



California ISO



ITP Evaluation Process Plan

Cross-Tie Transmission Line

June 14, 2016

The goal of the coordinated Interregional Transmission Project (ITP) evaluation process is to achieve consistent planning assumptions and technical data of an ITP to be used in the individual regional evaluations of an ITP. The joint evaluation of an ITP is considered to be the joint coordination of the regional planning processes that evaluate the ITP. The purpose of this document is to provide a common framework, coordinated by the Western Planning Regions, to provide basic descriptions, major assumptions, milestones, and key participants in the ITP evaluation process.

The information that follows is specific to the ITP listed in the ITP Submittal Summary below. An ITP Evaluation Process Plan will be developed for each ITP that has been properly submitted and accepted into the regional process of the Planning Region to which it was submitted.

ITP SUBMITTAL SUMMARY

Project Submitted To:	California ISO, Northern Tier Transmission Group (“NTTG”) and WestConnect
Relevant Planning Regions:	NTTG and WestConnect
Cost Allocation Requested From:	California ISO, and WestConnect

The Relevant Planning Regions identified above developed and have agreed to the ITP Evaluation Process Plan.

ITP SUMMARY

TransCanyon, LLC (TransCanyon) submitted the 213-mile Cross-Tie Transmission Line (Cross-Tie) for consideration as an Interregional Transmission Project. Cross-Tie is a proposed 1500 MW, 500 kV HVAC transmission project that will be constructed between central Utah and east-central Nevada (see Figure 1), connecting PacifiCorp’s proposed 500-kV Clover substation (in NTTG) with the existing 500 kV Robinson Summit substation (in WestConnect). The proposed project includes series compensation at both ends of the Cross-Tie. In addition, series compensation is needed on the existing Robinson Summit to Harry Allen 500-kV along with phase shifting transformers at Robinson Summit 345-kV.

The project would be required to satisfy the requirements of the National Environmental Policy Act (NEPA), the Bureau of Land Management (BLM), and United States Forest Service (USFS). A significant portion of the routing has been previously studied under the Southwest Intertie Project EIS, which

received federal approval in a Record of Decision published in 1994 but was not constructed. Further, the project would be subject to the state approval processes applicable for Nevada and Utah. In any event, as the project is anticipated to follow existing transmission line corridors, TransCanyon believes that the risk of failing to obtain necessary administrative approval is considered minimal to moderate. According to TransCanyon, the project is expected to be in-service by 12/31/2024.

Figure 1: Cross-Tie Project Overview
 {Subject to change based on Sponsor’s review}
 (Source: TransCanyon ITP Submittal Attachment)



ITP EVALUATION BY RELEVANT PLANNING REGIONS

WestConnect has been identified as the Planning Region that will lead the coordination efforts with the other Planning Regions involved in the evaluation process. In this capacity, WestConnect will organize and facilitate interregional coordination meetings and track action items and outcomes of those meetings. For information regarding the ITP evaluation within each Relevant Planning Region’s planning process, please contact that Planning Region directly.

Given that the joint evaluation of an ITP is considered to be the joint coordination of the regional planning processes that evaluate the ITP, the following describes how the ITP fits into each Relevant Planning Region’s process. This information is intended to serve only as a brief summary of each Relevant Planning Region’s process for evaluating an ITP. Please see each Planning Region’s most recent study plan and/or Business Practice Manual for more details regarding its overall regional transmission planning process.

Northern Tier Transmission Group

The NTTG Regional Transmission Plan evaluates whether transmission needs within the NTTG Footprint may be satisfied on a regional and interregional basis more efficiently or cost effectively than through local planning processes. While the NTTG Regional Transmission Plan is not a construction plan, it

provides valuable regional insight and information for all stakeholders, including developers, to consider and use in their respective decision-making processes.

