

Northern Tier Transmission Group
Sub-Regional Planning “Straw” Proposal
Draft

Background:

Transmission provides OATT service to customers, delivers resources to loads, provides synergistic alternative routing backup paths for reliable service, allows for remote generation to integrate into the system, facilitates economic use of fuels to serve loads, allows for effective combined operation of generation types to control for moment to moment and minute to minute variations in load and system conditions, and takes up much landscape. As such the art of transmission planning must respond to and influence customer requests, load forecasting, resource adequacy, transmission design, economic operation, system control and operation, and siting/licensing. It must do so on an individual Transmission Provider (TP), local/sub-regional, and western interconnection wide regional level.

Currently each TP provides OATT service in which individual point-to-point (PTP) customers usually require planning/design studies (system impact and facilities studies) for firm PTP service requests. A TP's network customers including native load customers are provided planning/expansion design studies on a combined basis following annual load and resource forecasts. Each individual TP must charge its own transmission rate and a customer requesting service across several TP systems must pay the sum of these individual charges (pancaked rates).

The western transmission system integrates many diverse customers, generation fuel types, and control areas with varying operational control issues. While composed of the interconnection of many Transmission Providers systems, the integrated system operates together as a complete synergistic system where actions on one system or in one corner of the western system can affect all parts. Therefore while each TP must today handle its own customers' requests, it must also integrate and coordinate transmission planning, design and operation with the rest of the Western Interconnection for its system to be reliable and effective.

Transmission customers and stakeholders desire in many cases transmission service across several or many TPs to deliver remote or economic resources across the western interconnection. With the present planning processes, this is difficult because a customer must now request transmission service and studies from each TP over the complete route it desires. To make practical and logical requests it must also have knowledge of the systems, plans and costs of the many different control areas in the West and knowledge of both the local system it may want to connect into and the regional systems it wishes to cross. Therefore transmission stakeholders and customers must be able to be involved, informed, and able to input into the planning processes of local, sub-regional, and regional processes.

The interconnected transmission system of the west spans long distances, many states, counties and governmental jurisdictions, and takes up much geography. Therefore transmission expansion tends to be expensive and involve lengthy licensing and construction processes. A problem today under the present OATT processes is that there are few methods for customers to aggregate service requests together which can support expensive expansion through joint participation. Many native load and network customers in various TPs are required by individual and separate state integrated resource planning processes to develop resource plans. These

resource plans and their related transmission expansion plans affect the remaining systems and plans. Without knowledge of these resource and expansion plans, other TPs and customers can't formulate cost effective and logical aggregated or joint transmission service requests that would facilitate joint projects to be financed, licensed and constructed.

The 890 Planning Requirements and Strawman Proposal

This strawman outlines the proposed coordinated transmission planning process required by FERC's order 890. This planning process will integrate all of the aspects of transmission planning into a process that meets the nine principles detailed in the FERC Order 890, preserves the responsibilities of the individual Transmission Provider required by their OATT, and delivers a coordinated plan that will be:

- Used and useful by stakeholder/customers, TPs and their regulators;
- Accurate, verifiable, able to be replicated by customers, and reflective of real conditions;
- Informing - so that customers and stakeholders can:
 - Understand ATC, congestion, and expansion costs on paths of interest on the interconnected and joint system,
 - Prepare informed transmission requests including requests for planning re-dispatch and/or conditional firm,
 - Aggregate requests with other customers for open season or joint participation, and
 - Propose joint projects with TPs; and
- Informing - so that TPs can elect to develop economic and/or joint projects with other TPs that are economic for existing or potentially new customers.

This strawman will describe how the TP's OATT process dovetails with the Northern Tier Transmission Group (NTTG) and the other local/sub-regional planning groups, and mesh with west-wide regional transmission planning at WECC/CREPC. It will focus in more detail on the Northern Tier Sub-Regional Planning Process that NTTG TP members will ultimately incorporate in their individual Attachment K tariff planning process descriptions filed with FERC.

The three-level, coordinated process described is based on the old SSG-WI Regional/Sub-Regional Planning model and utilizes, as much as possible, existing western transmission planning structures.

