

# Business Practice Manual for Transmission Planning Process

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BPM Owner: Jeff Billinton

BPM Owner's Title: Manager, Regional Transmission – North

## Revision History

Version	PRR(s)	Date	Description
<u>17</u>	<u>1069</u>	<u>08/27/2018</u>	<u>Remove all references to the “Conceptual Statewide Plan” which was removed from the CAISO tariff on September 21, 2017 – updated all drawings; corrected formatting in section 10.</u>
16	1066, 1067	08/01/2018	Added new Section 10 for participating generator modeling requirements and sanctions under PRR 1067; Updated Section 6.1.2 under PRR 1066
15	899	04/07/2016	Transmission planning process changes per FERC Order 1000—interregional transmission planning and phase 3 tariff amendments
14	836	06/02/2015	Transmission planning process changes per FERC Order 1000—Regional Transmission Planning tariff amendments
13	701	03/03/2014	Timing Requirements for TPP Phase 3
12	686	10/21/2013	Extension of Timelines in 5.6.2 and 5.6.5
11	659	04/24/2013	Phase 3 Competitive Solicitation Timeline
10	627	12/19/2012	Accelerated Competitive Solicitation Process
9	572, 573, 574	08/10/2012	Transmission Planning Process BPM Minor Edits; Local Capacity Requirement (LCR) Study; Long Term Congestion Revenue Right Feasibility Studies
8	442, 460	08/02/2011	Major modifications to reflect the FERC-approved tariff filing on the new transmission planning process; New BPM Generator Interconnection Procedures (GIP)

7	298	09/15/2010	Request Window Period Change
6	163, 164, 165	02/11/2010	Modify the name of the sub-regional planning group and clarify ISO collaboration activities; Modify schedule for conducting technical studies, posting study results and PTO submission of reliability projects; Modify Schedule for Developing Unified Planning Assumptions and Study Plan
5	60-72, 76	10/14/2009	Amend the Transmission plan and make Modifications to language describing Economic Planning Studies
4	59	03/30/2009	Revised Version Released – General clarification modifications and clean-up for MRTU go-live
3		03/06/2009	Revised Version Released
2		10/31/2008	Revised Version Released
1		12/21/2007	Initial Version Released

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# 1. Introduction

Welcome to the California ISO's (CAISO) BPM for the Transmission Planning Process. In this Introduction, you will find the following information:

- The purpose of CAISO BPMs, in general
- What you can expect from this specific CAISO BPM

## 1.1. Purpose of California ISO Business Practice Manuals

The Business Practice Manuals (BPMs) developed by the CAISO are intended to contain implementation details consistent with, and supported by, the CAISO tariff — including instructions, rules, procedures, examples and guidelines for the administration, operation, planning, and accounting requirements of the CAISO and the markets. BPMs are posted in the ISO BPM Library at: <https://bpmcm.caiso.com/Pages/BPMLibrary.aspx>.

## 1.2. Purpose of this Business Practice Manual

This BPM explains the CAISO's transmission planning process (TPP), as well as the CAISO's annual transmission plan produced by this process. Together with corresponding CAISO tariff provisions in section 24 the BPM, serves to fulfill the requirements of the Federal Energy Regulatory Commission's Final Rule on *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890 and the regional transmission planning requirements of *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order 1000.<sup>1</sup>

The provisions of this BPM are intended to be consistent with the CAISO tariff. If, however, the provisions of this BPM conflict with the CAISO tariff in any way, the CAISO is bound to operate in accordance with the CAISO tariff. Any provision of the CAISO tariff that may have been summarized or repeated in this BPM is only to aid the understanding on how the information in this BPM is to be applied. Even though the CAISO will make every effort to notify market participants of changes made to this BPM, it is the responsibility of each market participant to ensure that he or she is using the most recent version of this BPM to ensure compliance with all applicable provisions of the CAISO tariff.

Any reference in this BPM to the CAISO tariff, a given agreement, or any other BPM or instrument, is intended to refer to the most current version of that tariff, agreement, BPM or instrument as it has been modified, amended, supplemented or restated.

The captions and headings in this BPM are intended solely to facilitate reference to the information in this BPM and not to have any bearing on the meaning of any of the terms and conditions of this BPM.

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<sup>1</sup> The CAISO's interregional planning process compliance proposal has not been approved by FERC as of the release date of this BPM version.

### 1.3. Topics Covered by this BPM

In this BPM, the following general topics will be covered:

- Overview that covers the schedules and scope of each TPP phase
- The “phases” that form the TPP include but are not limited to:
  - Development of unified planning assumptions and, study plan, ~~and initiate the conceptual statewide plan~~
  - Performance of technical studies, and the development of the transmission plan
  - Competitive solicitation process and project sponsor selection for certain identified regional transmission facilities
- A description of the contents in the study plan, opportunity for submitting data, comments, and economic study requests
- A description of the types or categories of transmission needs that the CAISO will assess and identify solutions:
  - Maintain system reliability
  - Satisfy the requirements of Location Constrained Resource Interconnections Facilities (LCRIF)
  - Add components or expansions to network upgrades
  - Maintain the feasibility of long-term congestion revenue rights (long-term CRRs)
  - Policy-driven solutions to meet state, municipal, county and federal policy requirements and directives
  - Economically-driven solutions to reduce congestion costs, production supply costs, transmission losses, or other electric supply costs
- A description the requirements for merchant transmission projects interconnecting to the CAISO controlled grid
- Demand response and other generation alternatives
- The availability of planning information provided by CAISO and accessibility of that information
- Compliance with NERC reliability standards
- The CAISO’s involvement with other planning regions and interconnected balancing authority areas

## 2. Overview of the CAISO's Transmission Planning Process

The CAISO uses the annual TPP to develop a transmission plan and approve transmission solutions following a three phase process. In phase 1 ("phase 1"), the CAISO develops and completes the unified planning assumptions and study plan. ~~and, in parallel, begins development of a conceptual statewide plan.~~ In phase 2 ("phase 2"), the CAISO completes a draft transmission plan and presents it to the CAISO Governing Board for approval. In phase 3 ("phase 3"), the CAISO evaluate proposals to construct and own certain regional transmission facilities specified in the transmission plan that are subject to competitive solicitation.

The purpose of the TPP is to:

- (a) Coordinate and consolidate in a single plan the transmission needs of the CAISO balancing authority area for maintaining the reliability of the CAISO controlled grid in accordance with applicable reliability criteria in a manner that promotes the economic efficiency of the CAISO controlled grid and considers federal and state environmental and other policies affecting the provision of energy;
- (b) Reflect a planning horizon covering a minimum of ten (10) years that considers previously approved transmission upgrades and additions, demand forecasts, demand-side management, capacity forecasts relating to generation technology type, additions and retirements, and such other factors as the CAISO determines are relevant;
- (c) Seek to avoid unnecessary duplication of facilities and ensure the simultaneous feasibility of the CAISO transmission plan and the transmission plans of interconnected balancing authority areas, and coordinates with other planning regions and interconnected balancing authority areas;
- (d) Identify existing and projected limitations of the CAISO controlled grid's physical, economic or operational capability or performance and identify transmission solutions, including alternatives deemed needed to address the existing and projected limitations;
- (e) In coordination with the other western planning regions<sup>2</sup> assess whether proposed interregional transmission projects (ITP) constitute more cost effective or efficient solutions to meet CAISO-identified regional transmission needs than identified regional solutions and should be included in the CAISO annual transmission plan; and
- (f) Account for any effects on the CAISO controlled grid of the interconnection of generating units, including an assessment of the deliverability of generating units in a manner consistent with CAISO interconnection procedures.

Phase 1 and Phase 2 of the TPP covers a 16-month period starting from December of the year prior to year one through March of year two<sup>3</sup>. Phase 3 begins in April of year two and typically will continue through December of year two (or later depending on the number and complexity of regional transmission facilities available for competitive solicitation). At least four public stakeholder meetings will be held during the first two TPP phases to present, discuss and collect stakeholder input on the draft study plan; technical studies results; any ITPs, policy-driven or economic planning studies that have been completed since the prior public meeting was held; any updated information about any

<sup>2</sup> ColumbiaGrid, Northern Tier Transmission Group (NTTG), WestConnect

<sup>3</sup> As described in later sections, development of the Unified Planning Assumptions begins in December when the ISO seeks input from stakeholders, neighboring balancing authority areas (BAAs) and other planning entities. However, the cycle is named for two-year period beginning in January. For example, the 2012/2013 cycle began in December 2011.

studies or evaluations that are still in progress, and finally, the draft transmission plan. A general overview of the three TPP phases.

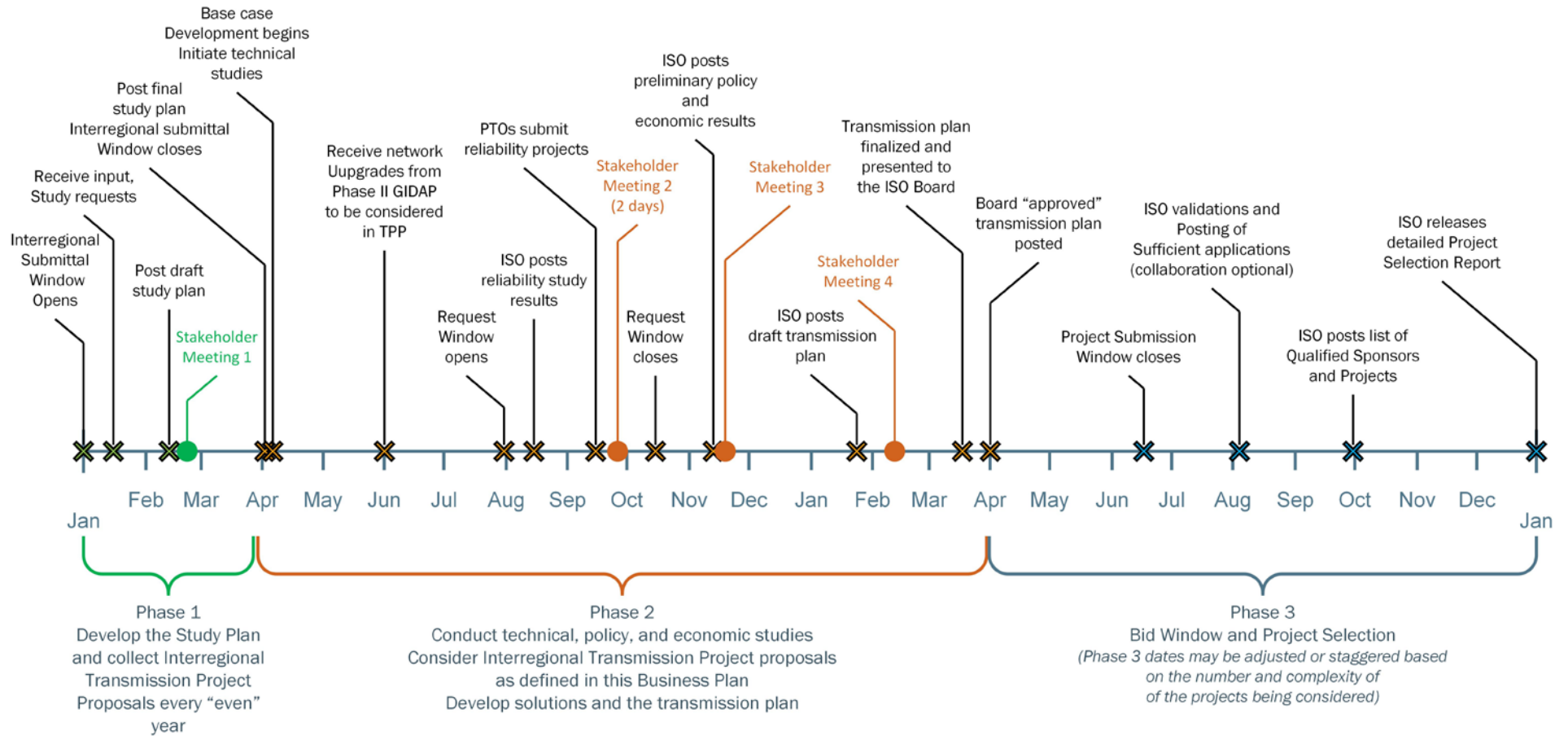
Phase 1 is approximately a four (4) month effort that the CAISO usually initiates in December of each year and typically completes by the end of March of the following year. During Phase 1, the CAISO develops the unified planning assumptions and documents them in a study plan. The purpose of the study plan is to articulate the scope and details of technical studies to be conducted as part of the TPP. The CAISO seeks to finalize the study plan by the end of March. During this time, the CAISO ~~also commences developing the conceptual statewide plan and~~ receives submittals of interregional transmission projects. The CAISO will participate in an interregional coordination stakeholder meeting in turn with the other western planning regions to provide for the exchange of planning data and information between themselves and stakeholders.

