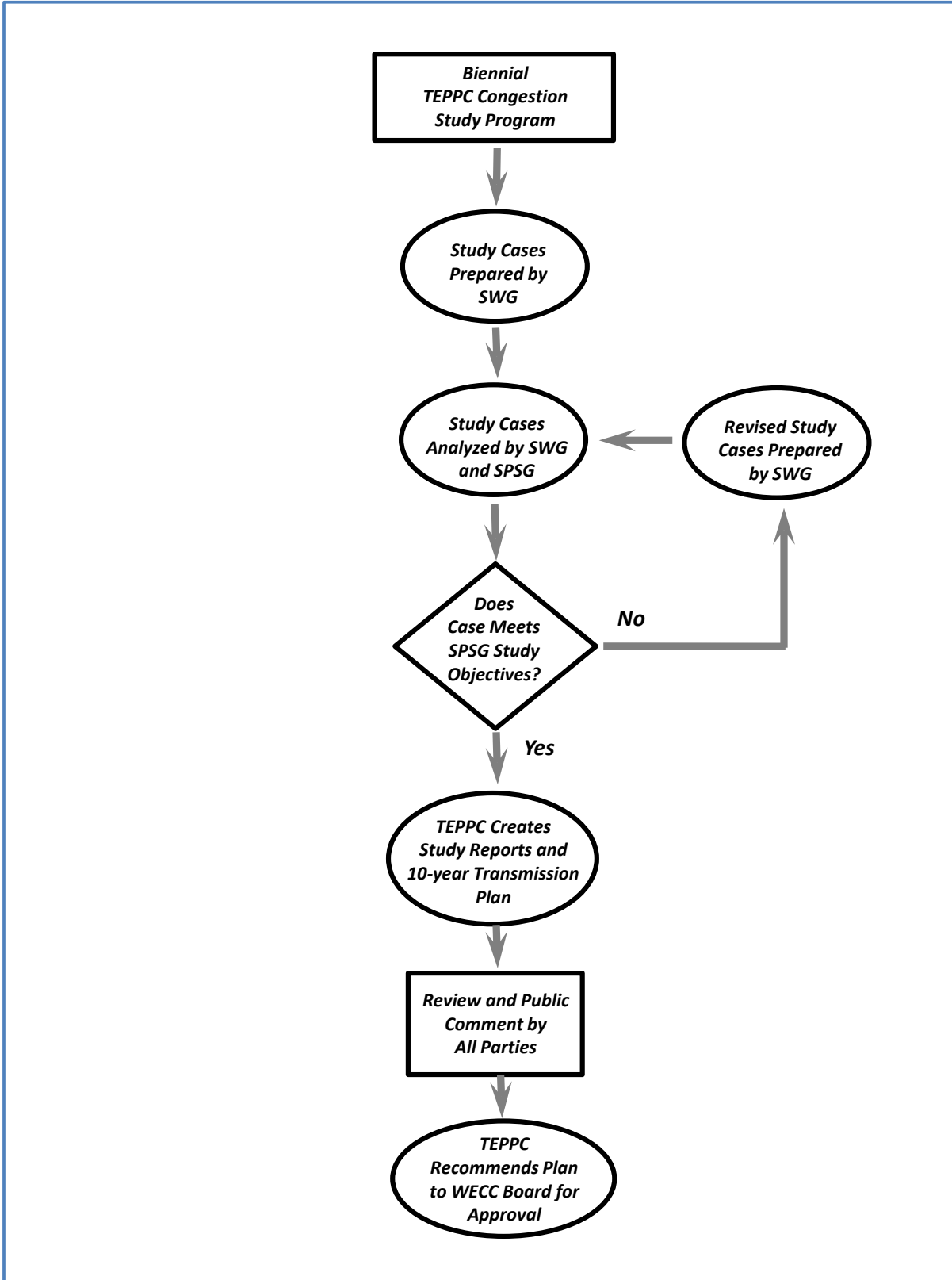


Figure 5.4, Study, Review and Plan Development Process



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(e) Study Execution and Plan Development – Figure 5.4 shows the details of the study execution, review, and transmission plan development process. With the congestion study program finalized, TEPPC proceeds with preparation of studies. This involves the creation of base or reference cases and the preparation of change cases for different scenarios of load, resource, demand-side measures, environmental policies, or other factors to identify potential future transmission congestion. Transmission expansion cases are then constructed to investigate the effect of additional transmission in relieving identified congestion. Depending upon the specific issue under investigation, the transmission expansion cases may consider generic transmission projects or known projects identified in the Transmission Project Portal described in 4.3. Study results are provided as they become available. SPSG will review results and may request revised study cases as needed to meet study objectives. TEPPC will use congestion study results and information provided by PCC and SPSG to make adjustments to SPG Foundational Transmission Projects List and produce the TEPPC 10-Year Regional Transmission Plan.

5.4 20-Year Regional Transmission Target Plan

5.4.1 Objective of 20-Year Planning

The 10-year planning activities are focused on evaluating the existing network with the addition of specific or generic transmission projects using existing databases. By comparison, the 20-year horizon plan studies take a much broader view of possible interconnection end-states. These studies cannot rely as much on existing databases as the 10-year studies do.²⁶ There is wide and highly uncertain range of possible conditions the transmission network must be able to accommodate when looking out 20-years. The 20-year plan is TEPPC driven a top-down development process, with studies conducted at the regional level with participation and input from a broad set of stakeholders.

The objective of 20-year studies is to identify likely transmission segments and path capacities that will be needed under a broad range of future circumstances. The 20-year studies will also identify risks that may be associated with low probability events whose impacts and transmission implications are large enough that they should be considered in planning the future network. Based on a wide range of study scenarios, the 20-Year Regional Transmission Target Plan identifies desirable long-term design features in the future network. It serves as a target to guide current and future design considerations. The purpose of the 20-year studies and plan is not to identify any specific beneficial project, but rather to examine future needs that should be considered in the design of projects that fall within the 10-year horizon. Example questions include:

- What corridors might be most critical over the long term?
- Should a voltage upgrade be made to a near-term project in order to make best long-term use of transmission corridors?

²⁶ WECC collects data from its members and Balancing Areas for a 10-year period only, so there is no existing WECC database to be used for the 20-year planning studies.

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- What are the costs and benefits over time of early upgrade investments made to anticipate need versus incremental investments made as need arises?
- What are the comparative environmental and cultural constraints and benefits of critical corridors and transmission alternatives including carbon reduction, water consumption, land use, wildlife impacts, and habitat resilience?

5.4.2 Outline of 20-Year Regional Transmission Target Plan

The major components of a 20-year Regional Transmission Target Plan are:

- Purpose and nature of the 20-Year Regional Transmission Target Plan
 - Plan development and update process
 - Study program development
 - Range of scenarios evaluated
 - Significance and use of the plan
- 20-year study results
 - Identification of critical corridors
 - Segment capacity need forecasts
 - Timing of segment needs
 - Significant exceptions – high-impact risk for low probability events
 - Identification of comparative environmental and cultural risks
- Most likely alternative plans
 - Plan A – key transmission needs or challenges addressed and the future conditions to which the plan applies
 - Plan B – key transmission needs or challenges addressed and the future conditions to which the plan applies
 - Plan C – key transmission needs or challenges addressed and the future conditions to which the plan applies

Based on the 20-year study program, the 20-Year Regional Transmission Target Plan will be developed to provide information that can be used by project designers, regulators, land managers, and others to understand the range of possible transmission needs that may develop by the horizon year. The key to the 20-Year Plan is the 20-year study program. The study program will utilize a suite of tools specifically designed for such long-term analyses. An important objective for both the 20-year study program and the resulting plan will be to usefully inform planners and others of longer term needs, possibilities and constraints that should be recognized when conducting more specific planning and imminent decision-making within the 10-year horizon.