This paper will describe the strawman by explaining via a relationship diagram (Figure 1) the relationships between various planning groups in the planning process and propose synchronizing their planning cycles. It will also describe a sequence diagram (Figure 2) that shows the planning steps and information flow during the coordinated Annual Combined Synchronized Planning Cycle (ACSPC).

FERC Requirements

Appendices 1 and 2 detail the FERC 890 required provisions related to Transmission Planning. The Transmission Planning process requirements can be summarized as follows:

- The purpose of formalized sub-regional and regional transmission planning (in addition to the existing individual TP planning OATT requirements) is to engage and inform all stakeholders and customers of ATC or expansion opportunities in the combined transmission system in comparable fashion to native load customers and without the requirement to make individual service requests.
- The processes should allow open stakeholder involvement of all interested parties at each planning step especially early in the processes so that their requirements can be incorporated into plans and analysis for possible implementation.
- This planning should include “reliability” and “economic” planning, expansion cost allocation methods, and Alternative Dispute Resolution (ADR) (for all disputes related to planning that are FERC jurisdictional).
- Plans must include detail on both local and regional transmission.
- The planning process, plans, and data used must be transparent allowing reconciliation with actual use and transmission products, and must allow for easy replication by others
- TP’s remain ultimately responsible for implementation of plans through OATT processes.
- Treatment of all similarly situated customers including TP’s native load customers are to be treated comparably in the planning process.

This strawman encompasses all of these principles.

Three Level Process:

The transmission planning process needed therefore must integrate the three levels of (A) individual TP planning and OATT processes, (B) local/sub-regional planning processes, and (C) regional processes {as well as (E) the TP’s IRP processes}. Each of these processes must incorporate the functions of long-range load and resource adequacy planning, transmission reliability and economic performance analysis, expansion planning, and transmission control area operations analysis and planning.

This strawman will detail the Northern Tier Transmission Group Local/Sub-Regional planning cycle process and how it will integrate into the individual Northern Tier TP member’s OATT processes and the Western Electricity Coordinating Council (WECC) and the Committee on Regional Electric Power Cooperation (CREPC) western interconnection regional planning cycles and processes. The WECC and CREPC processes include the WECC/CREPC Load & Resources, and Resource Adequacy processes, the WECC Reliability Planning and Operating processes, and the WECC TEPPC Western Governor’s Association economic planning process.

These three levels are show in Figures 1 & 2. The individual TP OATT processes are shown on the left (in blue). The Sub-Regional planning cycles are shown in yellow, and the regional WECC/CREPC planning cycle is shown in violet. This planning proposal proposes to synchronize these three cycles to allow for formalized integration and to allow stakeholders to understand and become involved at the level they desire.

A. Transmission Provider’s OATT process

Transmission service on an individual transmission provider's system is governed by its OATT. In the TP planning process, stakeholder and customer involvement comes via the OATT and annual customer meeting process. Since the TP is ultimately responsible for insuring compliance with FERC OATT and Order 890 requirements, customer requests are handled formally under the OATT (represented by process arrow 1 and the Customer Stakeholder Green Box). Each TP planning process involves the following:

- Network load customers (LSE's) go through a load and resource adequacy IRP planning process with each respective state and an open stakeholder process. We propose that this be synchronized with all the Northern Tier states aligning on the calendar and process, and also aligning with the CREPC and WECC L&R Subcommittee annual L&R and Resource Assessment process.
- TP annually acquires firm load forecast and network resources from customer LSE's and updates system models
- TP does base system reliability study and expansion plan
 - Including reliability re-dispatch and analysis and economic expansion alternatives
- Point-to-point (PTP) Customer service requests come into TP during an open period
 - Including aggregated or joint requests from customers informed by Sub-Regional and Regional studies, congestion analysis, and planning reports
- System Impact and Feasibility studies performed for individual PTP service requests and which may result in queue position.
- Under this straw proposal, if no ATC is available
 - Planning Re-Dispatch or Conditional Firm Studies are performed by the TP
 - Re-dispatch and conditional firm studies utilize congestion studies performed by TEPPC and coordinated by NTTG to identify for customers generation re-dispatch possibilities in other control areas, to the extent possible.
- Under this straw proposal, data on Service granted or denied goes into an ATC database and to the Transmission Use Committee for analysis and to formulate planning study requests to the Sub-Regional Planning Committee. From historic posted Re-Dispatch costs by unit goes into the database and forwarded to Use Committee for reconciliation.
- TP continues to provide WECC area coordinators with powerflow/stability and production cost data organized by control area, and 10 year plan of system configuration with new required additions to meet customer requests and reliability needs via the WECC reliability coordination procedures,

The purpose of the TP's OATT process is to provide and charge for service on the individual TP's transmission system. Planning analysis required is formally requested and charged to the requesting customers.