- Phase 2 is approximately a 12-month activity that the CAISO initiates in April of the first year and completed in March of the following year. During Phase 2, based on the unified planning assumptions and study plan developed in Phase 1, the CAISO performs a technical assessment of the CAISO controlled grid and determines the need for transmission solutions or alternatives to meet CAISO identified needs. The CAISO documents the results, conclusions, and recommendations for solutions developed from this technical analysis in a draft transmission plan which, after stakeholder review, CAISO management presents to the CAISO Governing Board for consideration and approval. The comprehensive transmission adopted by the CAISO Board plan identifies what transmission solutions are needed to meet CAISO-identified needs.
- Phase 3 will take place if the CAISO Governing Board approved regional transmission facilities eligible for competitive solicitation as part of the transmission plan at the end of phase 2 or in an amendment to the CAISO Governing Board-approved transmission plan subsequent to the end of phase 2. In the competitive solicitation process, the CAISO seeks proposals to finance, construct, own, operate and maintain regional transmission facilities and evaluate whether the project sponsor and proposals meet the qualifications for consideration, and take the steps necessary for selecting approved project sponsor(s).

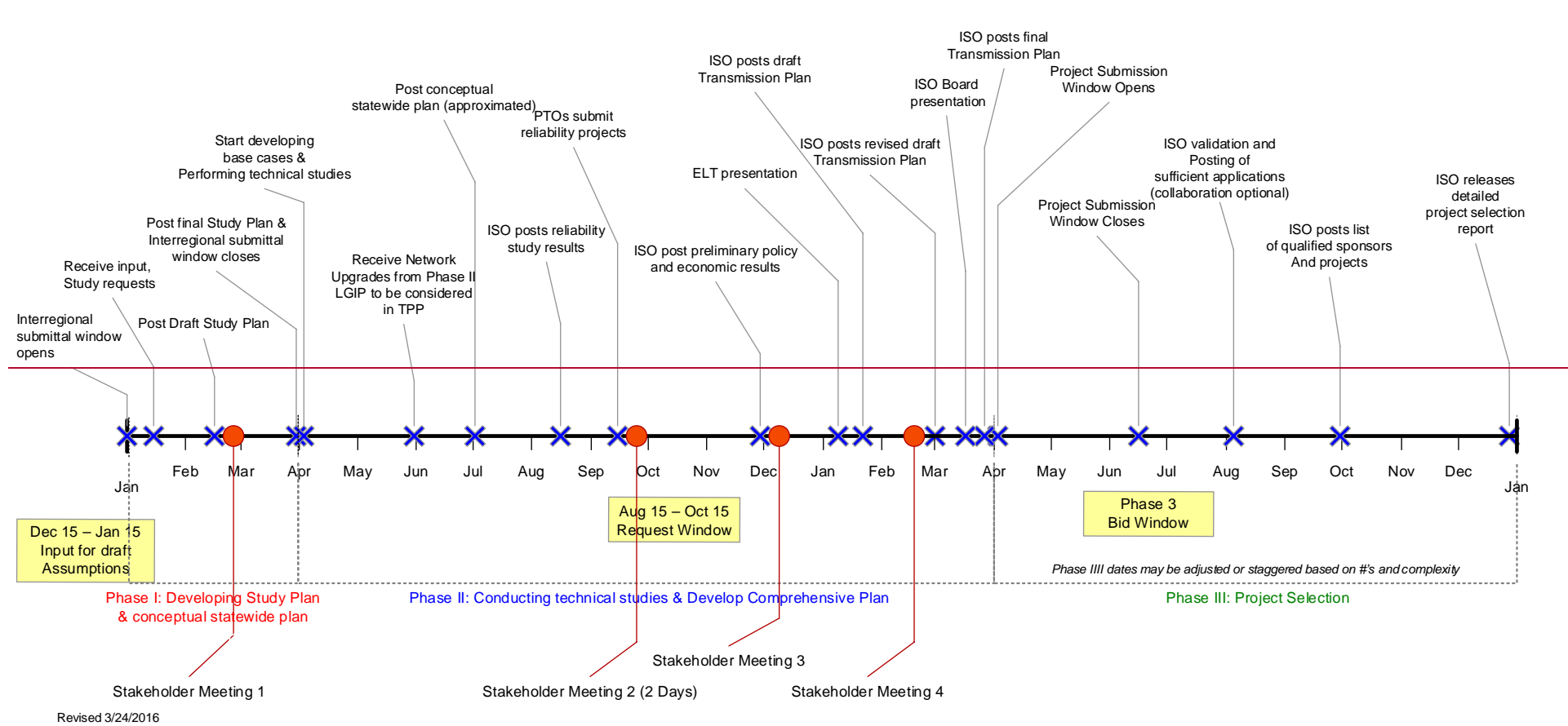
The CAISO will also solicit proposals for regional transmission facilities with capital costs of \$50 million or less that are approved by CAISO management prior to Board approval of the transmission plan. This process may be held on an accelerated basis before Phase 3, depending upon the management approval date of the regional transmission facilities

~~Figure 2-1~~ **Figure 2-1** provides an overview of the three TPP phases and indicates approximate timelines when specified activities generally occur.

**Figure 2-1: Transmission Planning Process Timeline**



**Figure 2-1: Transmission Planning Process Timeline**



In addition to four public stakeholder meetings, the CAISO provides numerous additional opportunities for stakeholders to provide input, comments, or recommendations. The TPP schedule is shown in Table 2-1.

Table 2-1: Transmission Planning Process Schedule

Phase	No	Due Date	Annual Planning Cycle
Phase 1	1	Mid-December	The CAISO sends a letter to neighboring balancing authorities, and regional planning groups requesting planning data and related information to be considered in the development of the study plan. The CAISO also issues a market notice announcing a thirty-day comment period requesting demand response assumptions and generation or other non-transmission alternatives to be considered in the unified planning assumptions.
	2	January 1	Every even calendared year, submittal window for interregional transmission project proposals opens
	2	Mid-January	Participating TOs, neighboring balancing authorities, regional-regional planning groups and stakeholders provide CAISO the information requested No.1 of this table.
	3	2 <sup>nd</sup> week of February	The CAISO develops the draft study plan and posts it on its website
	4	February	The CAISO hosts public stakeholder meeting #1 to discuss the contents in the study plan with stakeholders
	5	Two weeks following the public stakeholder meeting #1	Comment period for stakeholders to submit comments on the public stakeholder meeting #1 material and for interested parties to submit economic planning study requests to the CAISO
	6	End of March	The CAISO specifies a provisional list of high priority economic planning studies, finalizes the study plan and posts it on the public website. CAISO also explains public policy requirements it selected for consideration in current planning cycle as well as those directives it did not select and will not consider in the planning cycle. The ISO posts on its website an explanation of any decision not to consider a previously identified public policy requirement or directive from consideration in the current transmission planning process cycle.
		March 31	Every even calendared year, submittal window for interregional transmission project proposals closes
	7	Q1	CAISO Initiates the development of the conceptual statewide plan

Phase	No	Due Date	Annual Planning Cycle
Phase 2	<del>78</del>	August 15	Request window opens
	<del>89</del>	August 15	The CAISO posts preliminary reliability study results and mitigation solutions
	<del>910</del>	30 days after the ISO posts the preliminary reliability results	Participating TOs submit reliability solutions to the CAISO
	<del>11</del>	<del>Approximately Q3</del>	<del>CAISO posts the conceptual statewide plan on its website and issues a market notice announcing the posting</del>
	<del>12</del>	<del>The first day of the next calendar month after the document is posted.</del>	<del>Stakeholders have a 20 day period to submit comments on the conceptual statewide plan in the next calendar month after posting conceptual statewide plan</del>
	<del>1013</del>	Approximately September	The CAISO hosts public stakeholder meeting #2 to discuss the reliability study results <del>and</del> participating TO's reliability solutions, <del>and the conceptual statewide plan</del> with stakeholders
	<del>1114</del>	Two weeks following the public stakeholder meeting #2	Comment period for stakeholders to submit comments on the public stakeholder meeting #2 material
	<del>1215</del>	October 15	Request window closes
	<del>1316</del>	October	CAISO post final reliability study results
	<del>1417</del>	Q4	The CAISO posts the preliminary assessment of the policy-driven and economic planning study results and the recommended solutions that are less than \$50 million.
	<del>1518</del>	Approximately November	The CAISO hosts public stakeholder meeting #3 to present the preliminary assessment of the policy-driven and economic planning study results and present to stakeholders the recommended solutions that are less than \$50 million.
	<del>1619</del>	Two weeks following the public stakeholder meeting #3	Comment period for stakeholders to submit comments on the public stakeholder meeting #3 material
	<del>1720</del>	Approximately December Board Meeting	The CAISO briefs the Board of Governors on solutions less than \$50 million recommended for approval by CAISO management
<del>1821</del>	Approximately January	The CAISO posts the draft transmission plan on the public website	



Phase	No	Due Date	Annual Planning Cycle
	<u>1922</u>	Approximately February	The CAISO hosts public stakeholder meeting #4 to discuss projects recommended for approval and the contents of the Transmission Plan. For regional transmission facilities that will be subject to competitive solicitation, the ISO posts the key selection criteria
	<u>2023</u>	Two weeks following the public stakeholder meeting #4	Comment period for stakeholders to submit comments on the public stakeholder meeting #4 material
	<u>2124</u>	March	The CAISO finalizes the transmission plan and presents it to the Board of Governors for approval
	<u>2225</u>	March	CAISO posts the board-approved transmission plan on its site
Phase 3	<u>2326</u>	Beginning the month after the Board approves any regional transmission facilities eligible for competitive solicitation	If applicable, the CAISO will initiate the process to solicit proposals to finance, construct, own, operate, and maintain regional transmission facilities identified in the transmission plan eligible for competitive solicitation
	<u>2427</u>	Bid Window	The bid window will be open for a minimum of ten weeks. However, based on the number and complexity of the regional transmission facilities eligible for competitive solicitation, the closing of bid windows may be staggered and/or open for a period longer than ten weeks. All collaboration between project sponsors must occur prior to the close of the bid window.
	<u>2528</u>	Validation	After the bid window closes for accepting proposals for a regional transmission facility, the CAISO will validate the project sponsor application for completeness. This process can take up to 35 business days. The CAISO will post a list of project sponsors whose applications are valid at the end of the validation process.
	<u>2629</u>	Qualification	Following the validation period, the CAISO will review all validated applications and determine if the project sponsors are qualified to finance, build, own, operate and maintain the regional transmission facility and that the project proposal meets the functional specifications. The CAISO has up to 35 business days to complete the qualification process following the validation period. The CAISO will post a list of qualified project sponsors and project proposal at the end of this qualification process. If there is only one qualified project sponsor and project proposal, that project sponsor is selected as the approved project sponsor for the regional transmission facility

Phase	No	Due Date	Annual Planning Cycle
	<del>27-30</del>	Comparative Analysis	If there is more than one qualified project sponsor, the CAISO will conduct a comparative analysis to determine which qualified project sponsor is best able to finance, construct, own, operate and maintain the regional transmission facility. The CAISO has up to 60 business days to complete the comparative analysis. At the end of the comparative analysis, the CAISO will post a list of approved projects sponsors. Within ten business days after selecting an approved project sponsor, the CAISO will post a project sponsor selection report
	<del>28-31</del>	120 days after selection of approved project sponsor	Approved project sponsor must execute approved project sponsor agreement with CAISO, unless parties agree to a different date. Approved project sponsors begin submitting construction plans with status updates every 90 days.