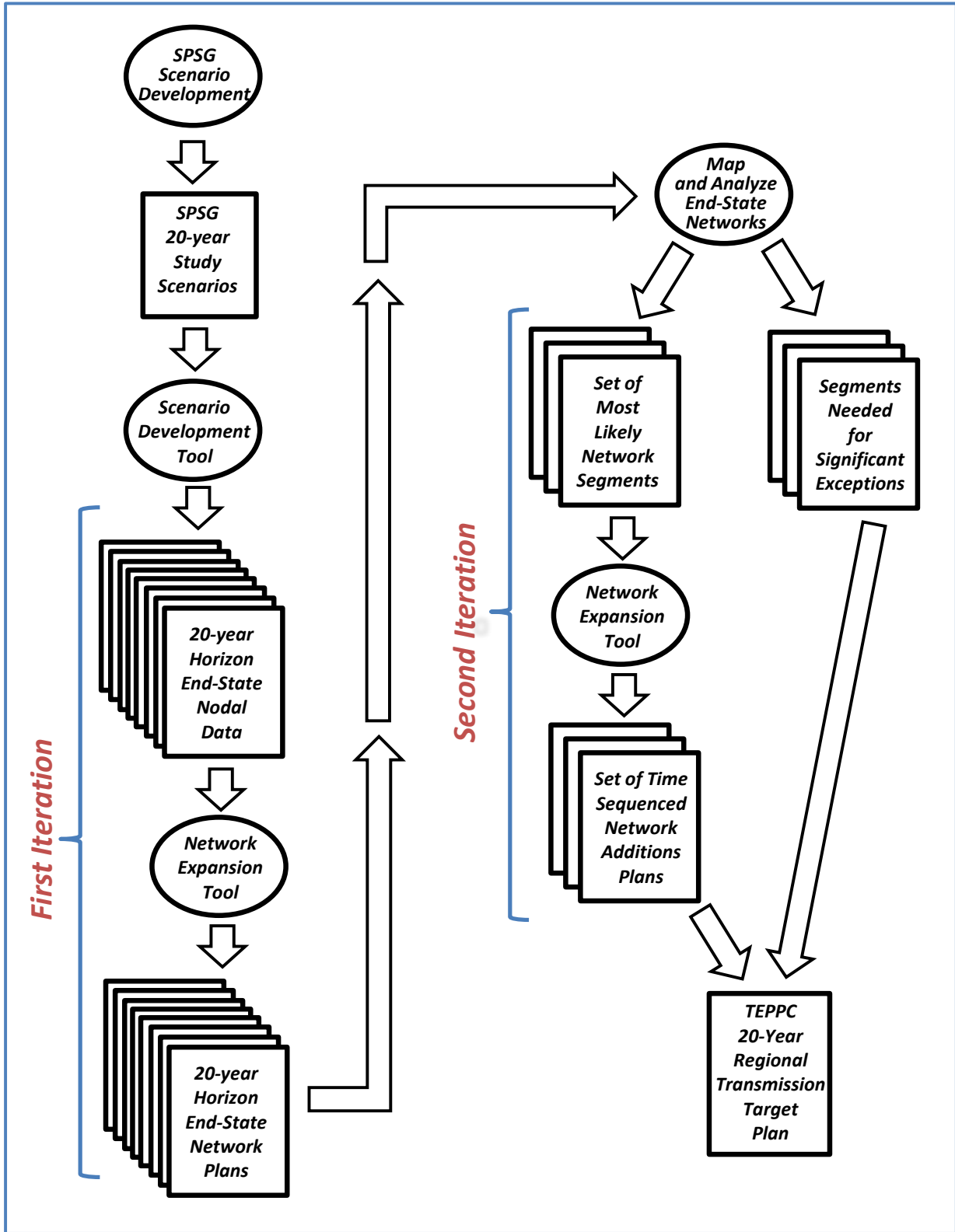
5.4.3 Development of 20-Year Regional Transmission Target Plan

Development of a 20-Year Regional Transmission Target Plan is a complex task. The considerable uncertainty regarding future loads and resources to be served by the transmission system is compounded by the complex, dynamically interacting, and sometimes counterintuitive nature of the way the system interacts both physically and economically. The possibility of technological change adds additional variability. To address uncertainty, long-term planning studies must deal with a range of possible scenarios or horizon end-states. Transmission network designs must then be developed for these horizon end-states. These designs need to be physically correct, i.e., at a minimum the impedance of segments must be modeled in the expansion studies in order to develop feasible future networks for which reasonable capital cost estimates can be made.

A 20-year plan of the type and scope described here has not been prepared in the past. Figure 5.5 is a diagram that portrays the expected plan development process. After SPSG is formed, the specific details of the process may change. Since this is a new process, there may also be changes during the first study to achieve an efficient process, and the process will continue to evolve over time to address issues raised by the SPSG and other participants in the 20-year planning process. In Figure 5.5, blocks of information are shown as boxes and analytic processes are shown as ovals. The figure does not show the process participants. However, the SPSG will be involved throughout the study process, to review study results for consistency with the strategic guidance provided.

The 20-year planning process is anticipated to operate on a two-year cycle to allow sufficient time for study execution and analysis. Since the basic purpose of the 20-Year Regional Transmission Target Plan is to provide an aiming point on the horizon for 10-year planning process, biennial updates will be adequate unless there is a dramatic change in economic, technology or policy factors. Annual changes in the aiming point imply more certainty than is practical for a 20-year plan. Views vary on how basic conditions will evolve over time, so it should be adequate to consider them every two years.

Figure 5.5, 20-Year Plan Development Process



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The expected process begins with the SPSG, a multi-disciplinary, multi-interest body formed to provide guidance to TEPPC on the scenarios that should be considered in its study programs. For the 20-year program, the scenarios developed by the SPSG will describe a wide range of possible conditions that may prevail in the horizon year. The types of factors and variables that may be considered include:

- Load growth rates and changes in load distribution
- Penetration of energy efficiency programs
- Growth of demand side management
- Technological advance in:
 - Generation equipment
 - Transmission apparatus
 - Power system controls, e.g., Smart Grid
 - Energy utilization, e.g., plug-in electric vehicles
- Economic conditions that may affect all of the above
- Environmental policy
 - Carbon and other emissions
 - Water and land use
 - Wildlife and habitat
- Environmental and cultural impacts
- Regulatory structures

TEPPC will use a scenario development tool to convert the scenario descriptions provided by the SPGS into time and location specific information that will describe the set of horizon electric system end-states to be evaluated. TEPPC will use the resulting nodal²⁷ specification of the west-wide electric system in a network expansion tool to produce a reasonable network design for each end-state. It should be noted here that the end-states are not prescreened, i.e., an end-state's probability is not considered at this point. This lack of pre-screening avoids a bias toward extrapolation of historical patterns, and it enables identification of conditions that have such a high potential impact that they should be considered even though they are currently considered to have a low probability of occurrence.

Having produced a set of feasible end-state networks, mapping and analysis will be used to identify those network segments²⁸, which occur most frequently across a range of possible futures. At this point, attaching probabilities or weights to the different scenarios examined may further aid in the identification of those transmission

²⁷ Nodal as used here refers to a geographic location in the backbone transmission system where loads and resources will be modeled. The number of nodes may be simplified, from that used for power flow studies, to manage calculation requirements.

²⁸ A segment as used here refers to any transmission elements that connect the nodes to form a network. This generalized term is used paths made up of multiple elements without reference to specific geographic corridors or rights of way.

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segments and the network structure that has the greatest potential value when looking out 20 years. Based on the initial analysis a smaller set of scenarios will be selected for further study. The network expansion tool will be used a second time to develop time-sequenced plans for a reduced set of network scenarios, with consideration of the cash-flow and cost-of-capital implications of the plans. The resulting network plan alternatives and the significant exceptions are combined to produce the 20-Year Regional Transmission Target Plan.

As part of the analytical process, TEPPC will consider the potential environmental and cultural risks of transmission alternatives. Specific activities include:

- Application of the EDTF process for using environmental and cultural information to compare electric transmission alternatives;
- Consideration of environmental and cultural data sets that meet the EDTF Data Quality Protocol; and
- Incorporation of environmental and cultural data into the Long-Term Planning Tool (LTPT) used for analysis in TEPPC's 20-Year Study Program.

5.5 Evaluation in Adaptive Planning Process

At the end of each biennial cycle for 10-year and 20-year plan devolvement, TEPPC, the SPGs, the SPSG, and stakeholders will conduct an evaluation of the overall regional transmission planning process. TEPPC will initiate this review. The review will evaluate the effectiveness of and possible need for changes in:

- Stakeholder participation in transmission plan development
- 10-Year planning process
- The long-term study procedure and 20-year target plan.
- The congestion study program for both historical analysis and economic cost simulations
- Subcommittee and work group structures
- System modeling and database management
- Environmental information and considerations
- Coordination among TEPPC, SPGs, PCC and other WECC committees

The evaluation of past performance will also include a determination of the need for additional WECC study resources based on the expected workload. The TEPPC planning process is designed to be adaptive, i.e., it will change as needed to address changing conditions or to improve methods and techniques²⁹ through self-evaluation and feedback to improve the process in subsequent study years. As a result of each review, TEPPC will make recommendations as necessary for adjustments that should

²⁹ For instance, the evaluation of techniques may include production cost model improvement needs, improvement of sub-models (such as, hydro or wind representation), re-examination and improvement of methodologies, and issues to be considered that have not been covered in previous studies, have been issues raised study requests or were revealed by earlier studies.

be implemented in subsequent planning cycles. The recommendations will be submitted to the Board to approve changes needed in TEPPC's Charter, structure, or budget. TEPPC will develop a schedule for implementing its changes in a prudent and expeditious manner.