The straw proposal's purpose for the new sub-regional planning process is to inform customers, stakeholders, and other TP's of the condition of the interconnected system from a broader perspective so that they can make more informed service requests of individual providers or partner in pursuit of larger projects and service that one provider can't easily provide.

B. NTTG Sub-Regional Transmission Group Processes

The purpose of the NTTG Sub-Regional planning process is to:

1. Combine individual member's service request forecasts, long range IRP requirements, transmission stakeholder requests and input, and NTTG Transmission Use Committee ATC requests into a combined membership wide load, resource, and service requirement tabulation and explore synergies with customers and stakeholders.
2. Forecast reliability and congestion performance of the member's planned transmission system in meeting the combined needs requirements of 1 above. The analysis is performed using member staff and analysis capability. NTTG will rely on the TEPPC economic study process to perform required regional congestion studies that will inform NTTG stakeholders as well as better identify expansion opportunities to be studied in the annual planning process.
3. Evaluate (performance and cost) a set of planning committee agreed upon expansion plan alternatives for the combined system, and report on performance and costs of each (See Planning Decision Process and Stakeholder Input below). Prepare, present, and distribute a combined annual sub-regional plan including recommendations concerning expansion projects and their associated cost allocation methods.
4. Coordinate and manage planning with other neighboring sub-regional planning groups where needs and proposed projects overlap or affect one another. Manage by negotiating for NTTG stakeholders their desired alternatives to be included in the western combined regional/sub-regional Annual Combined Study Plan (ACSP) with WECC and the other Sub-regions. Also the NTTG Planning process and Committee will manage any NTTG participation in joint study teams established in the ACSP.
5. Coordinate and manage planning integration and processes with regional WECC/CREPC planning including compilation of annual study plan assignments and data.

The NTTG Sub-Regional Planning process involves several of the NTTG Committees as follows:

1. Planning Committee and its Planning Sub-Committees

Manages Annual Sub-regional Planning Process

- Prepares study plan and obtains TP planners to staff Planning Technical Sub-Committee to perform required studies
- Facilitates periodic Committee and Subcommittee meetings and process
- Receives Stakeholder requests and input
- Coordinates L&R and resource adequacy analysis and data with WECC
- Selects expansion options for study and inclusion in the study plan, and determines scenarios and assumptions used in studies.
- Prepares request to WECC for planning base cases and annual studies for WECC PCC Study Process
- Prepares economic and congestion study plan request to TEPPC, oversees compilation of production cost data for TEPPC and reconciliation of data with the Transmission Use Committee
- Oversees TP data exchange with WECC
- Develops study resource, manpower staffing (from TP staff) and budget plan for submittal to Steering Committee

Develops economic and expansion evaluation criteria to guide selection of plan projects.

Assembles Study Teams for project studies, Biennial Plan studies, and report preparation

- Study Team staffing comes from Transmission Providers and interested stakeholders

Assembles Sub-Regional Plan

- Prepares Plan Report and presents/distributes to interested parties
- Plan contains: the Sub-Regional Transmission Expansion Plan (also referred to as “SRTEP”) that shall enable the transmission needs in the NTTG Region to be met on a reliable, economic and environmentally acceptable basis.