The first step in developing NTTG's 2016-2017 Regional Transmission Plan is to identify the Initial Regional Plan that includes NTTG's Funding Transmission Providers' local transmission plans and the uncommitted projects in NTTG 2014-2015 Regional Transmission Plan. NTTG then uses Change Cases to evaluate regional and interregional transmission projects that may produce a more efficient or cost effective regional transmission plan for NTTG's footprint. A Change Case is a scenario where one or more of the uncommitted transmission project(s) in the Initial Regional Plan will be added to, defer, or replace one or more of the other non-committed project(s) in the Initial Regional Plan.

The Initial Regional Plan and Change cases will be evaluated using power flow and dynamic analysis techniques to determine if the modeled transmission system topology meets the system reliability performance requirements and transmission needs. If the Change Case fails to meet these minimum reliability requirements, it will either be set aside as unacceptable or modified by the addition of another uncommitted project to ensure transmission reliability. The number of Change Cases will be determined through the technical planning process so as to carefully examine the reliability of and need for the non-committed regional and interregional projects to meet the regions transmission needs. The set of uncommitted projects, either from the Initial Regional Plan or a Change Case, that delineate the more efficient or cost-effective regional transmission plan, as measured economically by changes in capital related costs, losses and reserve margin, and adjusted by their effects on neighboring regions, will be selected into NTTG's Regional Transmission Plan. A more detailed discussion of NTTG's study process can be found in NTTG's Biennial Study Plan posted on NTTG's [website](#).

NTTG will coordinate its ITP planning assumptions and data with the other Relevant Planning Regions. It should also be noted that the sponsors of all three interregional projects submitted into NTTG's regional planning process identified, as a project objective, the ability to deliver renewable generation from NTTG's planning region to the California ISO planning region in response to California's Renewable Portfolio Standards requirements. NTTG and the California ISO will coordinate to ensure appropriate resources in California are dispatched down or turned off to accommodate renewable resource from the NTTG planning region.

WestConnect

WestConnect's 2016-17 Regional Study Plan was approved by its Planning Management Committee (PMC) in March of 2016¹. The study plan describes the system assessments WestConnect will use to determine if there are any regional reliability, economic, or public policy-driven transmission needs. The models for these assessments are being built and vetted during Q2 and Q3 of 2016. If regional needs are identified during Q4 of 2016, WestConnect will solicit alternatives (transmission or non-transmission alternatives (NTAs)) from WestConnect members and stakeholders to determine if they have the potential to meet the identified regional needs. If an ITP proponent desires to have their project evaluated as a solution to any identified regional need, they must re-submit their project during this solicitation period (Q5) and complete any outstanding submittal requirements. In late-Q5 and Q6, WestConnect will evaluate all properly submitted alternatives to determine whether any meet the identified regional needs, and will determine which alternatives provide the more efficient or cost-effective solution. The more efficient or cost-effective regional projects will be selected and identified in the WestConnect Regional Transmission

¹ http://www.westconnect.com/filestorage/03_16_16_wc_2016_17_study_plan.pdf

Plan. Any regional or interregional alternatives that were submitted for the purposes of cost allocation and selected into the Regional Transmission Plan may go through the cost allocation process (if eligible)².

WestConnect regional assessments are performed using Base Cases and Scenarios, which provide a robust platform that is used to identify regional transmission needs and emerging regional opportunities, if any. Base Cases are intended to represent “business as usual,” “current trends,” or the “expected future”, while Scenarios complement the Base Cases by looking at alternate but plausible futures. In the event regional opportunities are observed in the assessments of the Scenario studies, these opportunities do not constitute a “regional need”. Specifically, these regional opportunities will be informational in nature and not result in changes to the WestConnect Regional Transmission Plan and will not result in Order 1000 regional cost allocation.³ Given that the submitted ITPs submitted to WestConnect, such as the Cross-Tie, are aligned closely with the Scenarios WestConnect plans to evaluate in this cycle, the PMC will consider this factor when making its determination on how to collect and evaluate alternatives that may address opportunities that may arise from the Scenario assessments. WestConnect recognizes, in the context of interregional transmission project analysis, that other regions may identify regional needs that may align with opportunities observed in the WestConnect planning region. Current expectations are that the WestConnect Scenario analyses and observed opportunities will advance coordinated interregional planning activities.