6 Biennial Transmission Congestion Study Program

As describe in 5.3.2 above, TEPPC conducts a biennial transmission system congestion study program as a component of the regional transmission planning process. In the off year, TEPPC reexamines plans, e.g., for significant changes in major assumptions or outlook, or new methods and modeling conventions that could significantly alter results. Two types of studies are performed. First, historic utilization is analyzed through collection and evaluation of actual historic path flows, path schedules, and related data. Second, potential future congestion is analyzed using production cost simulation to evaluate the economic cost of congestion and investigate the means for mitigating those costs through demand-side management, resource selection, and new transmission construction. This section describes the purpose of these studies and the process used to develop and complete the biennial study program.

6.1 Description of the Congestion Study Program

6.1.1 Historical Analysis of Transmission Utilization

The analysis of historical power flow and schedule data for the Western Interconnection transmission system provides an indication of how marketers and Load Serving Entities have utilized the transmission system to market energy and serve load. The results of historical analysis are also useful in the identification and evaluation of potential future areas of congestion and for verifying model representation for power flow and production costing analysis.

WECC has been conducting a historical analysis of flows on major transmission path utilization since 1999. Prior to 2008, the studies analyzed only actual power flow data. Beginning in 2008, the historical analysis study included path schedule data obtained from archived electronic tags (schedules) for Points of Receipt (POR) and Points of Delivery (POD). The schedule data was then mapped from POR POD segments to created WECC path schedules. With this additional data, historical analysis considered both actual flows and transaction schedules associated with those flow. Historical analysis of transmission utilization will continue to be a component of the biennial study program of TEPPC.

6.1.2 Economic Transmission Congestion Studies

As explained in 5.3.2, TEPPC's economic transmission congestion studies are a significant component of the development of the 10-Year Regional Transmission Plan. TEPPC uses TAS and its Data, Studies, and Modeling Work Groups to develop and

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conduct the Economic Congestion Studies. These studies are conducted using production cost simulation techniques and have a 10-year horizon. The study program is based on inputs from multiple sources, including requests from stakeholders that arise out of the provisions of FERC Order No. 890.

6.2 Order No. 890 Economic Planning Studies Principle

One of the requirements imposed on Transmission Providers in Order No. 890 is compliance with the economic planning studies principle. FERC found that:

... to represent good utility practice and provide comparable service, the transmission planning process under the *pro forma* OATT must consider both reliability and economic considerations.³⁰

They further observed that:

The purpose of this principle [economic planning studies] is to ensure that customers may request studies that evaluate potential upgrades or other investments that could reduce congestion or integrate new resources and loads on an aggregated or regional basis (e.g., wind developers), not to assign cost responsibility for those investments or otherwise determine whether they should be implemented.³¹

The Commission directed that, in the planning process described by Attachment K of the Transmission Providers open access transmission tariffs, stakeholders will be given a right to request a defined number of high priority studies annually. Transmission providers were also directed to consult with their stakeholders during the development of Attachment K to devise a means to allow Transmission Providers and stakeholders to cluster or batch requests for economic planning studies to enable efficient performance of such studies.³²

The study activity provided for in Order No. 890 is separate from the OATT studies required for specific transmission service requests and generator interconnection requests, which will continue to be done under the appropriate provisions of the OATT. The congestion studies described by Order No. 890 provide stakeholders with information that they can use for:

- Developing transmission expansion policies and plans
- Identifying needs for demand-side resources, local generation or energy storage
- Establishing transmission needs for alternative energy sources (e.g., wind or solar)
- Making requests for transmission service through transmission service providers' OATTs

³⁰ FERC Order No. 890, ¶542, p.310.

³¹ FERC Order No. 890, ¶544, pp 311-312.

³² FERC Order No. 890, ¶¶546-547, pp. 313-314.

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- Identifying best locations for generator interconnection
- Developing potential transmission projects or non-wire alternatives for congestion relief, etc

As a general rule,³³ implementing FERC's Order No. 890 economic planning studies requirement on a provider-by-provider basis would be costly; would likely result in duplication; and could hinder the subregional and regional coordination that FERC desires. Further, economic congestion issues are typically a product of system-wide dispatch and not solely of dispatch within a single provider's balancing area or owned transmission facilities. Performing production cost congestion studies at the regional or subregional level is more effective and more efficient and for some purposes unavoidable. The development of the study program described in Section 6.4 provides options for stakeholders to make economic study requests on an annual basis. Provision is made for completion of studies by Transmission Providers, SPGs, or TEPPC, as appropriate to best meet a stakeholder request. The TEPPC study program development process prioritizes requests in open meetings in order to strike a balance between the desires of all stakeholders for information and the cost of producing that information.

6.3 Scope of Economic Congestion Studies

6.3.1 Issues Addressed by TEPPC

The primary focus of TEPPC's study effort is an evaluation of interconnection-wide impacts of system congestion and transmission expansion alternatives in response to a range of credible developments regarding system resources and loads, including environmental considerations. TEPPC's study efforts are not directed at identification, selection, or development of specific transmission projects, but rather are intended to provide system information and study results that can be used by others in developing specific transmission expansion projects. The TEPPC results may be used by the SPGs in the development of their 10-year plans. Other entities may use TEPPC study results for development of demand-side programs, resource plans, transmission projects, or other non-wire solutions for mitigating potential future congestion on the transmission system. Also, because results of economic production cost studies give an estimation of where new generation may be economically operated under a particular scenario or a range of scenarios, TEPPC studies can help stakeholders develop transmission or non-wires projects and provide the needed point of receipt and point of delivery data needed for the SPG reliability studies.

6.3.2 Issues Not Addressed by TEPPC

TEPPC will provide the results of studies to all parties, but it will not explicitly rank transmission or non-wire alternatives³⁴, and TEPPC will not make recommendations

³³ In some instances where effects are localized to a portion of the system, congestion studies may best be performed by an individual Transmission Provider.

³⁴ The preparation of the TEPPC 10-year Regional Transmission Plan require the selection a set of projects, which at least implies a rank order of projects. However where there are competing projects

for allocation of costs among potential project participants or beneficiaries. TEPPC may identify transmission needs and list the alternatives (with their respective advantages and disadvantages) that could meet those needs, including identification of infrastructure that is valuable across a range of future conditions or infrastructure that may be valuable for specific future condition. However, investment decisions will remain the province of investing parties and the agencies that regulate siting and project cost recovery. The allocation of cost will remain under the jurisdiction of state and federal authorities or be established under contractual agreements entered into by subregional groups or among groups of willing investors and their customers.

6.3.3 Disclosure of Assumptions and Criteria

All assumptions and criteria used for preparation by TEPPC shall be publicly available. The development of study assumptions and criteria will occur in open meetings of TEPPC and of TAS and its work groups. Reports of study results will list the assumptions and criteria used in those studies. Study results will be posted on the WECC Web site as they become available.

6.4 Development of the Study Program

As described in Section 5.3.3, TEPPC develops its biennial congestion study program in consultation with Transmission Providers, SPGs, the SPSG, and stakeholders. TEPPC also considers the recommendations made by TAS for follow-up studies suggested by evaluation of the previous biennial study program. The TAS study program recommendations do not have greater or lesser priority than study requests submitted by any other party, but are considered as part of the combined list of possible study activities. The purpose of TEPPC's economic study program is to identify potential congestion problems in the transmission system. As part of it studies, TEPPC may evaluate how identified problems could be addressed. TEPPC may examine both conceptual non-wire and wire solutions in order to understand the extent of the problem, evaluate resolution possibilities and provide information to system users and potential investors. Solutions to be considered may include demand-side response, demand management systems, local generation, and transmission expansion options including planned or announced projects.³⁵

6.5 The Biennial Study Cycle

Under its agreement with DOE, WECC will produce a 10-Year Regional Transmission Plan in 2011 and 2013. To align with the 10-Year plan cycle, the TEPPC Transmission Congestion Study Program will move to a biennial cycle. However, provisions will be made for mid-cycle update of the study program so that stakeholders may continue make annual requests for economic planning studies under Order No. 890's

which meet the same general objectives, TEPPC may choose to list the projects as alternatives with the pros and cons of the competing approaches listed for consideration.

³⁵ Considerations will include projects under review as part of the WECC Regional Planning Process as described in Section 7.3 below.