### 3. Phase 1 of the Transmission Planning Process

Phase 1 is approximately a 4-month activity that the CAISO initiates in December of each year and generally completes by the end of March of the following year. Two stakeholder meetings will be held during this phase of the process; one to present the draft study plan; and the second is an interregional coordination stakeholder meeting. Both stakeholder meetings are expected to occur in February, but in no event no later than March 31. An overview of Phase 1 is illustrated in [Figure 3-1](#)~~Figure 3-4~~.

During Phase 1, the CAISO develops the unified planning assumptions and documents them in a study plan. The purpose of the study plan is to articulate the scope and details of technical studies to be conducted as part of the TPP. The CAISO will use information from the study plan to create base cases for reliability assessments (NERC compliance) and other technical studies conducted by the CAISO and PTOs<sup>4</sup>. Although the CAISO typically finalizes the study plan by the end of March, information regarding the ~~conceptual statewide plan and~~ Generation Interconnection Procedures (GIP) network upgrades eligible for consideration in the TPP generally are not available until after the study plan is posted.

Finally, no later than March 31 of every even numbered calendar year, proponents can submit interregional transmission projects to the CAISO. Additionally, no later than March 31 of each year the CAISO will host an interregional coordination stakeholder meeting in conjunction with the other western planning regions. The purpose of this stakeholder meeting will be to provide for the exchange of planning data and information between the planning regions.

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<sup>4</sup> The CAISO seeks to post the results of these studies on August 15 of each year.

**Figure 3-1: Overview of Phase 1 of the CAISO Transmission Planning Process**

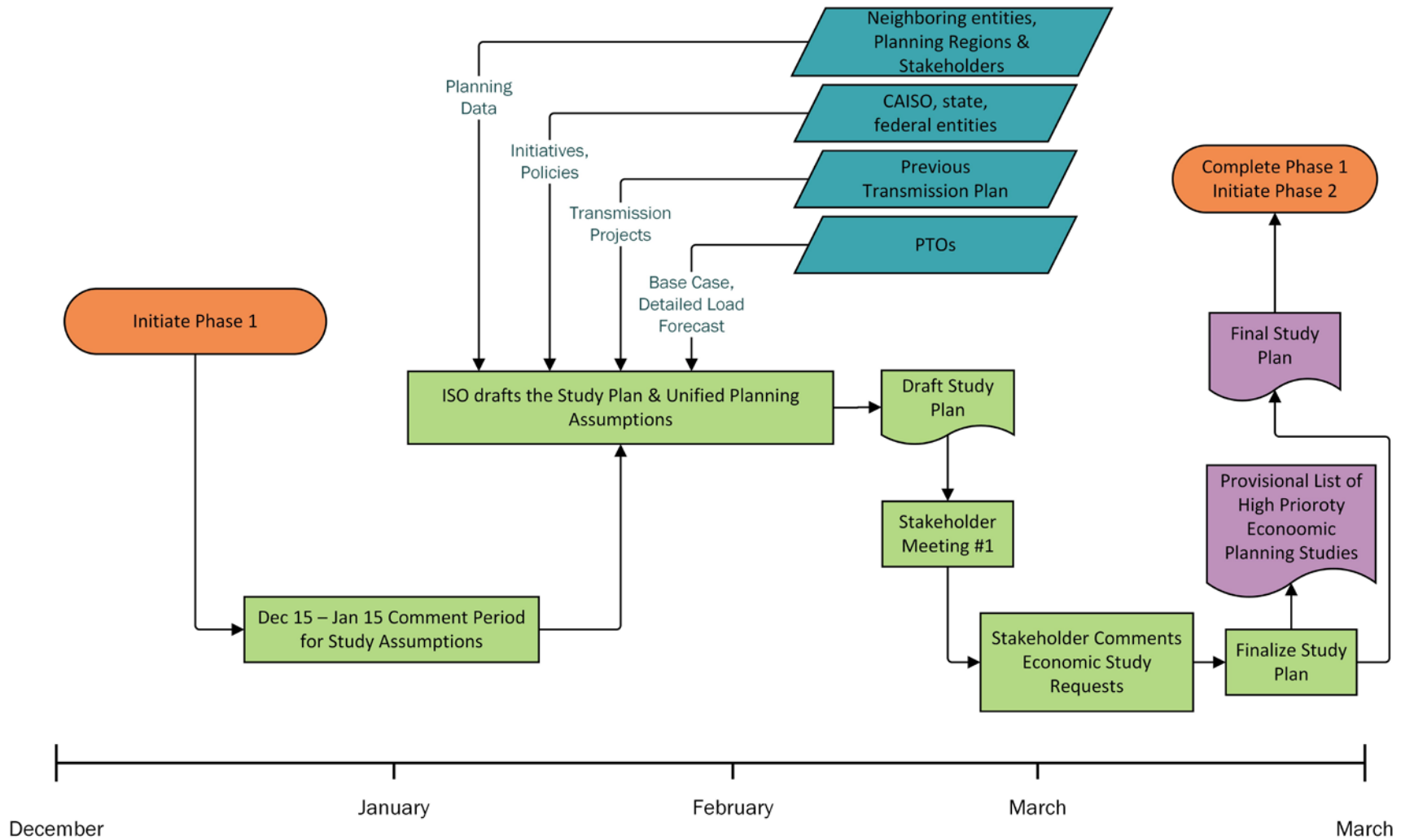
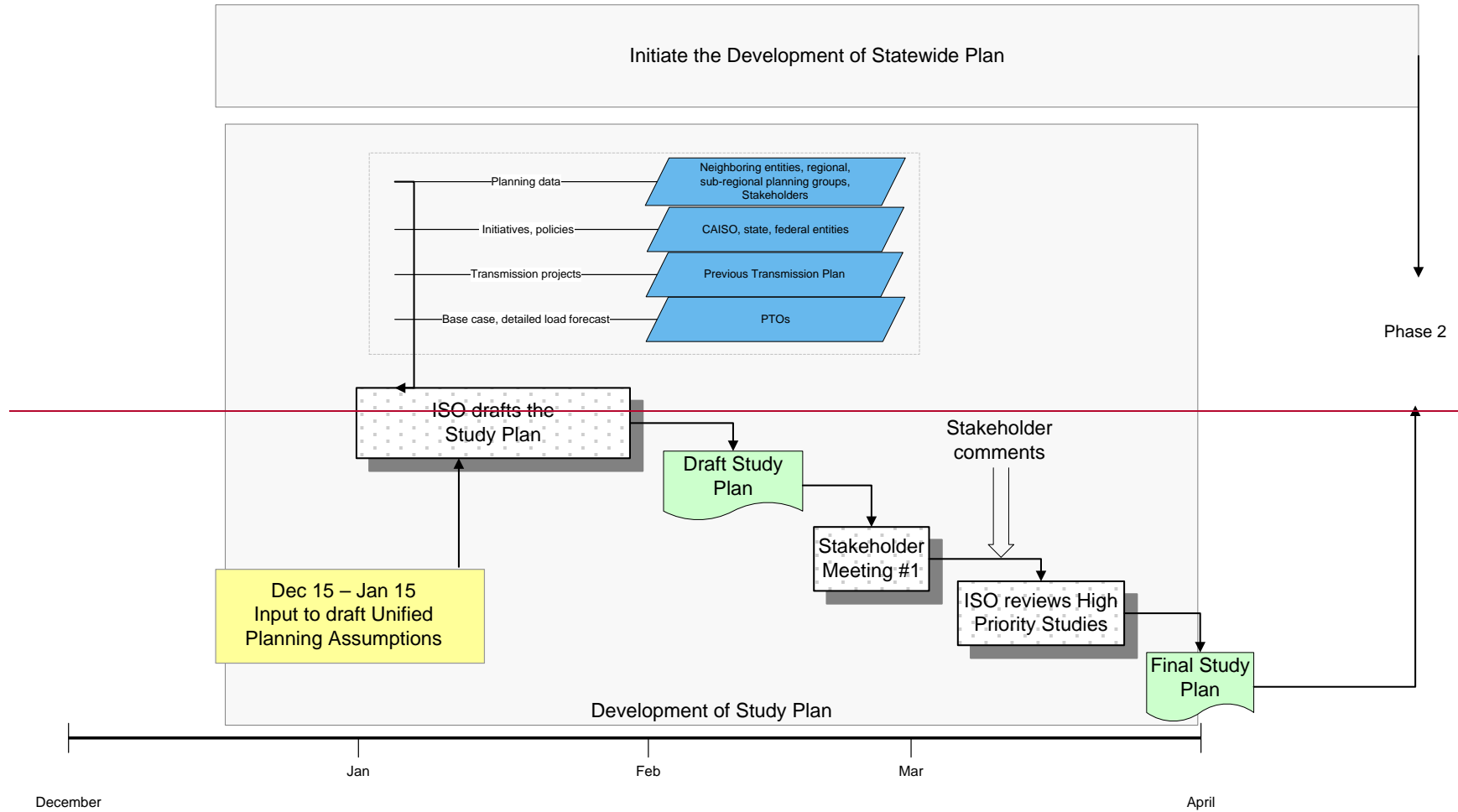


Figure 3-1: Overview of Phase 1 of the CAISO Transmission Planning Process



### 3.1. Unified Planning Assumptions and Study Plan

The CAISO will develop the unified planning assumptions and study plan using information and data from the approved Transmission Plan developed in the previous planning cycle. Typically in mid-December the CAISO will send a market notice to all interested parties and a letter to neighboring balancing authority areas and sub-regional and regional planning entities requesting certain planning information that the CAISO might consider when developing the unified planning assumptions and the draft Study Plan. The purpose of the market notice and letter is to request any planning data and information that may not yet be available through the WECC, certain reliability data needed for reliability planning coordination pursuant to NERC TPL-001-4, and other data that interested parties believe the ISO should consider in its TPP.

The objective of this process is to establish the goals of the current year TPP, agree on data assumptions and inputs for the creation of base cases, identify necessary modifications to the base cases for individual technical studies, identify the technical studies to be performed as part of the transmission planning process cycle, and allow transmission planning participants to review and comment on the scope of the upcoming technical studies. The intended outcome of this effort is to aggregate and incorporate into the study plan, as appropriate, all relevant information and data necessary for the CAISO to develop and finalize the unified planning assumptions and study plan prior to the commencement of the technical assessments performed during phase 2.