Cross-Tie representatives and other stakeholders are encouraged to participate in the development of the Base Cases and Scenarios to be studied in WestConnect’s 2016-17 Planning Cycle. These studies, as outlined in Figure 2, will form the basis for any regional needs or opportunities that ultimately may lead to ITP project evaluations in 2017.

Figure 2: WestConnect 2016-17 Transmission Assessment Summary

10-Year Base Cases (2026)	10-Year Scenarios (2026)
Heavy Summer (reliability) Light Spring (reliability) Base Case (economic)	Clean Power Plan: Utility Plans Case (economic) Clean Power Plan: Utility Plans Case (reliability) Clean Power Plan: Heavy RE/EE (economic) Clean Power Plan: Heavy RE/EE (reliability) Clean Power Plan: Market Compliance Case (economic) Regional Renewables (economic)
<p style="text-align: center;">May result in the identification of regional needs, requires solicitation for alternatives to satisfy needs</p>	<p style="text-align: center;">Informational studies that may result in the identification of regional opportunities, alternative collection and evaluation is optional and is not subject to regional cost allocation</p>

DATA AND STUDY METHODOLOGIES

The coordinated ITP evaluation process strives for consistent planning assumptions and technical data among the Planning Regions evaluating the ITP. Below, the Relevant Planning Regions have summarized the types of studies that will be conducted that are relevant to the Cross-Tie evaluation in each Planning

² Please see the WestConnect Business Practice Manual for more information on cost allocation eligibility

³ WestConnect has not yet addressed how alternatives (regional or interregional) to meet regional opportunities will be collected or evaluated. This decision will be made by the PMC when and if regional opportunities are identified

Region. Methodologies for coordinating planning assumptions across the Relevant Planning Region processes are also described.

Figure 3: Relevant Planning Region Study Summary Matrix

Planning Study	NTTG	WestConnect
Economic/Production Cost Model	Using the NTTG PCM Base Case, based on the WECC/TEPPC 2026 Common Case, GridView will be used to conduct PCM analysis to determine those hours in the study year when load and resource conditions are likely to stress the transmission system within the NTTG footprint	Regional Economic Assessment will be performed on WestConnect 2026 Base Case PCM (based on WECC/TEPPC 2026 Common Case) and several Scenarios ⁴
Reliability/Power Flow Assessment	The selected stressed hours will be transferred from GridView to the PowerWorld power flow model to conduct reliability analysis	Regional Reliability Assessment will be performed on 2026 Heavy Summer and Light Spring cases, as well as several Scenarios ⁴

Note that the Cross-Tie evaluation will be conducted by each Relevant Planning Region in accordance with its approved Order 1000 Regional Planning Process. This includes study methodologies and benefits identified in planning studies.

Data Coordination

The Relevant Planning Regions will strive to coordinate major planning assumptions through the following procedures.

Economic/Production Cost Model

The Relevant Planning Regions intend to use the WECC/TEPPC 2026 Common Case (2026 Common Case) as the starting point data set for regional economic planning studies conducted in 2016 and 2017 (as applicable). Each Planning Region intends to update the 2026 Common Case with their most recent and relevant regional planning assumptions to reflect its starting point transmission topology and generation data. The Planning Regions intend to provide change cases reflecting these updates to each other and WECC in late Q3, 2016.⁵

As an example, the California ISO will update the 2026 Common Case to reflect their most recent Transmission Plan.⁶ NTTG will ensure that its prior Regional Transmission Plan⁷ is reflected. WestConnect

⁴ ITP Project evaluation is subject to a number of factors, the first and most critical being the identification of regional needs and/or opportunities as a part of the 2016 Base Case and Scenario Case transmission assessments.