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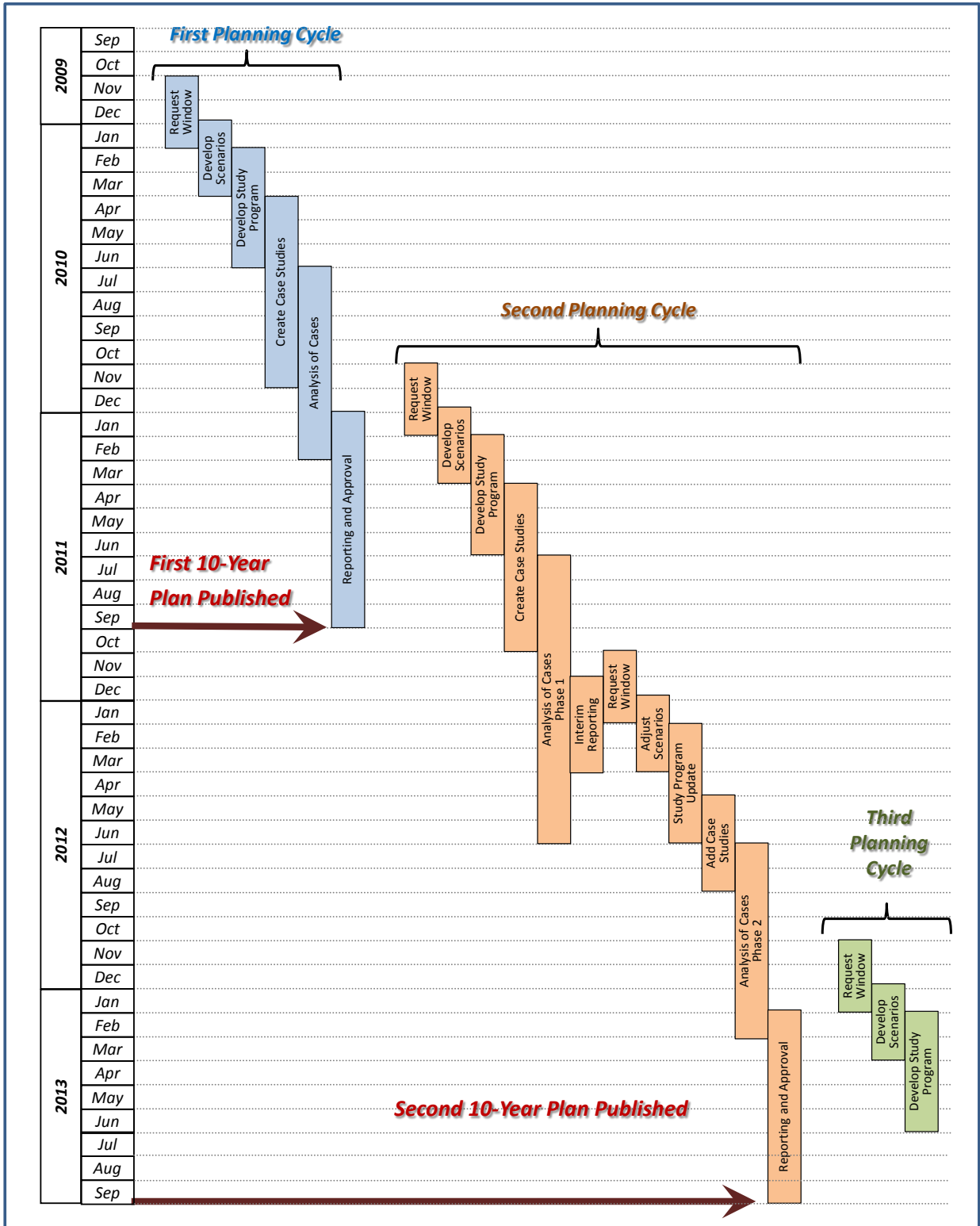
Attachment K provisions and have those requests considered for inclusion in TEPPC's ongoing study program.

6.5.1 TEPPC Database

The TEPPC database is the starting point for congestion studies by TEPPC, SPGs, and Transmission Providers. This database is available to the public. It utilizes publicly available information for expansion plans (such as state Integrated Resource Plans). economic inputs from publicly available sources in order to avoid confidentiality issues regarding data transparency.

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Figure 6.1, Biennial Economic Congestion Study Timeline



6.5.2 Study Cycle Timeline

Figure 6.1 shows an illustrative timeline for TEPPC economic congestion studies. The first two cycles and the beginning of the third biennial cycle are shown. The first cycle is shortened to meet the September 2011 deadline for the completion of the first 10-year plan. The first cycle begins in November of 2009 with the opening of the study request window and ends with the issuance of the first 10-year plan in September 2011. The second cycle covers a full two year period. It begins with the opening of the study request window in November 2010, and ends with production of the second 10-year plan, and the first 20-year plan, in September of 2013. This first full cycle provides for a second study request window about mid-way through the cycle, which opens in November 2011 and will result in adjustment of the study plan to reflect these additional study requests. Figure 6.1 shows the overlap between cycles. Preparation for the cycle must begin before the reporting and approval are completed for the previous cycle. This diagram shows only the studies of economic congestion that supports the preparation of the 10-Year Regional Transmission Plan. The diagram is intended to illustrate the process. The actual study project plan may vary as needed to meet the overall objective for production of timely transmission plans.

6.6 Study Program Development

For each biennial planning cycle, TEPPC develops an economic congestion study program. The steps of the study program development are described below:

1. Submission of stakeholder study requests
2. Development of study scenarios by SPSG
3. Consolidation of study requests and scenarios in a draft study program
4. Prioritization of study requests and scenarios to create the study program
5. Requests for reconsideration of the study program
6. Approval of study program

The process for modifying the study program mid-cycle follows the same procedural steps.

6.6.1 Stakeholder Study Request Submission

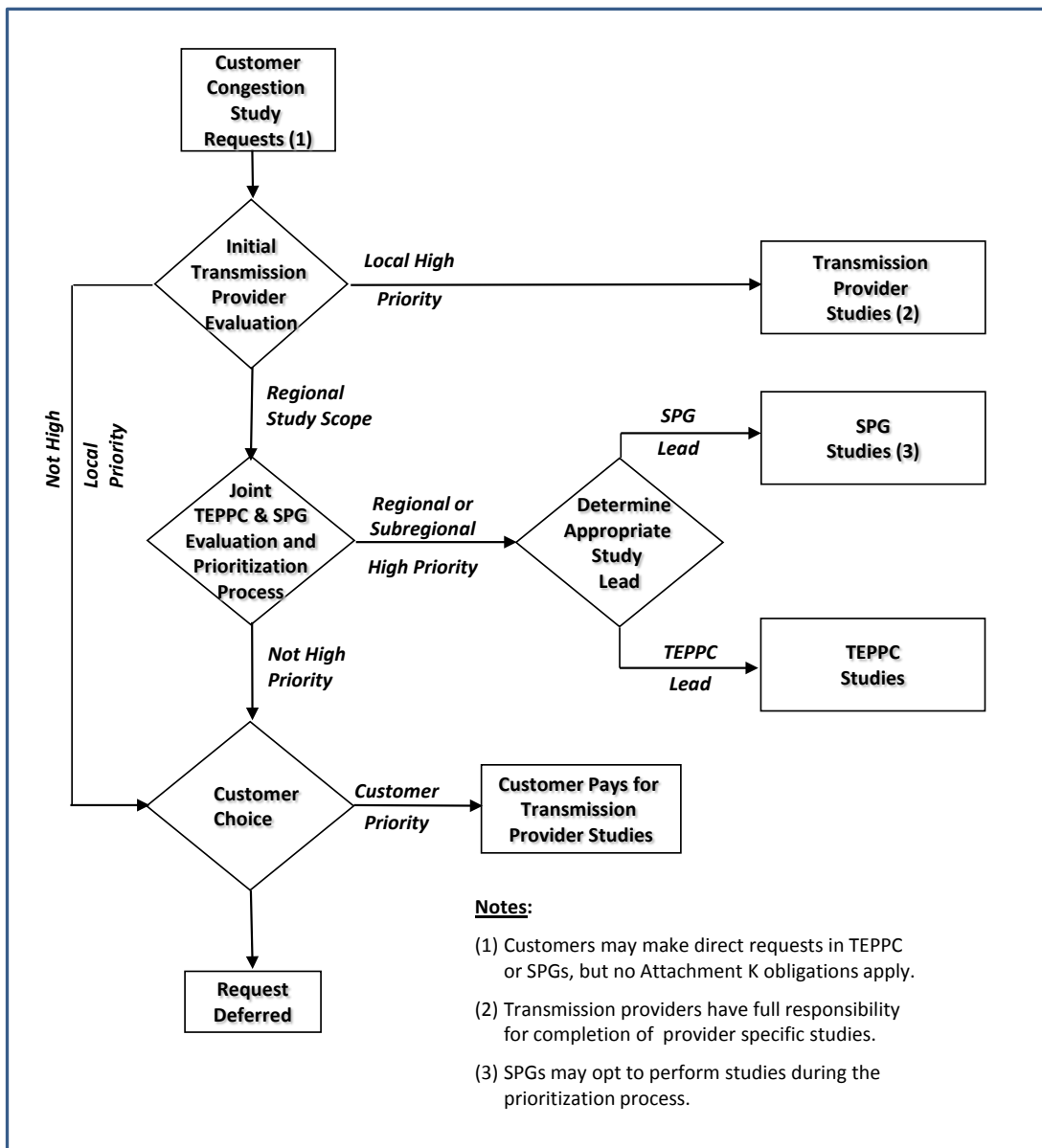
Each year a study request window will be open for three months (from November 1st through January 31st). Stakeholders may submit study requests to Transmission Providers under the provisions of Attachment K, to a SPG, or directly to TEPPC. Requests received by January 31st by participating Transmission Providers, SPG representatives, or stakeholders will be provided to TEPPC when the nature of the request is appropriate for interconnection-wide studies. All requests received by TEPPC will be posted as on the WECC Web site.