Following the draft study plan publication, the CAISO will open a comment window to receive stakeholder comments regarding the study plan and for interested parties to submit economic planning study requests. After the comment window is closed, the CAISO will review stakeholder comments, evaluate economic planning study requests, select the high priority studies and publish the final study plan.

#### 3.1.1. Inputs to the Unified Planning Assumptions & Study Plan

The CAISO will consider the following inputs to the unified planning assumptions and study plan:

- (a) WECC base cases, as may be modified for the relevant planning horizon;
- (b) Transmission solutions approved by the CAISO in previous transmission plans as part of the transmission plan for the current year;
- (c) Category 2 policy-driven transmission solutions from a prior transmission plan;
- (d) Conditionally approved location constrained resource interconnection facilities;
- (e) Network upgrades identified pursuant to CAISO tariff section 25, appendix U, appendix V, appendix Y, appendix Z or Appendix DD relating to the CAISO's large generator interconnection procedures and the generator interconnection and deliverability allocation process and appendices S and T relating to the CAISO's small generator interconnection procedure that were not otherwise included in the previous transmission plan;
- (g) Operational solutions validated by the CAISO through a local capacity technical study and other previously identified operating solutions;
- (h) Policy requirements and directives, as appropriate, including programs initiated by state, federal, municipal and county regulatory agencies;
- (i) Energy resource areas or similar resource areas identified by local regulatory authorities;

- (j) Demand response programs that are proposed in comments for inclusion in the unified planning assumptions;
- (k) Generation and other non-transmission alternatives that are included in the draft unified planning assumptions and study plan as alternatives to transmission solutions;
- (l) Economic planning study requests;
- (m) Planned facilities in interconnected balancing authority areas; and
- (n) The most recent information provided by other planning regions, including any interregional transmission projects that have been submitted through the interregional transmission project submittal window open each even numbered calendar year.

### 3.1.2. Contents of the Unified Planning Study Assumptions and Study Plan

The study plan will include, but not be limited to, the following:

- (a) The planning data and assumptions to be used in the technical studies which may include information related to demand forecasts and distribution, potential generation capacity additions and retirements, and transmission system modifications;
- (b) A description of the computer software, methodology and other criteria used perform the technical studies;
- (c) A list of each technical study and the purpose for which it is being included in the transmission plan;
- (d) A description of significant modifications to the planning data and assumptions, if any;
- (e) The identification of any entities directed to perform a particular technical study or portions of a technical study;
- (f) A proposed schedule for all stakeholder meetings and the means for notifying stakeholders of any changes, the location on the CAISO website of information relating to the technical studies, and the name of a contact person at the CAISO for each technical study being performed;
- (g) As appropriate, sensitivity analyses and solution alternatives;
- (h) Descriptions of the high priority economic planning studies as determined by the CAISO;
- (i) Identification of those state, federal, municipal, or county requirements or directives that will be consider in the planning process to identify policy-driven solutions; and
- (j) Load interconnections and information about associated load interconnection facilities;

## 3.2. Stakeholder Input - Unified Planning Assumptions and Study Plan

Phase I provides several time periods during which stakeholders may submit information to the CAISO;

- The ISO will send a market notice to all interested parties and a letter to neighboring balancing authority areas, sub-regional and regional planning entities requesting certain

planning information that the ISO might consider when developing the unified planning assumptions and the draft Study Plan. This takes place for approximately one month typically starting in mid-December;

- A stakeholder submission and comment period that takes place two-weeks after the first stakeholder meeting where stakeholders may provide comments on the contents of the draft study plan and at the same time submit economic planning study requests for consideration and possible inclusion in the study plan;
- An interregional transmission project submittal window open every even numbered calendar year where stakeholders may submit interregional transmission project proposals.

These opportunities are generally illustrated in Table 2-1 and Figure 3-1 and are made available to external entities via CAISO market notices.

### **3.2.1. Demand Response, Generator, and other non-Transmission Alternatives**

In December, the CAISO will issue a market notice that initiates a 30 day period during which market participants, electric utility regulatory agencies, and all other interested parties may submit the following recommendations and proposals for possible consideration in the development of the draft unified planning assumptions and study plan:

- Demand response programs;
- Generation and other non-transmission alternatives; and
- State, municipal, county or federal policy requirements or directives

#### **3.2.1.1. Submission Requirements**

The submittals of such recommendations and proposals are subject to certain requirements that must be met before the CAISO will consider their inclusion in the unified planning assumptions; otherwise the proposal will not be considered in the current transmission plan. A market notice, typically posted in mid-December, will inform stakeholders that a thirty (30) day period is being provided for proposals to be submitted to the CAISO. Once the thirty (30) day period has ended, proposals will no longer be accepted for the current year's transmission plan. A summary of stakeholder input submissions will be documented in the draft study plan.

#### **3.2.1.2. Technical Data Requirements**

Recommendations and proposals that are submitted for consideration in the current year's transmission plan must be supported by data of sufficient quality and accuracy to be included in the unified planning assumptions and modeled in the technical studies. The minimum requirements are as follows: In order for the CAISO potentially to be able to use this input in transmission planning studies, the submitter must provide sufficient data. Sections (a) and (b) below describe the minimum requirements for the input to be considered in the unified study assumptions and study plan. The CAISO may request additional information later if it is required for the technical study evaluation in phase 2.



(a) Demand response assumptions

- Bus-level model of demand response assumptions for power flow or stability studies;
- Associated planning level costs;
- Satisfactory evidence showing that the proposed demand response will be reliably operated and controllable by the CAISO; and
- Satisfactory evidence that appropriate regulatory approval as part of the resource adequacy or other similar program such as the CPUC's long term procurement process (LTPP) has been received.

(b) Generation or other non-transmission alternatives assumptions

Necessary information to be modeled in power flow and stability studies, including, but not limited to, project location, project costs, size, power flow and dynamic models, project scope and detailed descriptions of the characteristics or how it will be operated.

### 3.2.2. Comments on the Draft Study Plan and Economic Planning Study Requests

#### 3.2.2.1. Study Plan Comments

Within two weeks after the first stakeholder meeting, stakeholders may submit comments on the draft study plan. The CAISO will provide the details of the submission process at the stakeholder meeting or in a market notice. Transmission planning participants may submit comments on the scope and contents of the draft study plan discussed during the first stakeholder meeting. Where applicable, such comments should include information about possible load interconnections that could necessitate transmission solutions and are being proposed as input assumptions to the unified planning assumptions and study plan. Stakeholders should also submit information about resource or transmission facilities in interconnected balancing authority areas that could necessitate transmission solutions to the CAISO controlled grid. The CAISO will post these comments on its website and evaluate them for the purposes of possible inclusion in the final study plan.

#### 3.2.2.2. Economic Planning Study Requests

Requests to perform an economic planning study also must be submitted to the CAISO within 2 weeks after the first stakeholder meeting at the same time that the study plan comments are due. Economic planning study requests must identify the congested transmission element (binding constraint), limiting facilities, or other matters to be studied, as specified in the tariff. The request should also include other information supporting the potential for increased future congestion on the binding constraint. Requests may also include potential mitigation plans for the identified congested element.

As discussed below, such planning study requests can include attributes in addition to congestion mitigation such as reducing long term local reliability needs (which are only evaluated on an annual basis at this time), increasing the value of certain reliability projects.

### 3.2.3. Unified Planning Assumptions and Study Plan

As noted in CAISO tariff section 24.3.3 (e), following the public conferences, the CAISO will post the final Uniform Planning Assumptions and Study Plan. The CAISO will provide an explanation as to those public policy requirements or directives it has selected for consideration in the current planning cycle and those requirements and directives that it has decided not to consider in the planning process, and the reasons therefor. The ISO will post on its website an explanation of any decision not to consider a previously identified public policy requirement or directive from consideration in the current transmission planning process cycle.

### 3.2.4. Requests for Economic Planning Study Assessment

The CAISO will evaluate each economic planning study request and prioritize these requests based on the significance and frequency of congestion and other economic attributes in order to determine which economic planning study requests will be selected as high priority for the purposes of consideration in the transmission plan. High priority economic planning studies will be selected based on consideration of at least one of the following:

- (a) Whether the requested study seeks to address transmission congestion identified by the CAISO;
- (b) Whether the requested study seeks to reduce or address the need for local capacity area resources in a local capacity area;
- (c) Whether resource and demand information indicate that congestion described in the request is projected to increase over the planning horizon used in the transmission planning process and the projected magnitude of the congestion;
- (d) Whether the economic planning study is intended to encompass the upgrades necessary to integrate new generation resources or loads on an aggregated or regional basis.

### 3.2.5. High Priority Economic Planning Studies Selection

The CAISO will list potential high priority economic planning studies in the final study plan. As appropriate, the CAISO will perform up to five (5) high priority economic planning studies<sup>5</sup>. However, the CAISO retains discretion to perform more than five high priority economic planning studies if stakeholder requests or patterns of congestion or anticipated congestion so warrant.

## ~~3.3. Initiating the Conceptual Statewide Plan~~

~~In parallel with the development of the unified planning assumptions and the study plan in phase I, the CAISO will develop, or, in coordination with other regional transmission planning groups or entities, including interconnected balancing authority areas, will participate in the development of a conceptual statewide plan that may identify potential transmission upgrades, additions or~~

<sup>5</sup> If more than five Economic Planning Study Requests were submitted, the ISO will select the five High Priority Economic Planning Studies based on congestion data and guidelines defined in section 3.2.3. However, there could be no High Priority Economic Planning Studies performed if the ISO receives no Economic Planning Study Requests and there is no significant and recurring congestion issues identified by the ISO.

~~elements needed to meet state and federal policy requirements and directives. The conceptual statewide plan will be an input into the CAISO's phase 2 evaluation process leading to the development of the transmission plan. The CAISO will include a description of the conceptual statewide plan development process in the study plan, including the extent to which the CAISO intends to utilize conceptual plans developed by other planning groups, entities or neighboring balancing authority areas.~~

~~The CAISO will post the conceptual statewide plan to its website once it has been developed, and at the same time, will issue a market notice advising parties of its availability. The market notice will advise stakeholders of the availability of such plan and the dates for a twenty (20) day comment period that will take place in the next calendar month. During the comment period interested parties may submit comments and recommend modifications to the conceptual statewide plan propose alternative transmission elements, including potential interstate transmission lines and submit proposals for access to resources located in areas not identified in the conceptual statewide plan, and non-transmission elements.~~

### **3.4.3.3. Interregional Transmission Coordination of Planning Data and Information**

To engage in interregional transmission coordination, the CAISO will annually exchange planning data and information, host, in conjunction with other western planning regions, a coordination meeting, and manage a process through which proponents can submit ITPs.

#### **3.4.1.3.3.1. Annual Interregional Coordination Stakeholder Meeting**

In parallel with the development of the unified planning assumptions and the study plan in phase I of the TPP, the CAISO will host an annual interregional coordination stakeholder meeting in conjunction with the other Western Planning Regions (regions). The CAISO will seek to convene such meeting in February, but in no event later than March 31<sup>st</sup> of each year. A proposed schedule of hosts for the annual meeting is shown in Table 3-1:

Table 3-1 Hosting for Interregional Coordination Stakeholder Meetings

<b>Year</b>	<b>Host</b>
1 (2016)	WestConnect
2	ColumbiaGrid
3	California ISO
4	NTTG
Repeat Cycle	WestConnect

The CAISO will seek to issue a market notice providing information about the interregional coordination stakeholder meeting no later than 21 calendar days prior to the stakeholder meeting date. The CAISO will seek to post details regarding the annual stakeholder meeting, including the stakeholder meeting agenda and presentations on the CAISO website no later than seven days prior to the meeting. The host region will be responsible for making available for distribution and

posting by the CAISO a summary of all decisions and action items made during the annual stakeholder meeting.