Contents of the Sub-Regional Transmission Expansion Plan

- a) The Plan shall consolidate the transmission needs of the NTTG region into a single plan, which is assessed on the bases of maintaining reliability in an economic and environmentally acceptable manner and in a manner that supports competition in the NTTG Region.
- b) Horizon at least 10 years.
- c) Will recommend the most appropriate cost allocation and ownership method for each project and how costs might be recovered.
- d) Congestion studies showing the costs of congestion (planning re-dispatch) with planned resources with and without the addition of expansion options. Will also estimate the hours of curtailment if re-dispatch from control area owned generation is insufficient for reliability.
- e) Will show results of incremental expansion on various representative constraining paths from load and generation areas of general interest such that customers and stakeholders can determine the merits of further evaluation of joint projects or the value of participating in an open season.
- f) Will:
 - Identify projects that unnecessarily duplicate facilities;
 - Seek to avoid imposition of unreasonable costs but will identify the costs of expansion proposals
 - Consider the legal and contractual rights and obligations of TOs;
 - Provide, if appropriate, alternative means for meeting transmission needs;
 - Operating assumptions will be based on operational efficiency of wholesale markets;
 - Coordination with existing systems and with regional and local plans via the three level combined synchronized planning cycle

Coordinates with other Sub-Regional Planning Groups

- Prepares and manages Joint Study Team agreements
- Negotiates Coordinated regional/sub-regional study plan and study team assignments
- Monitors performance of joint study teams and coordinated study plan

2. Cost Allocation Committee

- a) Prepares cost allocation method categories and principles from accepted practices
- b) Assigns category of cost allocation to identified expansion projects
- c) Reviews planning recommendations on cost/benefits from added transmission expansion and facility rating.
- d) Recommends in Biennial Plan report the appropriate cost allocation method for each expansion alternative in the plan.

3. Transmission Use Committee (duties related to Planning)

- a) Performs statistical ATC and use analysis
- b) Requests Planning Committee to perform (or negotiate with TEPPC to perform) joint ATC, congestion studies, and re-dispatch.
- c) Explores conditional firm product potential availability from historic use
- d) Determines clustered and joint use interest from analysis and from stakeholder input
- e) Requests Planning committee to study expansion alternatives and forecast future planning re-dispatch and conditional firm terms and conditions
- f) Reconciles economic planning production cost data and posted re-dispatch incremental costs

4. Steering Committee

Provides overall NTTG management and dispute resolution

- Approves policies, guidelines, procedures and initiatives brought forward by the other committees
- Insures appropriate resource allocation and cost recovery of committees operating costs
- Fields, negotiates and resolves disputes not resolved at other committee levels and if needed recommends and oversees use of WECC ADR. Disputes can be raised by any participants in the committees including stakeholders and customers

Committees Composition:

The balanced steering committee is composed of an executive level representative from each of the member TPs and a state regulatory and/or consumer representative from each of the interested states in which the members have transmission. Decisions are made by consensus and assumed to be balanced and independent of any one member or group.

The Planning and Use committees are composed of TP member staff and interested stakeholders. The committees are governed as described in the attached charters (Attachment 3).

The Planning Committee/Stakeholder decision process to select projects to include in the planning process and for other decisions is described below:

Stakeholders are invited and encouraged to participate in all three levels of the Annual Combined Synchronized Planning Process. At the TP level their participation is formalized in the OATT tariffs. In Northern Tier's sub-regional planning process, stakeholders are members of the Planning Committee and its sub-committees. A Northwest Regional Transmission Association (NRTA) type voting class structure (see NRTA Bylaws) will be used to make decisions on study plan and to triage the number of planning alternatives to be reviewed in the annual study process. Members of the various classes of stakeholders and TPs will self select their voting representative to the Planning Committee's Policy Committee and instruct them on how to vote representing their class of stakeholders when voting is needed.

The annual study plan will include review of congestion studies, historic use and ATC as recommended by the Use Committee, and future requests for study as posted on the planning committee website. The annual study plan will aggregate constrained areas and paths such that a reasonably limited set of representative projects will be studied that will inform participants on the merits of the majority of their more specific expansion proposals.

The Planning committee with recommendations from the Use Committee will develop a list of congestion studies for WECC TEPPC to perform for the annual plan. If in the determination of the annual study plan, there are too many expansion projects to properly evaluate, the Planning Committee shall determine expansion projects for the limited studies.

These recommendations will be made at the annual TEPPC Study Plan Development Workshop where the study plan for TEPPC to meet requirements of the Sub-regions will be established in a prioritization and triage process. It is expected that the Stakeholder class voting representation process will be used also at the TEPPC level to vote on the set of studies if all cannot be accommodated. It will be recommended that the Stakeholder class structure and self selection method of selecting voting representatives be accomplished through an annual Stakeholder Congress process and that customer/stakeholders will coordinate their requirements in the open process so that the TEPPC study plan development process rolled up from the sub-regional requests will be most equitable.