Study requests may be received by individual Transmission Providers or SPGs, However, not all such requests will have regional implications. Figure 6.2 shows how the Transmission Providers, SPGs, or TEPPC select the appropriate venue for

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addressing a given study request. If the request is local in character, the Transmission Provider determines if the request has sufficient local priority to be included in the Transmission Provider’s own study program. If not, the customer has the option of paying for the study. If the Transmission Provider determines that the study has a subregional or regional applicability, the request is forwarded to the appropriate SPG and TEPPC for priority determination. If the request does not have sufficient priority to be included in the SPG or TEPPC study programs, the customer has the option of paying to have the study prepared. Study requests that are judged to have regional implications will be considered alongside the scenarios provided by the SPSG for inclusion in the study program.

Figure 6.2, Processing of Study Requests Received by Transmission Providers



6.6.2 Development of Study Scenarios

The long-term (20-year) scenarios prepared by the SPSG will be a major component used of the biennial study program. The SPSG's study scenarios will consider the economic, technological, and policy factors that should be included in the study program. The SPSG's scenarios will be needed by January 31st each year so they can be considered at the same time as the study requests from stakeholders and included in the consolidated list of possible studies from which TEPPC develops its study program.

6.6.3 Consolidation of Study Requests and Scenarios

The SPSG study scenarios, the study recommendations developed in review of past studies, and all of the study requests with regional implications that are submitted by stakeholders to TEPPC, SPGs, or Transmission Providers will be combined into a single list of possible studies as described above in Figure 5.3. TAS will consider whether scenarios, follow-up recommendations, and study requests can be clustered or combined where multiple issues can be addressed by a single case to reduce the total number of cases required for the study program. SPSG members and parties submitting study requests are encouraged to participate in these discussions.

After evaluation of the consolidated list of potential studies, TAS will develop a proposed set of base cases and study cases that could address the potential set of studies on the consolidated list. The SPSG scenarios will be used for the load and basecase reference assumptions, while the SPG Foundational Transmission Projects List will be used to define the reference transmission network in the basecase. TAS will also prepare a consolidated list of transmission expansion proposals drawn from the SCG 10-year plans (including its list of potential expansion projects), PCC project logs, and other projects found in the Transmission Information Portal that may be used during the study as congestion relief alternatives. TAS will forward to TEPPC the components of draft study program, along with its recommendations for clustering or combination of requests.

6.6.4 Study Request and Scenario Prioritization

Each year in March, TEPPC will convene an open meeting to develop the Economic Congestion Study Program (or update the study program in mid-study years). At this meeting, TAS will present its draft study program, including its suggestions for possible clustering or combination of study requests to maximize the value of the study work to be performed. Prior to the open meeting, the consolidated list of potential studies and possible combinations will be posted on the WECC Web site and distributed to TEPPC, TEPPC correspondents, SPSG, SPGs, and all parties who have submitted a study request. It is expected that the SPSG will participate in the prioritization discussion. Study requestors are also encouraged to join in the discussion of study priorities and to use the TEPPC process for resolving disputes over the components of the study program.

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The development of the congestion study program must consider the best use of available resources for completing the studies. It has not been possible to undertake all requested studies in previous study cycles, and this condition is likely to continue even with additional resources. The prioritization of studies is simplified by the clustering of studies or combining of like requests, but the volume of requests is likely to exceed study resources as it has in past TEPPC study cycles. As a result, prioritization of the study requests and scenarios will be required to determine which studies are included in the study program and to identify the order in which studies will be conducted. Input on the prioritization of requests will be taken during the study program discussion meeting(s) so that stakeholders are party to these discussions and are informed regarding the choices that must be made to develop a study program that can be efficiently and effectively performed during the study year. The criteria used for the prioritization include:

1. What portion of the interconnection will be considered by the study?
2. Does the request raise fundamental design issues of interest to multiple parties?
3. Does the request raise policy issues of national, regional, or state interest; for example, access to renewable power, location of both conventional and renewable resources, consideration of state policies, and environmental factors?
4. Can the objectives of a particular study request be met by other studies by clustering or combination?
5. Will the study provide information of broad value to customers, regulators, Transmission Providers, etc.?
6. Can multiple requests for studies or scenarios be represented generically if the projects are generally electrically equivalent?
7. Can requests be aggregated into energy or load aggregation zones with generic transmission expansion between?
8. Does the study request require the use of production cost simulation as generally employed by TEPPC or can it be better addressed through technical studies such as power flow and stability analysis?
9. Is the requested study necessary to meet a member Transmission Provider's compliance with its OATT, Attachment K?³⁶

These criteria are used to determine the priority order of study requests, so meeting one or more of the criteria does not mean automatic inclusion within the study program. Since it is the Transmission Provider's obligation under its tariff to provide congestion studies, Transmission Providers must be active in the study formulation

³⁶ If such a request does not become a part of the TEPPC study program because it has a low regional priority, the Transmission Provider will have to address the requirement using its own resources using the TEPPC database.

and prioritization process to ensure that all requests received from stakeholders are given fair and equitable treatment per the provisions of that Transmission Provider's Attachment K. Based on the open discussions described above, a proposal will be made for the studies to be performed during the next study cycle.

6.6.5 Finalizing the Study Program and Requests for Reconsideration

After considering input received during the study program discussion meeting(s), TEPPC will prioritize the potential study list and will post a proposed Economic Congestion Study Program. The proposed study program will be posted by April 30 for both the creation of a new study program in the first year of the biennial cycle or for a study program during the second year of a cycle. The posted plan will identify the studies selected for completion, the priority order of studies, and a list of requests that may not be completed under the proposed study program. Any party whose study was not included in the study program, or who has other concerns with the final study program proposal, may submit a request for reconsideration to TEPPC by May 15. TEPPC will respond to such requests by June 15 and the study program will be final until following year. Parties dissatisfied with TEPPC's final action may avail themselves to the WECC dispute resolution process for mediation or arbitration of their dispute over the study program components, priorities or study assumptions.

6.6.6 Studies Not Included in Final Study Program

Parties whose study requests are submitted to Transmission Providers under the provisions of Attachment K of an OATT will be notified by their Transmission Provider if their request is determined to not have high priority for local, subregional, or regional studies. The requesting party may choose to defer the study request for a later year or to negotiate with the Transmission Provider to arrange for completion of that study with the customer paying for the cost of the study. As Transmission Providers respond to such requests, TEPPC will provide assistance to the Transmission Provider by supplying the TEPPC economic planning database and other reasonable assistance to the extent that the subject of the study request is within TEPPC's authorized scope of activities.

6.6.7 Study Program Execution and Monitoring.

TEPPC will hold monthly coordination calls for reporting on progress with both regional and subregional studies. Study progress reports will also be made at each quarterly TEPPC meeting. Discussion of subregional studies will also occur at SCG meeting held in conjunction with TEPPC meetings. The purpose of these regular forums for coordination of study work is to ensure that the resulting set of studies will be more cohesive and to keep stakeholders apprised of schedule, outcomes, difficulties and issues associated with each study. Conference calls, Webinars, and meetings provide an opportunity coordination/collaboration among the SPGs and for formation of joint study efforts.