Prior to the annual stakeholder meeting, the western planning regions will meet to discuss an agenda, meeting logistics, and how shared information (e.g., interregional transmission project submissions, identified regional needs, other annual interregional information) will be presented.

The CAISO will share the following regional planning data and information no later than 21 days prior to the annual stakeholder meeting<sup>6</sup>:

#### **Even Year Annual Interregional Information**

- (a) Most recent draft Transmission Plan
- (b) List of any interregional transmission projects:
  - Considered within the previous odd year draft transmission plan;
  - That are being considered within the previous odd year draft transmission plan for approval and/or awaiting “final approval” from the relevant planning regions;
  - List of any ITP’s that have been submitted for consideration in the even year transmission plan.

#### **Odd Year Annual Interregional Information**

- (a) Most recent draft transmission plan
- (b) List of any ITP’s:
  - Considered within the even year draft transmission plan;
  - That have been considered in the even year draft transmission plan and approved by the ISO Board for further consideration within the odd year draft transmission plan.

At the interregional coordination meeting, topics discussed may include the following:

- (a) Each planning region’s most recent annual interregional information, to the extent it is not confidential;
- (b) Identification and preliminary discussion of interregional solutions, including conceptual solutions, that may meet regional transmission needs in each of two or more planning regions more cost effectively or efficiently; and
- (c) Updates of the status of interregional transmission projects being evaluated or previously included in the CAISO’s transmission plan.

### **3.4.2.3.3.2. Submission of Interregional Transmission Projects**

The CAISO will assess whether proposed interregional transmission projects provide more cost effective or efficient solutions to regional transmission needs than identified regional solutions that are in the CAISO transmission plan. The CAISO will generally conduct its evaluation over a two year evaluation cycle, described in section 4.10 of this BPM. However, because the CAISO’s

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<sup>6</sup> Annual interregional information is subject to change based on the actual date of the annual stakeholder meeting and the corresponding availability of regional planning data and information at the date of that meeting.

evaluation must be coordinated with the evaluations of other relevant planning regions the CAISO's evaluation cannot be concluded until all relevant planning regional complete their assessments.

At the beginning of every even-numbered year, the CAISO will initiate a submission period in which proponents may request evaluation of an interregional transmission project. The submission period will begin January 1 and close March 31<sup>st</sup> of every even-numbered year. The CAISO will advise stakeholders when the Interregional project submission period has opened via market notice. An interregional transmission project proposal must be submitted to the CAISO using the Interregional *Transmission Project Submission Form* available at:

<http://www.caiso.com/planning/Pages/InterregionalTransmissionCoordination/default.aspx>.

Interregional transmission project proponents must satisfy the data requirements set forth in the section 3.4.2.1. The CAISO will evaluate all submissions against these defined data requirements. Participants who wish to suggest interregional mitigation solutions should use the latest version of the form available at the time the submission period opens on a biennial basis.

### **3.4.2.1-3.3.2.1. Data Requirements for Interregional Transmission Project Submissions**

All interregional transmission project proposals must be submitted to the CAISO during the interregional project submittal window using the *Interregional Transmission Project Submission Form*. The interregional project submittal window is open from January 1 through March 31 of every even numbered calendar year. A completed form must be received by the CAISO prior to the closing of the submittal window.

Interregional transmission project proponents are required to submit the following information:

#### **Basic Data**

- Name of the project and whether or not cost allocation is being requested;
- Other planning region(s) the project will be/has been submitted to;
- Project location, interconnection points, and proposed in-service date;
- Contact information
- General Data
- Description of the proposal such as the scope, interconnection points, proposed route, the nature of alternative (AC/DC) or and project objectives;
- Needs identification. The proposal must specify what CAISO-identified need the ITP meets and what identified regional solutions can be replaced or deferred in the comprehensive Transmission Plan;
- Demonstrate how the proposed ITP provides a more cost effective and efficient solution to meet CAISO-identified regional transmission needs than identified regional solutions. Provide pre-project and post-project results demonstrating how the proposed ITP will meet a regional need more efficiently and cost effectively than the identified regional transmission solution;

- A diagram showing the geographical location and preliminary project route;
- A one-line diagram showing all major proposed elements (e.g. substation, line, circuit breaker, transformer, and interconnection points);
- Project proposals may include various alternatives that have been studied by the proponent but the submission package must clearly state which alternative is preferred for consideration;
- The proponent shall provide the cost of mitigating short circuit and/or transient issues to the existing or planned transmission system under the CAISO operational control as part of the total cost of the project;
- ITP proposals with or without cost allocation must include a demonstration of financial capability to pay the full cost and operation of the ITP;
- Proponents not seeking Cost Allocation for any ITP must engage the PTO in whose service territory the facility will be located to conduct a system impact analysis as well as a reliability study, and the project sponsor must agree to mitigate all reliability concerns, as well as impacts on allocated long-term CRRs, caused by the project interconnection.

#### **Technical Data**

- Network model for power flow study in GE-PSLF format must be provided. In some cases, dynamic models for transient stability study in GE-PSLF format may also be required.

#### **Planning Level Cost Data**

- Project construction cost estimate, construction schedule, anticipated commercial operational date, and other data necessary for the study. Cost data is not necessary for Merchant projects and ITPs not seeking Cost Allocation.

#### **Miscellaneous Data**

- Proposed entity to construct, own, and finance the project;
- Planned operator of the project;
- Engineering, permitting and construction schedule with expected online date;
- Reliability project proposals need to specify the necessary approval date (month/year) to allow for adequate permitting review and approval process;
- Economic project proposals need to include maximum cost estimate, and detailed cost analysis with necessary financial parameters (*i.e.*, projected levelized revenue requirements, and other supporting data such as asset depreciation horizon, Operating & Maintenance annual rate assumptions, property tax rate, state income tax rate, inflation rate and return on equity and cost discount rate).

### **3.4.2.2.3.3.2.2. Interregional Transmission Project Submissions Validation Process**

**Initial Submittal** – Proponents must complete and submit to the CAISO data forms that specify the details of the project proposals necessary to allow an initial evaluation by the CAISO. These data forms can be found at <http://www.caiso.com/planning/Pages/InterregionalTransmissionCoordination/default.aspx>. The CAISO will acknowledge receipt of the submission to the submitter within three (3) business days of receiving the submittal.

### **Validation/Selection**

The CAISO will seek to validate whether the submittal complies with the data requirements in section 3.4.2.1 no later than 10 business days after March 31 and will inform submitters by e-mail whether the proposed solution satisfies the data requirements. Submitters whose data or information is deemed incomplete will have five business days to supplement their proposal and re-submit them to the CAISO.

### **Secondary Validation**

Within ten business days after receiving the supplemental information, the CAISO will inform the project proponent via email if the proposal will be further evaluated in the transmission planning process.

## 4. Transmission Planning Process Phase 2

Phase 2 starts in April of the first year and continues through March of the following year. In this 12-month period, the CAISO will conduct technical studies and other assessments necessary to determine the need for transmission solutions. At the end of this phase, the CAISO will develop and post the draft transmission plan, describing the study results and identifying transmission solutions. Phase 2 is completed when CAISO management presents the transmission plan to the CAISO Board of Governors for approval and the Board approves the plan.

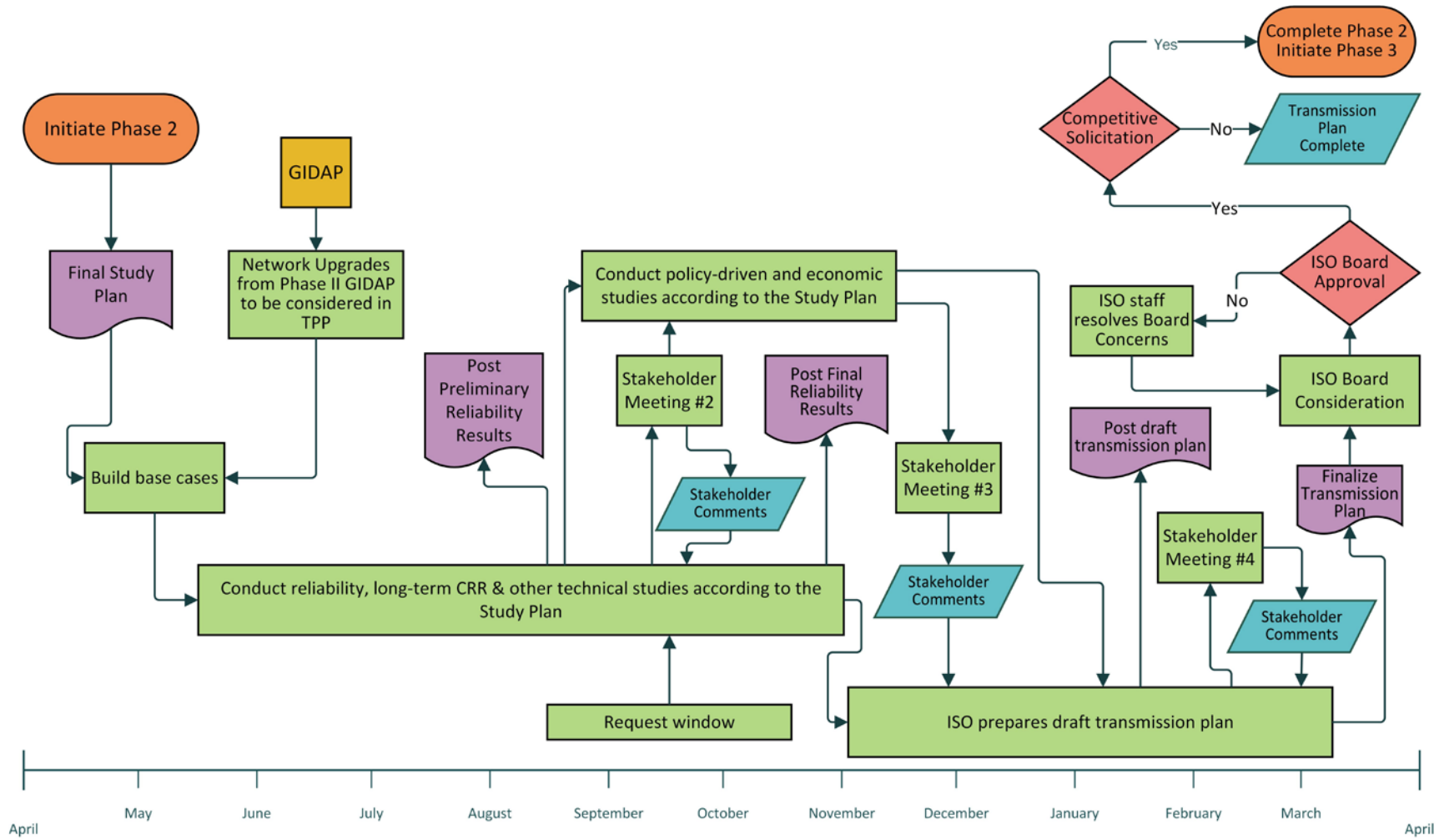
[A summary of Phase 2 of the planning process is shown in Figure 4-1.](#)