Coordination with Other Sub-Regional Planning and Transmission Groups:

In addition to Northern Tier, within the Western Interconnection there are several other Sub-Regional Planning Groups established. They include WestConnect's Colorado Coordination Planning Group and the Southwest Area Transmission Group, the California Planning Groups, Columbia Grid's Planning Committee, and the two planning arms of the Northwest Power Pool (TPC and NTAC). Each group is composed of member transmission providers with common interests, geography, resource type, jurisdictional/regulatory oversight, or customer demographics. These similarities create customer/provider groups with like interests and similar transmission needs at a local or sub-regional level. All are under the umbrella of the WECC and CREPC.

The Northern Tier Sub-regional Planning Group will directly coordinate with neighboring Sub-regional Groups as well as directly with WECC, the regional group. Customers will be free to participate in the sub-regional group they choose and may initiate project ideas where they wish. When a project or expansion plan is such that it affects the members of more than one sub-

regional group, the sub-regional groups affected will establish a joint study and stakeholder team to develop the required analysis and planning that will be reported in both sub-regional plans. An annual study plan development meeting will be coordinated by WECC in the Regional Planning Process to triage the number of joint and stakeholder planning studies requested to be done at the sub-regional and regional levels, and to identify the lead planning group for the studies.

C. WECC / CREPC Regional Transmission Coordination and Planning Cycle

Within WECC, there are several regional west wide processes that coordinate both reliability and economic expansion planning. These are:

- Procedures for Regional Planning Project Review
- Procedures for Rating Transmission Facilities (Facility Rating Process)
- Annual Study Plan
- Base Case development
- Data Compilation and Verification Process
 - Powerflow & Stability
 - Loads and Resources
 - Production Cost and Unit Commercial
- TEPPC (See Figure 3 for present TEPPC Planning Cycle)
 - Annual Congestion Studies
 - Economic Study Data Base compilation process
 - Production cost data reconciliation with Sub-Regions re-dispatch price posting data

Standards Development

Operations Coordination

Market Interface Committee

NERC NAESB Coordination and Liaison

Details on the WECC processes are found on www.wecc.biz. For example, the WECC Facility Rating Process is the transmission rating process that project participants should follow to demonstrate that their project meets the WECC Reliability Criteria for Transmission System Planning. This rating process takes place after planning of the facility and is the responsibility of the project sponsor. It provides protection to the existing capability of the system as well as establishes a verifiable rating for the new facilities. Not all projects need to go through the rating process.

This strawman proposes to use and keep intact as many of the WECC processes as possible. Following acceptance of the NTTG strawman and the corresponding WECC level strawman, some fine-tuning or alignment may be needed (see Figure 2).

E. Load and Resource Coordination and Resource Adequacy

Because it will be critical to align individual member planning processes and timing, Northern Tier will attempt to align its LSE's individual IRP process planning calendars. This process will also attempt to align the Northern Tier IRP calendars with other West Wide IRP processes so that consistent Load and Resource assumptions can be made in each of the three levels of planning cycles. This alignment will also give CREPC or the Western Interstate Energy Board

(WIEB) and the WECC L&R Sub-Committee the opportunity to evaluate Resource Adequacy and encourage refinement of L&R planning up front in the planning cycle.

Process Agreements:

The annual three-level, combined synchronized planning process relies on the planning cycles at each level exchanging data, studies, standards, information and reports at various and critical times of the year for each level to be successful. Ultimately the TPs are responsible for insuring a planning process that meets order 890. The TP's will be reviewed for FERC compliance and may be assessed civil penalties if any part of the synchronized process fails.

In order to insure the planning processes fit together, formal agreements will need to be established for data and products that need to pass between the TPs, Sub-regional Groups, and WECC/CREPC. WECC now has authority to assess penalties for certain late data and other reporting requirements. This strawman proposes that there will be Memorandums of Understanding or other legal agreements between the member TPs, their Sub-Regional Group, and WECC. Also proposed is that there are similar agreements between neighboring Sub-Regional groups in which joint study teams or other coordination is required for success.