TEPPC will make best efforts to ensure timely completion of those studies. Difficulties in completing the assigned studies are to be made known as they are discovered so this information can be conveyed to the requesting party and adjustments made in consultation with the Transmission Provider and the requesting party when the request was submitted under Attachment K of an OATT.

6.6.8 Study Reporting

During the year, the results of studies will be made available at SWG, TAS, and TEPPC meetings. A Study Results Report will be completed to consolidated findings reported during the year, with a draft report will made available by January 15 and completed by March 31. In the first year of the biennial cycle, the annual report will contain interim results on work completed during the year, including any follow-up studies from the previous study program before the completion of a new study program in the first year of a biennial cycle. Each year, TEPPC will also issue an Annual Report that provides discussion of TEPPC activities, summaries of studies results, and general summaries of SPG activities.

6.7 Congestion Study Obligations of Transmission Provider and TEPPC and Subregional Planning Group Support

The obligation to meet regional planning principles specified in FERC Order No. 890 belongs to the Transmission Providers, not TEPPC or the SPGs. However, TEPPC and the SPGs act to support of the Transmission Providers by conducting regional planning processes. By participating in the TEPPC process, the Transmission Providers are able to meet their regional participation responsibilities described by in Order No. 890.

Each Transmission Provider will have on file with FERC as part of its OATT an Attachment K that describes its transmission planning process. This will include a coordinated regional planning process that complies with the planning principles adopted in Order No. 890. The transmission planning process will include the Transmission Provider's participation in TEPPC and SPGs.

As discussed in Section 6.2, Order No. 890 allows stakeholders to submit requests for economic planning studies of congestion. These requests will be submitted to Transmission Providers under the provisions of each Transmission Provider's Attachment K to its OATT. Attachment K will also describe the TEPPC process (detailed in Section 6.5.2) that will be used to prioritize and respond to congestion study requests on a west-wide basis.

6.8 TAS Study Program Responsibilities

TAS will collect and disseminate data for both historic and forward-looking congestion studies. The historic evaluations will be conducted by the Historical Analysis Work Group. Potential future congestion will be evaluated using production cost simulation techniques. TAS conducts forward-looking congestion studies through the Data,

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Modeling, and Studies Work Groups. These work groups will collect the data needed for economic studies of transmission expansion and produce studies of future transmission system needs. TAS and work group membership is open to all stakeholders. This includes regional transmission planning experts, SPGs, state and provincial energy offices, regulators, Load Serving Entities, environmental and consumer advocates, as well as WECC and non-WECC entities. TAS meetings and meetings of its work groups are open to the public. Dates, locations and times of these meetings are posted on the TEPPC Web site. Notice of TAS and work group meetings are sent by e-mail to all parties listed as members of the relevant group. Any party may become a member by notice to the work group chair or by contacting any of the WECC Staff listed on the relevant TAS Web pages.³⁷

6.8.1 The Data Work Group

The Data Work Group is responsible for collection and verification of the TEPPC database for economic studies of transmission expansion. The Data Work Group will use publicly available information for populating the database and will make maximum use of data collected by other WECC committees for reliability studies. The database will be made available to subregional groups, project developers, regulators and others in a portable database format that is usable by vendors of production cost simulation programs.

6.8.2 The Modeling Work Group

The Modeling Work Group is responsible for evaluating and proposing improved models for production cost simulation and for providing for portability of the TEPPC economic studies database.

6.8.3 The Studies Work Group

The Studies Work Group is responsible for directing those studies for which TEPPC is the study lead. The Studies Work Group will be responsible for establishing the assumptions for the studies, i.e., selecting the study periods to be used for base case preparation, the system configurations evaluated and evaluating study results and preparing study reports. The selection of base cases, assumptions and methodology will be based on the needs of the consolidated study program, subregional planning groups, Transmission Providers and stakeholders, while considering the best use of resources and the need for timely completion of work as part of the annual study cycle.

³⁷ The TAS Web page is located at <http://www.wecc.biz/committees/BOD/TEPPC/TAS/default.aspx>

6.9 Data Management

6.9.1 Data Collection for Studies

Data collected for studies and for the TEPPC database will include future loads, existing generation, new committed resource additions, network impedances, committed transmission additions, hydroelectric production forecasts, generic thermal production costs, and environmental, water, land use, and wildlife considerations. Data collection assumptions will be identified and listed for inclusion in the annual study report.

(a) The data collection sources will include the work of other WECC committees, subcommittees and work groups, of State integrated resource planning processes, of subregional planning groups, and of Transmission Providers.

(b) Parties making study requests will be required to supply data needed for the evaluation of their requests. Failure to do so in a timely manner will result in the elimination of that request from the synchronized study program.

6.9.2 Obligations to Supply Data

WECC members will supply data for the TEPPC database through the existing WECC LRS data request forms and instructions following the WECC rules for data provision and security.

6.9.3 Access to Data

TEPPC will operate on an open, transparent basis with the TEPPC economic planning database available upon request. Requests for the TEPPC database will conform to the WECC Information Disclosure Policy and its associated Exhibits.

7 Cost Allocation

Allocation of project costs among geographic areas or market participants will not be done by TEPPC. The SPG's agreements or Transmission Provider's Attachment K may address project cost allocation, but such activities fall outside the scope of activities authorized for TEPPC by WECC (see Section 6.3.2 and Appendix A 2.2.2 for further discussion).

Appendix A

Additional Organizational Information

1 WECC

1.1 Description

WECC was formed on April 18, 2002, by the merger of the Western Systems Coordinating Council (WSCC), the Southwest Regional Transmission Association (SWRTA), and the Western Regional Transmission Association (WRTA). The formation of WECC was accomplished over a four-year period through the cooperative efforts of WSCC, SWRTA, WRTA, and other regional organizations in the West.

WSCC was originally formed with the signing of the WSCC Agreement on August 14, 1967 by 40 electric power systems. Those “charter members” represented the electric power systems engaged in bulk power generation and/or transmission serving all or part of the 14 Western States and British Columbia, Canada. SWRTA and WRTA were formed in 1995 to implement open transmission access in response to the passage of the Energy Policy Act of 1992.

WECC members have long recognized the many benefits of interconnected system operation. During the mid-1960s, expansion of interconnecting transmission lines among systems in the western United States and western Canada resulted in the complete interconnection of the entire WECC region. As this expansion was taking place, systems generally adopted the Operating Guides of the North American Power Systems Interconnection Committee (NAPSIC) to promote consistent operating practices within the region. NAPSIC later became the NERC Operating Committee. Over 30 years later, WECC continues to provide the forum for its members to enhance communication, coordination, and cooperation – all vital ingredients in planning and operating a reliable interconnected electric system.

As a FERC- and NERC-sanctioned Regional Reliability Organization, WECC continues to be responsible for coordinating and promoting electric system reliability as had been done by WSCC since its formation. In addition to ensuring and enforcing a reliable electric power system in the Western Interconnection, WECC supports efficient and competitive power markets as well as open and non-discriminatory transmission access among members. WECC provides a forum for resolving certain transmission disputes and an environment for coordinating the operating and planning activities of its members as set forth in the WECC Bylaws.³⁸

The WECC region encompasses an area of nearly 1.8 million square miles. It is the largest and most diverse geographically of the eight regional reliability organizations of NERC.³⁹ WECC’s service territory extends from the Canadian provinces of Alberta and

³⁸ WECC Bylaws, <http://www.wecc.biz/library/default.aspx>

³⁹ NERC Web site, <http://www.nerc.com/>

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British Columbia into the northern portion of Baja California, Mexico, and all or portions of the 14 western states between. Transmission lines interconnect the hydroelectric resources of the Pacific Northwest, the coal-fire resources of the Mountain West and the coal-fired and nuclear resources of the Southwest with major load centers and gas-fired resources located across the region.

Due to its geographic scale and diverse characteristics, WECC's members face unique challenges in coordinating the day-to-day interconnected system operation and the long-range planning needed to provide reliable and affordable electric service to more than 71 million people in WECC's territory.