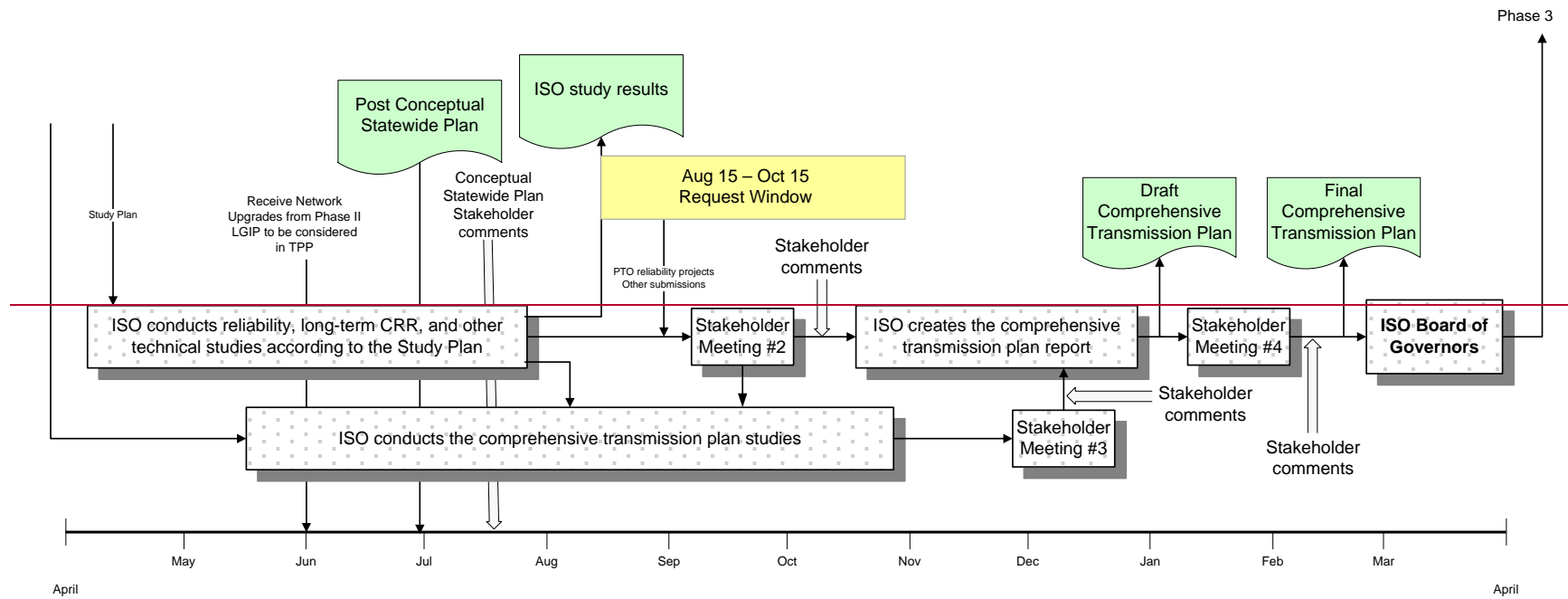


~~Phase 2 Overview~~

~~A summary of phase 2 activities is illustrated in Figure 4-1 of this BPM.~~

Figure 4-~~14-1~~: Overview of Phase 2 of the ISO Transmission Planning Process





## 4.1. Technical Studies Conducted by the CAISO or at the Direction of the CAISO

As described in the study plan, the CAISO will conduct a number of technical studies to meet planning objectives. The technical studies provide the basis for identifying potential physical and economic limitations of the CAISO balancing authority area and potential transmission solutions needed to maintain or enhance system reliability, promote economic efficiency, or maintain the feasibility of long-term CRRs for the length of their terms, and promote identified policy objectives.

The technical studies are required to utilize the unified planning assumptions to the maximum extent practicable. Any deviations must be documented in the preliminary results of the technical study. Results from the technical studies will be measured against the following planning standards to quantify system performance and justify transmission upgrades:

- (a) NERC Planning Standards
- (b) WECC Planning Standards
- (c) CAISO Planning Standards

Generally, the CAISO conducts the technical studies in a sequential manner. Reliability, long-term CRR, and local capacity requirement (LCR) studies are conducted to identify proposed solutions needed to maintain system reliability and the feasibility of long-term CRRs. The CAISO will also evaluate GIP network upgrades identified in the GIP phase II studies that might be eligible for modification or addition in the transmission plan as well as LCRIF and merchant projects submitted through the request window. These upgrades then are included in the study plan assumptions as inputs for potential solutions to address, state, federal, municipal, and county requirements or directives that the CAISO selected for consideration in the planning process. As the final step, upgrades from the first step are evaluated by economic planning studies to explore potential congestion and identify mitigation plans that might be needed.

### 4.1.1. Reliability Studies

The CAISO will perform certain reliability studies to identify solutions needed to ensure system reliability. The CAISO will perform these reliability studies using the following analyses, although other types of analyses may be used from time to time to ensure that planning objectives are met:

- (a) **Power Flow Analysis** – The study focusing on equipment thermal loadings and voltage magnitudes in the system at a specific study scenario
- (b) **Stability Analysis** – Assessments of system responses during the transient period after disturbances or small signal stability of the system under various scenarios
- (c) **Voltage Stability Analysis** – Analysis of reactive power sufficiency to ensure reliable system operations under different system conditions and disturbances. Power flow and stability are primary technical studies in reliability assessment

The CAISO must perform technical studies on an annual basis to ensure that all transmission facilities in the CAISO balancing authority area can be operated in a manner consistent with the conditions identified in the applicable planning standards. These technical studies will address near-term needs (up to five years) and long-term needs (six through ten years or more) under various stress conditions (e.g., summer peak, off-peak). Where system performance criteria is

not met the CAISO will propose mitigation plans to address the identified system performance issues, and will consider alternative mitigation plan proposals submitted through the request window by PTOs and other interested parties, if such submissions are in compliance with the CAISO's request window requirements.

Reliability assessments also may be performed by PTOs with PTO Service Territories as a component of their roles as NERC transmission planners. Based on resource considerations, technical expertise, and the roles of PTOs with PTO service territories as NERC transmission planners, the CAISO may assign technical studies or portions of technical studies to project sponsors or the PTOs to perform. Similarly, the CAISO may seek the voluntary commitment of other market participants to perform technical studies or portions thereof. Unless otherwise justified to the CAISO and documented in the study plan, all studies performed by a PTO(s) or other market participants must be completed in accordance with CAISO-established planning methodologies and assumptions documented in the study plan.

#### **4.1.2. Long-Term Congestion Revenue Rights Feasibility Studies**

CAISO tariff section 24.4.6.4 requires the CAISO to perform an annual analysis to determine whether existing transmission facilities, together with planned additions and upgrades, generating unit or transmission retirements, and generation or load interconnections, will compromise the feasibility of long-term congestion revenue rights (long-term CRRs) over the full term of the long-term CRRs. This analysis is called a simultaneous feasibility test (SFT). If the CAISO's SFT shows that certain long-term CRRs might become infeasible, the CAISO is required to identify cost-effective transmission solutions to mitigate the infeasibility.

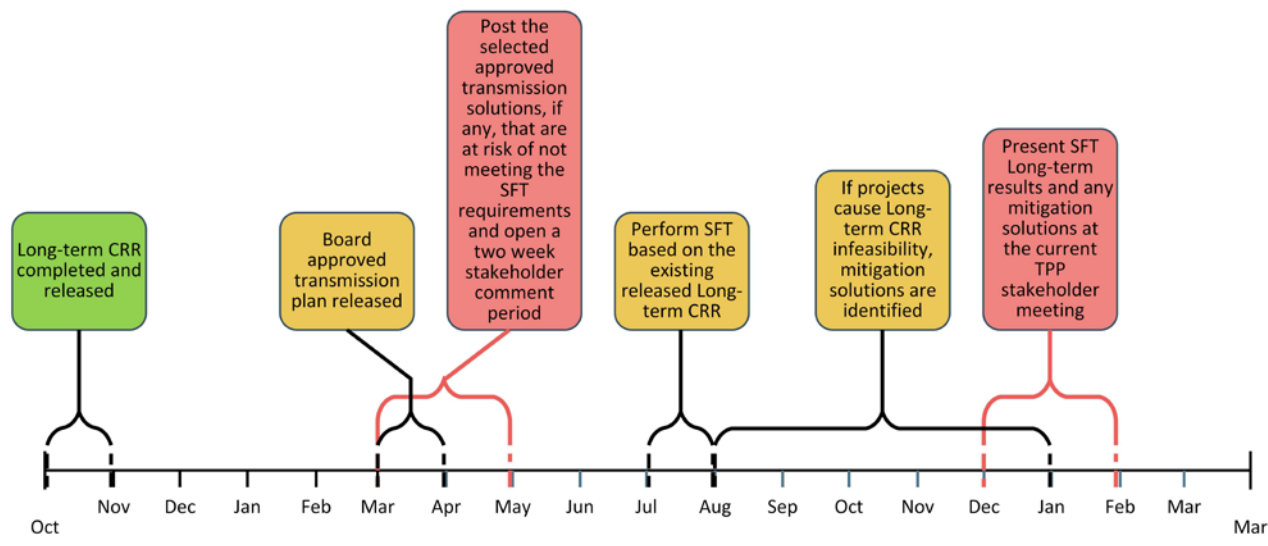
In accordance with the tariff, the CAISO's CRR business unit (the "CRR group") and the infrastructure development business unit ("grid planning engineers") will work together to perform a SFT that applies existing CRRs to a model that contains transmission upgrades to ascertain feasibility of the released long-term CRRs as follows:

- (a) Each year following the annual CRR release process, the CRR group will identify a set of transmission facilities whose constraints are binding or loaded near their limits (e.g., 95% or more of their flow limits) in the tier long-term SFT. This set will be considered as the critical transmission constraints for reviewing the need to perform the SFT in the transmission planning cycle.
- (b) The CRR group will then provide to the grid planning engineers a list of the critical transmission facilities and the corresponding loading levels from the SFT.
- (c) Once the Governing Board approves the transmission plan in March of each cycle, the grid planning engineers identify and provide a list of approved transmission solutions and to be modeled by the CRR Group for assessing the feasibility of the critical transmission constraints.
- (d) The grid planning engineers will perform power flow sensitivity analyses with and without the most recent approved transmission solutions, and together with the CRR group, will evaluate the potential adverse impacts of these solutions on the list of critical transmission constraints to determine if there are long-term CRRs that are potentially at risk of not meeting the SFT requirements. The at-risk long-term CRRs are the ones that have imminent binding constraint that is exacerbated by a new transmission solution.