⁵ This schedule is dependent on the 2026 Common Case being provided by WECC no later than the end of Q2, 2016

⁶ California ISO 2015-2016 Transmission Plan

⁷ NTTG 2014-2015 Regional Transmission Plan

will represent their current Base Transmission Plan,⁸ and ColumbiaGrid will provide major updates to the 2026 Common Case based on the information from the latest Biennial Plan⁹ to other Planning Regions.

Through this coordination of planning data and assumptions, the Relevant Regions will strive to build a consistent platform of planning assumptions for Economic/Production Cost Model evaluations of the ITP.

Reliability/Power Flow Assessment

Since each Planning Region reflects characteristics and a planning focus that is unique, different power flow models are generally needed to appropriately reflect each region’s system and key assumptions. As such, each planning region will develop its models and data that accurately reflect their Planning Region, but will coordinate this information with the other Relevant Planning Regions. The identification of the starting WECC power flow cases (“seed cases” for the purpose of this evaluation plan), significant assumptions or changes a Planning Region may make to a seed base case are examples of information that will be considered by each Planning Region and coordinated with the other Planning Regions. As such, the inclusion or removal of major regional transmission projects will be coordinated through existing data coordination processes, but the season or hour of study and particular system operating conditions may vary by Planning Region based on its individual regional planning scope and study plan.

Cost Assumptions

In order for each Relevant Planning Region to evaluate whether the Cross-Tie is a more efficient or cost-effective alternative within their regional planning process, it is necessary to coordinate ITP cost assumptions among the Relevant Planning Regions. For planning purposes, each Region’s cost share of the Cross-Tie will be calculated based on its share of the calculated benefits provided to the Region by the Cross-Tie (as quantified per that Region’s planning process). The project cost of the Cross-Tie, as provided in their ITP Submittal form, is provided below.

Figure 4: Cross-Tie Project Sponsor Cost Information¹⁰

Project Configuration	Cost (\$)
Full project cost estimate	\$667.0 million (2015 \$\$)

Following are key assumptions upon which this cost estimate is based that are worth noting to facilitate a comparison of costs to other projects being evaluated:

- Includes initial estimate of \$96.0 million for upgrades on the existing system at Robinson Summit substation and on the Robinson Summit to Harry Allen 500-kV transmission line, based on preliminary studies provided as a part of the project submission. The extent of these upgrades will need to be confirmed through additional technical studies and would most likely apply to other projects looking to connect at Robinson Summit.
- Includes AFUDC and overheads of ~\$100.0 million (estimated at 17.5% of total costs) per the TEPPC cost calculator.

⁸ WestConnect 2016-2017 Base Transmission Plan

⁹ ColumbiaGrid Update to the 2015 Biennial Transmission Plan

¹⁰ This information is contingent upon verification by the Planning Regions and may be subject to change during the ITP evaluation process

The following Table 5 provides a detailed breakdown of the total project cost submitted by TransCanyon for use by planning regions for their analysis and cost allocation.

Figure 5: Cross-Tie Project Sponsor Cost Breakdown

Project Component Cost	Per Mile	Total
Clover - Robinson Summit line	\$ 2,319,250.45	\$ 461,530,838.79
ROW Cost	\$ 19,964.14	\$ 3,972,864.00
Cover Substation	N/A	\$ 10,959,685.80
Robinson Summit	N/A	\$ 12,026,045.00
System Upgrades included		
Robinson Summit	N/A	\$ 19,463,640.00
Substation Adjustments	N/A	\$ 62,000,000.00
AFUDC/Overhead @17.5%		
	\$ 501,215.01	\$ 99,741,787.84
All Costs	\$ 2,840,429.60	\$ 667,135,599.43

After each Relevant Planning Region identifies their transmission needs and (as applicable) the benefits of the ITP, project costs for each Region to use in the determination of the more efficient or cost-effective alternatives for the region will be determined as follows:

Assumptions
Total Benefits (\$) = NTTG Benefits (\$) + WestConnect Benefits (\$)
Project Cost (\$) = Total capital cost of project, as agreed upon by Regions

Cost Calculations (for Planning Purposes)
NTTG Cost for Planning Purposes = [NTTG Benefits/Total Benefits] * Project Cost
WestConnect Cost for Planning Purposes = [WestConnect Benefits/Total Benefits] * Project Cost

Note that this information on cost assumptions applies to costs that will be used for *planning evaluation purposes*. These costs may be different than what is assumed for any relevant cost allocation procedures.