1.2 WECC Membership

WECC is a membership organization whose duties are accomplished by member representatives through a committee and work group structure with the assistance of a permanent WECC staff. WECC membership requirements and governance are specified in the WECC bylaws. Membership in WECC is open to any entity engaged or interested in electric system reliability or access, including consumers, regulatory agencies, public interest groups, TPs and transmission users, generators, power marketers, and siting agencies.⁴⁰ The current Members of WECC are listed on the WECC Web site.⁴¹ Member status in WECC provides voting rights in WECC's deliberations and the opportunity for direct participation in the activities of WECC, its committees, subcommittees and work groups.⁴²

Subject to Section 4.5 of the WECC bylaws, any Entity that is an Interested Stakeholder or that meets the criteria for membership may be a Member of the WECC.⁴³ The following are the specified WECC membership classes:

- Class 1. Electric Line of Business Entities owning, controlling or operating more than 1,000 circuit miles of transmission lines of 115 kV and higher voltages within the Western Interconnection.
- Class 2. Electric Line of Business Entities owning, controlling or operating transmission or distribution lines, but not more than 1,000 circuit miles of transmission lines of 115 kV or greater, within the Western Interconnection.
- Class 3. Electric Line of Business Entities doing business in the Western Interconnection that do not own, control or operate transmission or distribution lines in the Western Interconnection, including power marketers,

⁴⁰ To become a member, see <http://www.wecc.biz/About/Company/Pages/WECCMembers.aspx>

⁴¹ WECC Members list, <http://www.wecc.biz/About/Company/Pages/WECCMembers.aspx>

⁴² An overview of each WECC Committee's responsibilities is set forth in the "Ten Year Coordinated Plan Summary", <http://www.wecc.biz/library/default.aspx?RootFolder=%2flibrary%2fWECC%20Documents%2fPublications%2f10%2dYear%20Coordinated%20Plan%20Summaries&FolderCTID=%2f7b8D18396E%2d7F8B%2d4472%2dAB30%2d18D2A9576FF0%7d>

⁴³ Each member TP of NTTG is a member of the WECC as a Class 1 or 2. The NTTG itself is a Class 7 member. The NTTG SPG is also a member of the WECC TEPPC, which will be explained below.

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independent power producers, load-serving entities and any other Entity whose primary business is the provision of energy services.

- Class 4. End users of significant amounts of electricity in the Western Interconnection, including industrial, agricultural, commercial and retail entities as well as organizations in the Western Interconnection that represent the interests of a substantial number of end users or a substantial number of persons interested in the impacts of electric systems on the public or the environment.
- Class 5. Representatives of states and provinces in the Western Interconnection, provided that representatives will have policy or regulatory roles and do not represent state or provincial agencies and departments whose function involves significant direct participation in the market as end users or in Electric Line of Business Activities.
- Class 6. Canadian members of other classes pursuant to Section 4.3 of the Bylaws.
- Class 7. Members at large, that is, entities that are not eligible for membership in the other Member Classes and who have a substantial interest in the purposes of the WECC.

1.3 WECC Board

WECC is governed by a 32-member hybrid stakeholder Board of Directors (Board) with representatives from the electric power industry community in the United States, Canada and Mexico. The Board includes seven non-affiliated directors with the remaining directors belonging to separate classes described above that self-select director representatives. This structure provides balanced representation among utilities, independent power producers, marketers and customers and regulators. The current members of the Board are listed on WECC's Web site.⁴⁴ The WECC Board has established principal committees to carry out its mission, one of which is TEPPC.

1.4 WECC Responsibilities

WECC is responsible for coordinating, promoting, and enforcing electric system reliability as set forth in the WECC Bylaws.⁴⁵ As set forth in the WECC bylaws, the WECC is responsible for:

- Coordinating and promoting electric system reliability,
- Supporting efficient competitive power markets,

⁴⁴ WECC Board List at: <http://www.wecc.biz/index.php?module=pagesetter&func=viewpub&tid=4&pid=12>

⁴⁵ WECC Bylaws at: http://www.wecc.biz/documents/library/publications/Revised_Bylaws_Clean_10-07-03.pdf

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- Assuring open and non-discriminatory transmission access among members,
- Providing a forum for resolving transmission access disputes, and
- Providing an environment for coordinating the operating and planning activities of its members.

The activities of WECC pertaining to regional transmission planning are carried out in TEPPC and the PCC. Members of WECC, through committee participation in TEPPC and PCC, and their respective subcommittees and work groups, direct and perform the WECC regional planning process, economic study process, annual study program, and the other processes that prepare a ten-year coordinated plan, planning data, planning criteria, base cases and assumptions. Stakeholders can elect to join WECC and participate directly in these committees.

2 TEPPC

2.1 TEPPC Background

WECC has long recognized the need for an Interconnection-wide approach to transmission expansion planning. Since the major interconnections were completed in the 1960s and 1970s, the Western Interconnection has operated as a single system. The development of the transmission rating process is an example of a west-wide approach to transmission system planning and operations.

In recent years, it has become apparent that the economic dimensions of the transmission planning process need to be examined beyond the boundaries of any single company or control area. The difficulties of any sub-region affect the entire Interconnection. The energy shortages that occurred in 2000-2001 clearly showed the extent of economic interdependence within the region. In the wake of these difficulties, the Western Governors Association⁴⁶ provided the impetus for a series of economic studies of the western interconnected transmission system. These were ad hoc efforts, organized to meet a then-current need.

These activities made it apparent that an ongoing planning process was needed that included economic evaluation of transmission expansion needs. During 2005 and early 2006, WECC organized TEPPC to provide west-wide study and data services, and to provide coordination and transmission expansion planning leadership across the Western Interconnection. TEPPC became a formal committee of the WECC Board in April, 2006. The database developed for the Seams Steering Group – Western Interconnection effort was transferred to WECC for use in the TEPPC study effort.

⁴⁶ The Western Governors have been concerned with both the reliability and the economic performance of the Western Interconnection, particularly how adequate transmission infrastructure can be put in place to meet future system needs.

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In Order No. 890, FERC adopted a requirement for transmission service providers to develop transmission plans through an open and transparent planning process including subregional and regional transmission planning processes, to be described in Attachment K of the Transmission Provider's Open Access Transmission Tariff. This requirement includes the performance of economic studies to identify the cost of congestion and plans to remedy it on a system-wide basis, and to coordinate with other areas to ensure simultaneous feasibility of the plans. FERC's planning principles have been implemented through the existing organizations in the West. This TEPPC Planning Protocol describes the use of such existing organizations in a layered planning structure. TEPPC will integrate the layers into a cohesive regional approach to transmission planning that includes the coordination of subregional processes in accordance with its regional planning agreements with DOE.

TEPPC will view projects at their conceptual stage, consistent with the Transmission Economic Expansion Planning functions as described in TEPPC's charter and in the Purposes and Objectives of its Transmission Planning Protocol. TEPPC's goal is to develop and maintain a strong relationship with WECC Staff and with WECC and non-WECC committees/organizations regarding coordinating data collection and study scenarios, conducting the economic transmission planning process and reviewing/validating system modeling.

2.2 TEPPC Charter⁴⁷

Establishment and Authority

The Transmission Expansion Planning Policy Committee (TEPPC) was established by the WECC Board of Directors (Board) on April 19, 2006 as a Board committee.

Purpose/Responsibilities

The purpose of TEPPC is to conduct and facilitate economic transmission planning in the Western Interconnection. TEPPC has four main functions:

1. oversee and maintain a public data base for production cost and related analysis;
2. develop and implement interconnection-wide expansion planning processes in coordination with the Planning Coordination Committee (PCC), other WECC committees, Subregional Planning Groups (SPGs) and other stakeholders;
3. guide and improve the economic analysis and modeling of the Western Interconnection and conduct transmission studies; and
4. prepare interconnection-wide transmission plans consistent with applicable NERC and WECC reliability standards.

These functions respond to and serve WECC members, transmission stakeholders, federal and state energy policies, SPGs, and entities that have the responsibility for planning and implementing transmission projects.

TEPPC studies shall evaluate regional transmission congestion under a broad range of possible future scenarios and the economic, environmental, and policy impacts and benefits of possible wires and non-wires solutions. Plans shall seek to strike a balance among reliability, cost, and environmental impacts. TEPPC plans and planning processes are consistent with applicable FERC Order No. 890 planning principles.⁴⁸ TEPPC shall not take positions on cost allocation nor shall TEPPC advocate on behalf of specific projects.

1. Activities and Tasks

- a) Develop a Transmission Planning Protocol which provides guidelines for members and stakeholders regarding TEPPC's planning process.
- b) Develop key assumptions, analytical methods, and processes by which economic transmission expansion planning data are collected, coordinated, and validated.
- c) In consultation with stakeholders and technical experts, adopt study methodologies and modeling tools for maintaining and improving WECC's regional economic transmission expansion planning activities.

⁴⁷ TEPPC Charter, Approved by TEPPC March 31, 2010,

<http://www.wecc.biz/committees/BOD/TEPPC/Shared%20Documents/Forms/AllItems.aspx>

⁴⁸ FERC in RM05-17 and RM05-25 adopted Order 890. FERC's nine principles are coordination, openness, transparency, information exchange, comparability, dispute resolution, regional participation, economic planning, and cost allocation.