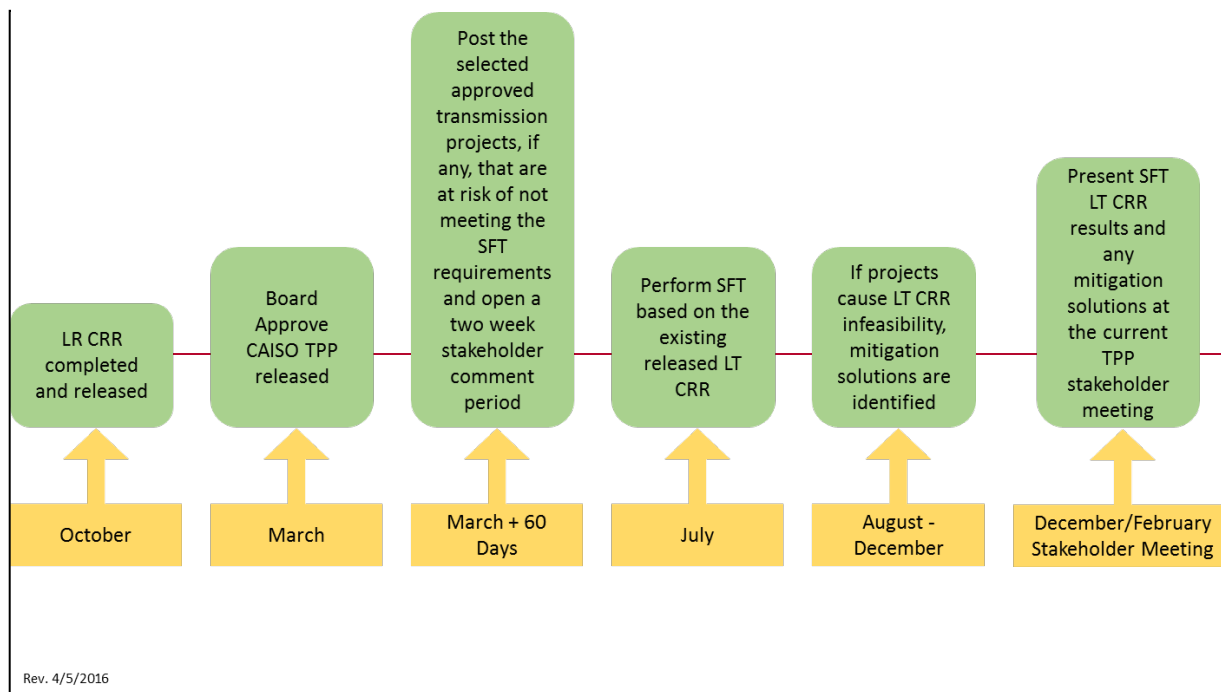
- (e) If any approved transmission solutions are determined to adversely impact the critical transmission constraints, those will be modeled and included in the long-term CRR SFT run for the current TPP cycle to validate the feasibility of the existing released long-term CRR. The CAISO will post to the CAISO website the list of transmission solutions that will be modeled in the SFT as part of the information for the TPP cycle that is underway at the time the SFT is conducted, and stakeholders will be provided an opportunity to comment. The posting will take place within 60 days after the CAISO posts the final transmission plan. If there are not any existing released long-term CRR's that could be at risk and that would require further analysis, the CAISO will issue a market notice explaining such.
- (f) If applicable, the CRR group will perform the long-term CRR SFT analysis and evaluate the results in collaboration with the grid planning engineers to identify any adverse impacts on the feasibility of the released long-term CRRs based on the selected transmission solutions.
- (g) To the extent that there is long-term CRR infeasibility caused by identified solutions approved in the transmission plan, the CAISO will identify appropriate mitigation measures and plans and follow project implementation requirements as set forth in the CAISO tariff requirements to address the underlying problem. These mitigation plans will be included in the TPP cycle underway at the time the SFT is conducted.

Figure 4-2 of this BPM shows the process and timeline for conducting the long-term CRR SFT.

Figure 4-2: Process and Timeline for Conducting Long-Term Congestion Revenue Rights Simultaneous Feasibility Study



**Figure 4-2: Process and Timeline for Conducting Long-Term Congestion Revenue Rights Simultaneous Feasibility Study**



### 4.1.3. Local Capacity Technical Studies

Each year the CAISO conducts a local capacity technical (LCT) study that establishes the local capacity area resource (LCR) requirements for the next resource adequacy compliance year and informs the California Public Utilities Commission’s resource adequacy proceedings. In addition to that LCT study and as part of the TPP, the CAISO performs an LCT study for at least one additional year in the planning horizon. The LCT study performed in the TPP provides stakeholders with visibility into local capacity requirements (LCR) for a longer-term horizon than is provided by the annual LCT study. The LCT study is intended to forecast potential LCR needs over a longer planning horizon that can inform the CAISO’s transmission planning process and be used to identify the need for longer lead time economically-driven transmission elements, which would reduce LCR needs. The longer-term LCT study also provides market participants with information to utilize in their individual long-term procurement activities, but is not used by the CAISO to allocate responsibility for local capacity area resource procurement.

Both LCT studies assess the minimum level of capacity needed to ensure reliable CAISO BAA operation under peak demand conditions consistent with the latest LCR criteria, methodology and assumptions. The studies also evaluate the local capacity area definitions and may potentially identify a need for definition changes due to system topology changes and load growth impacts. Both studies utilize a similar methodology, but evaluate different time horizons. Detailed study assumptions, methodology, tools, and other information necessary for the studies are found in the latest LCT manual posted to the CAISO website at:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/LocalCapacityRequirementsProcess.aspx>. The CAISO vetted the LCT study methodology and assumption development through an

extensive stakeholder process which continues each year when the annual local capacity area requirements are established.

#### 4.1.4. Other Studies

From time to time, the CAISO may conduct other specific technical studies to address special issues in addition to the usual scope of the TPP studies.

### 4.2. Technical Study Results: Posting and Presentation

By August 15 of each year, the CAISO will post preliminary results of the reliability, LCT, and long CRR feasibility technical studies conducted by the CAISO as well as those conducted by the PTOs or others at the direction of the CAISO as described in section 4.2 of this BPM. As described in section 4.4.1.1 of this BPM, PTOs must submit reliability transmission solution proposals through the request window within thirty days after the study results have been posted to allow sufficient time for the CAISO and transmission planning participants to review such proposals.

Once the PTOs have submitted proposed solutions responding to needs identified in the technical studies, the CAISO will host its second annual public meeting in approximately September to present and discuss the technical study results and potential mitigation solutions. The information presented to the stakeholders shall, at a minimum, include:

- (a) Summary of findings (identifications of need)
- (b) PTO -proposed mitigation solutions for the CAISO-identified problems.

Stakeholders must submit comments on the topics covered during this stakeholder meeting within two weeks of the meeting. Once the CAISO has reviewed the comments, the CAISO will post responses to the stakeholder comments and the final study results.

Finally, the CAISO may hold additional public meetings to discuss results and potential solutions of system performance assessment studies conducted by the CAISO and the PTOs, or other parties at the direction of the CAISO. As required by the CAISO's stakeholder process policy, all meetings will be noticed by the CAISO through a market notice and will be coordinated with the CAISO's calendar, located on the CAISO website.

### 4.3. Request Window

The annual transmission planning process includes a "request window" in phase 2 as a centralized, transparent, and organized method to solicit and manage submission of solution proposals for certain categories of transmission needs, project-related data and demand response or generation proposals submitted as alternatives to reliability mitigation solutions. The request window will open on August 15th following the publication of the technical study results and will close on October 15th and the CAISO will advise stakeholders when the request window has opened via market notice. Transmission planning participants may submit solution proposals into the request window. In order to accommodate submissions, the CAISO has created a request window submission form that is available on the CAISO website and that may be revised from time to time (<http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>). Participants who wish to suggest mitigation solutions should use the latest version of the form available at the time the request window opens each cycle. An example of the submission form is



also attached in attachment 3 of this BPM. The CAISO will evaluate all submissions against defined screening criteria that will be administered by the CAISO. The screening criteria are further discussed in sections 4.4.2 and 4.4.3 of this BPM.

### **4.3.1. Categories and Scope of Transmission Projects Accepted in the Request Window**

The following categories of transmission solutions, as well as demand response and generation proposals to be studied as alternatives to transmission upgrades, may be submitted through the request window.

#### **4.3.1.1. Reliability Projects**

All reliability solutions must identify the reliability need for which the reliability-driven solution is being submitted and should set forth a sufficient description of the upgrades, costs, schedules, benefits of the solution in terms of mitigating specific reliability concerns and other information, consistent with the request window solution submission requirements set forth in this BPM. PTOs with PTO service territories must submit reliability transmission solution proposals through the request window within thirty (30) days after the study results have been posted to allow sufficient time for the CAISO and stakeholders to review such solution proposals. Reliability transmission solutions that address needs identified by the CAISO shall be submitted through the request window for the TPP cycle in which the needs were identified. These may be CAISO-proposed solutions with which the PTO agrees or other solutions that have been developed by the PTO in whose service territory the need have been identified.

The CEC, CPUC and any other interested parties may submit into the request window reliability-driven transmission solutions that respond to reliability needs identified by the CAISO. These solution proposals will be studied as alternatives to the reliability-driven solutions submitted by the PTOs with PTO service territories that respond to the identified need for which the alternative has been proposed as long as all required information is submitted. The CAISO may also suggest alternative solutions. Any reliability solution identified in the transmission plan as a regional transmission facility and approved by the governing board is eligible for competitive solicitation unless it constitutes an upgrade to an existing transmission facility.

#### **4.3.1.2. Merchant Projects**

Transmission projects for which the project sponsor will seek merchant congestion revenue rights under CAISO tariff section 36.11, rather than seeking project cost recovery through the CAISO's transmission access charge, must be submitted through the request window. More details about the evaluation of merchant projects are provided in section 4.7.2 of this BPM.

#### **4.3.1.3. Location Constrained Resource Interconnection Facilities (LCRIF)**

Transmission solutions proposed to connect Location Constrained Interconnection Resource Generators (LCRIGs) in designated energy resource areas must be submitted through the

request window. <sup>7</sup> See section 4.4.3.2 of this BPM below for further details about LCRIF solutions.

#### **4.3.1.4. Demand Response, Generation, or Other Non- Transmission Alternatives**

Parties may submit through the request window demand response programs or non – transmission solutions to be studied as alternatives to needs identified in the CAISO technical studies. Minimum information about the demand response proposals, as described in section 4.4.3.3 of this BPM, must be included with the proposals. The CAISO-identified need for which the demand response program or non-transmission solutions being proposed must be clearly set forth in the submission package. The CAISO may request more information regarding these proposals if it is needed as part of the evaluation process.

Although proposed generating units may be submitted as proposed alternative solutions to identified reliability needs, specific generation solutions must go through the CAISO's generation interconnection process in order to interconnect to the CAISO grid. Generation solution costs are not recovered through the CAISO's transmission access charge. Similar to the demand response proposals, parties proposing generation solutions as alternatives to transmission solutions must submit sufficient information to the CAISO as outlined in section 3.2.1 of this BPM.

#### **4.3.1.5. Solutions Needed to Maintain the Feasibility of Long-Term CRRs**

As discussed in section 4.2.2 of this BPM, the CAISO will test and evaluate the simultaneous feasibility of allocated long-term CRRs when acting on 1) planned or proposed transmission solutions; 2) generating unit or transmission retirements; 3) generating unit interconnections; and 4) interconnection of new load. The CAISO shall post congestion data and the result of its feasibility studies, including the need for any transmission solutions. Solution submissions must identify the solution as being needed to maintain the feasibility of allocated long-term CRRs. The CAISO will work with PTOs and market participants to determine the need for such solutions, and will designate the PTO with a PTO service territory in which the upgrade or addition is to be located to finance, own and construct the project.

#### **4.3.2. Screening Request Window Submissions**

The purpose of the screening process is to:

- (a) Ensure sufficient information is provided to the CAISO to allow consideration of the submission in the transmission planning process.