Figure 1 illustrates the types of information, data, and products that flow between planning levels and cycles, and that therefore need to have agreements covering delivery, formats, quality, and timing. Figure 2 illustrates the timing of processes in the combined planning cycle.

Below are descriptions of the process relationship arrows in Figure 1.

- | | |
|---------|--|
| Arrow 1 | <p>OATT Service Request Process - Requests from Customers
Network</p> <ul style="list-style-type: none">• L&R Forecasts from network customers <p>PTP</p> <ul style="list-style-type: none">• Request for Study• Request for Service• Joint or Aggregated requests from customers based on Sub-Regional Plan |
| Arrow 2 | <p>OATT Request Response from TP to specific customer</p> <ul style="list-style-type: none">• Impact Studies• Queue Position• PTP & NT Service |
| Arrow 3 | <p>IRP Process</p> <ul style="list-style-type: none">• Synchronized Network & Native Customer Load forecast |

	<ul style="list-style-type: none"> • Synchronized Resource Plans
Arrow 4	Customer L&R Forecasts
Arrow 5	Path ATC and Use History <ul style="list-style-type: none"> • Historical unit re-dispatch cost data
Arrow 6	Staffing for Sub-Regional level Planning Studies <ul style="list-style-type: none"> • TP Annual 10 year Exp Plan • Base Case development request • Copy of data sent to WECC
Arrow 7	NTTG & WECC Coordinated 2 Yr Plan <ul style="list-style-type: none"> • Data Review • Data coordination standards • Other Rules & Standards
Arrow 8	Data to WECC <ul style="list-style-type: none"> • Confidential Powerflow and Stability Data • Confidential Production Cost Data • System Configuration and Constrained area bubble diagrams • Control Area configuration data
Arrow 9	ATC and Expansion Study Requests <ul style="list-style-type: none"> • Congestion Study requests • Joint congestion, re-dispatch, conditional firm study requests to Planning Committee • Validated Re-dispatch Prices report
Arrow 10	Congested Area bubble diagram and system organization <ul style="list-style-type: none"> • Data rules and organization into Control Area • ATC paths • Coordinated 10 Sub-Regional Plan & Report • Subregional Guidelines and Standards • Aggregated base case development plan request • Coordinated L&R
Arrow 11	Annual Triaged Study Plan <ul style="list-style-type: none"> • West Wide 2 Year Plan • Standards • Congested Path Ratings • Annual Congestion Studies
Arrow 12	Study Reports <ul style="list-style-type: none"> • Informing Congestion Studies • Informing Biennial 10 Year Plan

- Arrow 13 Direct Customer Coordination and input into Planning Processes
 - Direct Customer Planning Study Requests
 - Cluster Study Requests
 - Stakeholder determination of triage of study plan

- Arrow 14 Coordination of Overlapping or Affecting projects
 - Establishment and management of Joint Study Teams
 - Data coordination
 - Standards coordination
 - Seams coordination
 - ATC and other

- Arrow 15 Informing Studies and Expansion Plans
 - ATC Map and Use Products
 - L&R Summary

- Arrow 16 WGA WIEB CREPC Coordination
 - Resource Adequacy Reporting
 - Planning Reserve Analysis

Figure 2 – Annual Combined Synchronized Planning Cycle

Figure 2 illustrates how the three level planning cycles fit together in the Annual Combined Synchronized Planning Cycle. This strawman proposal uses this diagram as an example of the fit that will need to be coordinated and designed in the final detail for Attachment K. It is likely that to align with the WECC and other Sub-Regional Processes, that the NTTG Planning Process will have a two year process for long range expansion and an annual process for congestion and near term or fast track expansion.

Attachments:

- Figure 1 - Three Level Planning Cycle Relationship Diagram
- Figure 2 - Annual Combined Synchronized Planning Cycle sequence diagram
- Figure 3 – TEPPC Study and Planning Cycle
- Appendix 1 – FERC 890 Planning Requirements
- Appendix 2 – FERC 890 Requirements for Re-Dispatch and Conditional Firm
- Appendix 3.a – NTTG Planning Committee Charter
- Appendix 3.b – NTTG Transmission Use Committee Charter