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- d) Oversee the work of a TEPPC-selected facilitator.
- e) Approve study programs, including scope, objectives, priorities, methodologies, deliverables, and schedules, in accordance with the TEPPC Planning Protocol.
- f) Prepare and adopt interconnection-wide transmission plans as directed by the Board and subject to Board approval.
- g) Assure broad stakeholder participation in TEPPC-led planning processes.
- h) Ensure planning processes conducted by TEPPC are impartial, inclusive, transparent, properly executed, and well communicated.
- i) Create and manage a multi-constituency Scenario Planning Steering Group (SPSG), to provide strategic guidance to TEPPC, its subcommittees and work groups, and WECC staff regarding future energy scenarios, modeling tools to be used, and key assumptions for the scenarios.
- j) Establish and oversee subcommittees and workgroups, as needed.
- k) Define eligibility requirements for SPGs.
- l) Organize and coordinate activities and communications with SPGs and their planning processes.
- m) Support and comply with the terms and conditions of any agreement or contract between WECC and DOE pertaining to the creation of interconnection-wide transmission plans.
- n) Support DOE's initiatives to evaluate transmission congestion in the Western Interconnection.
- o) Develop and recommend transmission planning policies and advise the Board on policy issues affecting transmission planning.
- p) Develop budgets for planning processes managed by TEPPC and recommend them to the Board for approval.
- q) Interact with WECC Staff, other WECC committees, their subgroups, SPGs, and others, as needed, for technical support, policy and process coordination, data collection, model validation, and study completion. Provide information regarding TEPPC's studies, analyses, and processes to the PCC, PCC subgroups, and the Variable Generation Subcommittee (VGS).
- r) With the PCC, maintain consistency and continuity among documents and communications of TEPPC and the PCC. Documents include, but are not limited to: TEPPC Planning Protocol, TEPPC Synchronized Study Process, PCC Overview of Policies and Procedures for Regional Planning Project Review, PCC Project Rating Review, and PCC Progress Reporting.

Committee Composition and Governance

2. Membership

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- a) TEPPC shall be comprised of individuals from WECC member organizations who represent transmission providers, SPGs, policy makers, government agencies, environmental groups, and others. Membership should reflect expertise in planning transmission facilities, evaluating the economics of transmission or resource plans, analyzing the nexus of environmental and electricity policy, or managing public planning processes. TEPPC members should generally reflect the geographic and stakeholder breadth of WECC.
- b) TEPPC Membership shall include:
 - Two WECC Board Members,
 - One representative from each SPG which satisfies TEPPC membership requirements,
 - One representative from a Public Utility Commission,
 - One representative from a State/Provincial Energy Department/Office,
 - One transmission owner representative,
 - One load serving entity (LSE) representative,
 - One generator owner representative,
 - One consumer representative as defined by Section 4.2.4 of the WECC bylaws,
 - One expert in Integrated Resource Planning,
 - One wholesale market expert, and
 - One environmental representative.
- c) At least one member shall represent a Canadian entity.
- d) Members shall be appointed by the Board upon recommendation of the Chair. When a vacancy occurs, the TEPPC Chair will consult with the TEPPC Steering Committee regarding replacement candidates.
- e) Every two years, beginning after the adoption of this charter, the Chair shall review the membership with regard to qualifications, participation, and ability to continue to serve and, at his or her discretion and in consultation with the Steering Committee, may solicit interest in any seat(s) and recommend replacement(s) to the Board. Membership meeting requirements and participation will be taken into account in accordance with Section 5 (a), (b), and (c).
- f) Any member may designate a proxy to serve for a specific meeting by notifying the TEPPC Chair at least 48 hours prior to a meeting. The Chair will notify members of the proxy(ies). (Requirements for member attendance at meetings are specified in 5 (a) and (c)).

3. Leadership

- a) The Chair of the Board shall appoint one of the Board members on TEPPC to

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serve as the TEPPC Chair, and upon recommendation of the TEPPC Chair, a TEPPC member to serve as Vice-Chair.

- b) The TEPPC Chair shall manage TEPPC and its meetings.
- c) The Vice-Chair shall perform the duties of the Chair in the Chair's absence or in the event of a vacancy in the office of Chair.
- d) The TEPPC Chair shall appoint a Secretary, who need not be a member of the TEPPC.
- e) The Secretary shall prepare minutes of TEPPC meetings for the Committee's approval.
- f) The TEPPC Chair shall create a Steering Committee of TEPPC members to assist with meeting agendas, action recommendations, nomination of TEPPC members, and issues that arise between meetings.
- g) The TEPPC Chair is a member of the WECC Joint Guidance Committee (JGC) and shall advise on and coordinate the interaction of TEPPC activities with those of other WECC committees. The Chair shall participate in JGC and its leadership according to the JGC charter.
- h) The TEPPC Chair shall solicit nominations for the SPSG and, in consultation with the TEPPC Steering Committee, recommend a slate of representatives to the Board for approval. When a vacancy occurs in the SPSG, the TEPPC Chair shall recommend a replacement to the Board after consultation with the Steering Committee.
- i) The TEPPC Chair shall solicit leadership nominations for all subcommittees and work groups created by TEPPC and recommend chairs to TEPPC for approval. When a vacancy occurs, the TEPPC Chair shall recommend a replacement to TEPPC.

4. Meetings

- a) TEPPC shall meet as needed to fulfill its responsibilities, at least four times per year.
- b) The time and place of meetings and the procedures for such meetings shall be as determined by the TEPPC, except as follows:
- c) A quorum for meetings shall be a majority of the members of TEPPC.
- d) TEPPC members or their designated proxies may vote.
- e) Meetings of the TEPPC may be in person or by properly noticed conference call as determined by the TEPPC Chair.
- f) Action taken by TEPPC shall require a majority vote of those voting members present in person or on a properly noticed conference call, and only when there is a quorum present.
- g) The TEPPC Chair, or his or her designee, shall provide e-mail notice of the time and place of all meetings of TEPPC to committee members and Board members no later than three weeks prior to the meeting, together with an agenda of the

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items for which action may be taken. This information shall also be posted to the TEPPC web page.

- h) The TEPPC Chair may call for a closed session of the TEPPC to protect the confidentiality of proprietary information or to receive attorney-client communications. Such closed sessions of the TEPPC shall only be attended by members of the TEPPC or the Board and by any other person invited to attend by the TEPPC Chair.
- i) Minutes of each meeting shall be prepared by the TEPPC Secretary for approval by TEPPC.

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5. Expectations for Member Participation

- a) Members of TEPPC are expected to attend TEPPC meetings and actively participate in TEPPC activities.
- b) TEPPC members are expected to participate in TEPPC subcommittees and work groups or to delegate participation through staff.
- c) A member who misses two consecutive meetings may be notified by the TEPPC Chair that his/her seat may be subject to replacement.

Reporting

The TEPPC Chair shall report to the Board of Directors at each Board meeting with respect to its activities and with any recommendations and findings.

Review and Changes to the Charter

The TEPPC shall review this document annually and recommend any changes to the Board.

Approved by TEPPC

March 31, 2010

3 TEPPC Requirements for SPG Representation

3.1 Registration

Each Subregional Planning Group (SPG) should register with TEPPC and provide the following basic information:

- Contact information and designated representative for TEPPC
- Description of the footprint
- Time and place for meeting(s) or a defined calendar
- Governance that, at a minimum, provides for:
 - Membership
 - Decision-making
 - Leadership

3.2 Minimum Requirements for Representation

For an SPG to have a representative as a TEPPC member, the SPG must meet the following minimum requirements:

- Provide open, transparent, and coordinated forum for transmission plans/reports in footprint.
- Provide data as required by TEPPC and TAS and participate fully in the planning activities of TEPPC and its subgroups.
- Regular meetings with notice, rules, scheduled on TEPPC & WECC calendars, formal agendas and minutes posted, Web page for presentations, data, contacts and suggestions.
- Meet FERC Order 890 goals and requirements for transmission planning as delegated to it by its members and adhere to Standards of Conduct.
- Agree to comply with the TEPPC Planning Protocol for coordination with TEPPC and other subregional planning groups.

3.3 Additional Requirements

In addition to meeting the above requirements, an SPG representative as a member of TEPPC:

- The SPG shall include at least three Transmission Provider or Transmission Owner members and in combination have a transmission footprint combined mileage of 10% of the total WECC installed transmission system line mileage ≥ 100 kV.

Upon request from TEPPC, demonstrate that a representative from this Subregional Planning Group would not adversely impact the membership balance intended in the TEPPC Charter and would contribute significantly to the achievement of TEPPC's principles and