COST ALLOCATION

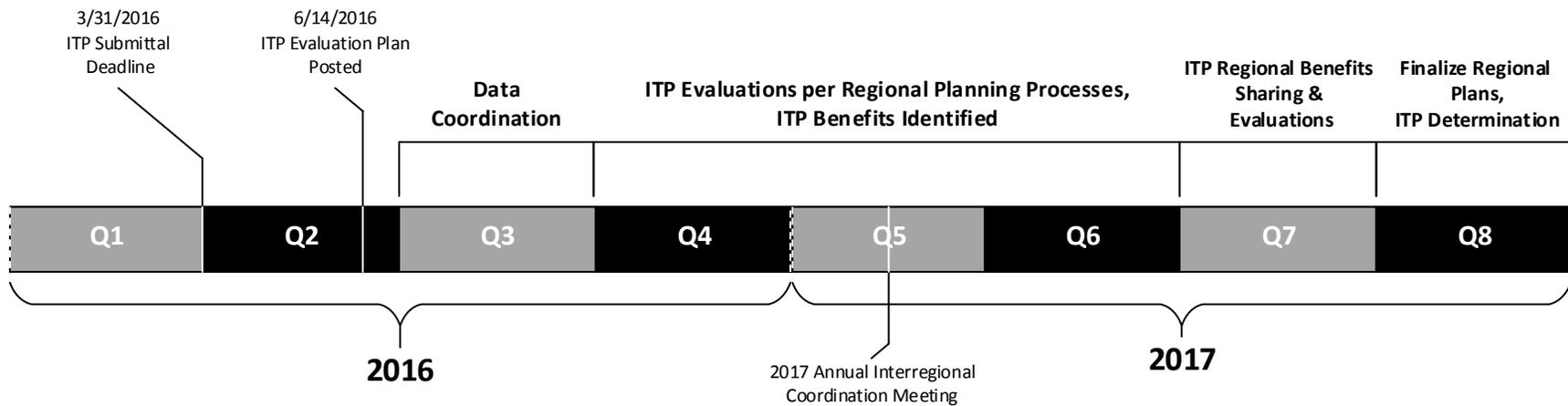
Interregional Cost Allocation does not apply to the Cross-Tie for the 2016-2017 cycle.

TransCanyon requested cost allocation from the California ISO and WestConnect Planning Regions. The California ISO intends to study this project in the context of its 50% Special Studies in its 2016-2017 Transmission Planning Process where cost allocation will not apply. With WestConnect as the only Relevant Planning Region for which Cost Allocation *may* apply, Interregional Cost Allocation is not applicable this cycle.

SCHEDULE AND EVALUATION MILESTONES

The ITP will be evaluated in accordance with each Relevant Planning Region’s regional transmission planning process during 2016 and (as applicable) 2017. The ITP Evaluation Timeline was created to identify and coordinate key milestones within each Relevant Planning Region’s process. Note that in some instances, an individual Planning Region may achieve a milestone earlier than other Regions evaluating the ITP.

Figure 6: ITP Evaluation Timeline



Meetings among the Relevant Planning Regions will be coordinated and organized by the lead Planning Region per this schedule at key milestones such as during the initial phases of the ITP evaluations and during the sharing of ITP regional benefits.

CONTACT INFORMATION

For information regarding the ITP evaluation within each Relevant Planning Region's planning process, please contact that Planning Region directly.

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