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<sup>7</sup> ISO Tariff Appendix A defines an Energy Resource Area as:

A geographic region certified by the California Public Utilities Commission and the California Energy Commission as an area in which multiple LCRIGs could be located, provided that, for the interim period before those agencies certify such areas and for LCRIFs that are proposed to connect LCRIGS located outside the State of California, an Energy Resource Area shall mean a geographic region that would be connected to the CAISO Controlled Grid by an LCRIF with respect to which the CAISO Governing Board determines that all of the requirements of CAISO tariff section 24.4.6.3 are satisfied, except for the requirement that the LCRIGs to which the LCRIF would connect are located in an area certified as an ERA by those agencies.

- (b) Establish whether other minimum threshold criteria have been met, as described in this BPM.
- (c) Eliminate the potential for redundant studies of potential solutions to transmission needs identified in prior cycles for which projects have been previously approved.

Submissions that satisfy the screening criteria may be considered in the current year approval process or may be included within the scope of the following year's study plan.

Transmission solution proposals are subject to the following screening criteria:

- (a) The proposal must come within the categories described in section 4.4.1 of this BPM.
- (b) Any proposed transmission upgrade or addition must be within the CAISO balancing authority area or connect to the CAISO controlled grid.
- (c) All data and other requested information must be complete. The CAISO will determine whether the proponent has provided sufficient information to evaluate the transmission proposal or other resource. If the data or information is deemed to be insufficient, the proponent will have a brief period of time to supplement the submission, as described below. Failure to fully complete the appropriate data templates after the period allowed for supplemental submissions will constitute a failure to satisfy this requirement.
- (d) Proposals submitted during the request window must not be functionally duplicative of transmission solutions that have previously been approved by the CAISO.
- (e) If a proposed transmission solution is sub-regional or regional and affects other interconnected balancing authority areas, the solution proponent must provide information on whether the proposal has been reviewed by the appropriate sub-regional and/or regional planning entity and has been determined by such entity to be:
  - consistent with that planning entity's preferred solution; and
  - appropriate for inclusion in the CAISO study plan rather than, or in addition to, being included in or deferred to the planning processes of the regional or sub-regional planning entity.
- (f) Sub-regional or regional solutions must also comply with the data sufficiency requirements for the appropriate category of transmission or resource.
- (g) If a proposal does not meet the criteria applicable to the request window submission, the solution will not be evaluated further in the transmission planning process.
- (h) Proposals submitted through the request window will be considered in the development of the transmission plan, provided that the following process steps are satisfactorily completed:

#### 4.3.2.1. Initiation

Data forms which specify the details of the project proposals necessary to allow an initial evaluation by the CAISO must be completed and submitted to the CAISO. These data forms can be found at <http://www.aiso.com/planning/Pages/TransmissionPlanning/Default.aspx>. The CAISO will assign responsibility for each submission to its staff and acknowledge receipt of the submission to the submitter within three (3) business days.

### 4.3.2.2. Validation/Selection

Within ten business days after receiving the submission, the CAISO will apply the screening test discussed section 4.4.2 of this BPM to validate the transmission proposals as complete. At that time, the CAISO will inform submitters by e-mail whether the submission satisfies the screening criteria. Submitters whose data or information is deemed incomplete will have five business days to supplement their proposal and re-submit it to the CAISO.

### 4.3.2.3. Secondary Validation

Submitters whose data or information is deemed incomplete by the CAISO as part of the initial validation will have five business days to supplement their proposals (if the fifth day falls on a holiday, the deadline will be the following business day). Within ten business days after receiving the supplemental proposal, the CAISO will inform the project proponent via email if the supplemental proposal(s) have been accepted and will be further evaluated in the transmission planning process. If the supplemental proposal(s) are rejected, the submitter will be notified via email that their supplemental proposal(s) have been rejected and will not be evaluated by the CAISO along with a brief explanation of the reasons that the proposal will not be evaluated.

### 4.3.3. Data Requirements and Validation Process for Request Window Submissions

The data requirements necessary to initiate the request window process are set forth below. Data templates and accompanying instructions for request window submission packets may be found under the request window forms and instructions link.

#### 4.3.3.1. Reliability–Driven Solutions, Merchant Solutions and Solutions Needed to Maintain the Feasibility of Long-Term CRRs Submissions

Any reliability-driven or merchant transmission solution, whether submitted by a PTO, non-PTO or sponsor of a merchant transmission facility, must submit the following information:

(a) General Data

- Description of the proposal such as the scope, interconnection points, proposed route, the nature of alternative (AC/DC) or expected benefits
- Needs identification. The proposal should provide the specific reliability need(s) being addressed by the solution, in accordance with the criteria specified in the tariff. For example, a reliability solution should identify specific reliability criteria concerns that the proposal will mitigate.
- A diagram showing the geographical location and preferred route
- Merchant solution proposals must include a demonstration of financial capability to pay the full cost and operation of the project.
- Merchant solutions must engage the PTO in whose service territory the facility will be located to conduct a system impact analysis as well as a reliability study, and the

project proponent must agree to mitigate all reliability concerns, as well as impacts on allocated long-term CRRs, caused by the project interconnection.

- Except for merchant projects, proposals may include alternatives that have been studied by the project proponent but the submission package must clearly state which alternative is preferred and should be evaluated by the CAISO.

(b) Technical Data

- Network model for power flow study in GE-PSLF format. In some cases, dynamic models for stability study in GE-PSLF format may also be required

(c) Planning Level Cost Data

- Project construction costs estimate, schedule, anticipated operations, and other data necessary for the study. Cost data is not necessary for merchant projects.

(d) Miscellaneous Data

- Proposed entity to construct, own, and finance the solution
- Planned operator of the project
- Construction schedule and expected online date

#### 4.3.3.2. Location Constrained Resource Interconnection Facilities

Any party proposing an LCRIF solution shall include the following information in accordance with CAISO tariff section 24.4.6.3:

(a) A description of the proposed facility, setting forth:

- Transmission study results demonstrating that the transmission facility meets the applicable reliability requirements and CAISO planning standards
- Identification of the most feasible and cost-effective alternative transmission solution, which may include network upgrades, that would accomplish the objectives of the proposal
- A planning level cost estimate for the proposed facility and all proposed alternatives
- An assessment of the potential for the future connection of further transmission solutions that would convert the proposed facility into a network transmission facility, including conceptual plans
- The estimated in-service date of the proposed facility, and
- A conceptual plan for connecting potential LCRIGs, if known, to the proposed facility.

(b) This information permits the CAISO to conditionally approve the LCRIF if the following criteria are met:

- The transmission facility is to be constructed for the primary purpose of connecting two or more (LCRIG) in an energy resource area, and at least one of the LCRIG is to be owned by an entity or entities not an affiliate of the owner(s) of another LCRIG in that energy resource area
- The transmission facility will be a high voltage transmission facility

- At the time of its in-service date, the transmission facility will not be a network facility and would not be eligible for inclusion in a PTO's transmission revenue requirements other than as an LCRIF
- That there is a need for the proposed facility. CAISO will consider the factors set forth in CAISO tariff section 24.4.6.3.6 to evaluate compliance with CAISO tariff section 24.4.6.3.2(a):
  - ❖ The extent to which the facility meets or exceeds CAISO planning standards;
  - ❖ The extent to which the facility has the capability and flexibility to interconnect LCRIGs in the energy resource area and to be converted to a network transmission facility;
  - ❖ Whether the solution cost of the facility is reasonable in light of its projected benefits, in comparison to the costs and benefits of other alternatives for connecting generating units or otherwise meeting a need identified in the transmission planning process, including alternatives that are not LCRIFs. In making this determination, the CAISO shall take into account (among other factors):
    - The potential capacity of LCRIGs and the potential energy that could be produced by LCRIGs in each ERA;
    - The capacity of LCRIGs in the CAISO's interconnection process for each ERA;
    - The projected cost and in-service date of the facility in comparison with other transmission facilities that could connect LCRIGs to the CAISO balancing authority area; and
    - Whether, and if so, the extent to which, the facility would create a risk of stranded costs
- (c) For final qualification as an LCRIF solution, the proponent must provide the information required by CAISO tariff section 24.4.6.3.2(b), which, in addition to the required information described in section 4.4.3 of this BPM, includes a showing that the following requirements have been met:
  - The addition of the capital cost of the proposal will not exceed the 15% aggregate TRR net investment cap, calculated at the time of CAISO's evaluation of the facility; and,
  - The demonstration of commercial interest requirement set forth in CAISO tariff section 24.4.6.3.4 has been met.

#### 4.3.3.3. Demand Response or Generation Alternatives

Demand management resources (e.g., amount of load impact, location, and cost of the program) may be submitted into the request window for consideration in its TPP provided they have been approved by the CPUC or appropriate local regulatory agency. Accordingly, appropriately validated demand management programs shall be included in the CAISO's unified planning assumptions.

Proposed generating facilities may also be submitted to the CAISO but only for purposes of evaluating the effect of such generation on resolving previously identified grid concerns, including congestion, voltage support, etc. Proponents of proposed generating facilities that seek to interconnect with the CAISO controlled grid must follow the GIP procedures to obtain such interconnection. Proponents of generation solutions that are being proposed as an alternative to solutions for consideration in the transmission planning process need to provide the following information if not already provided through the GIP a similar set of submission data that is required by the GIP process:

- (a) Basic description of the solution, such as fuel type, size, location, etc.
- (b) Description of the issue sought to be resolved by the generating facility, including any reference to results of prior technical studies included in published transmission plans.
- (c) Network model of the solution for power flow study
- (d) Geographical location
- (e) Dynamic models for stability study
- (f) Short-circuit data
- (g) Protection data
- (h) Other technical data that may be required for specific types of resources, such as wind generation
- (i) Detailed project construction, heat rate, and operation costs
- (j) Any additional miscellaneous data that may be applicable

#### **4.3.3.4. Data Sufficiency Validation**

Proposals submitted through the request window will be considered in the development of the transmission plan, provided that the following process steps are satisfactorily completed and the proposal meets the other screening criteria described in section 4.4.2 of this BPM which specify the details of the proposals necessary to allow an initial evaluation by the CAISO must be completed and submitted to the CAISO. These data forms can be found at <http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>. The CAISO will assign responsibility for each submission to its staff and acknowledge receipt of the submission to the submitter within three (3) business days.

#### **4.3.3.5. Validation/Selection**

Within ten business days after receiving the submission, the CAISO will apply the screening test discussed in section 4.4.2 of this BPM to validate the transmission proposals as complete. At that time, the CAISO will inform submitters by e-mail whether the proposed solution satisfies the screening criteria. Submitters whose data or information is deemed incomplete will have five business days to supplement their proposal and re-submit it to the CAISO.

#### **4.3.3.6. Secondary Validation**

Within ten business days after receiving the supplemental information, the CAISO will inform the project proponent via email if the proposal will be further evaluated in the transmission planning process.

#### ~~4.4. The Conceptual Statewide Plan & Comment Period~~

~~In TPP phase 1 of the, the CAISO will initiate the development of a conceptual statewide plan that will be used as an input into phase 2 transmission plan development for the CAISO footprint. This plan may be developed in coordination with other regional or sub-regional transmission planning groups or entities, including interconnected balancing authority areas.~~

##### ~~4.4.1. Market Notice and Posting the Conceptual Statewide Plan~~

~~As discussed in section 3 of this BPM, the CAISO will provide information about the initiation of the conceptual statewide plan development in the study plan. Once the conceptual statewide plan has been completed in approximately in Q3 of each planning cycle, it will be posted on the CAISO website. At the time the plan is posted, the CAISO will issue a market notice advising interested parties of its availability and providing stakeholders with a twenty (20) day comment period in the month immediately following this posting. The month in which the comment period is scheduled may vary from planning cycle to planning cycle depending on when the plan is finished.~~

##### ~~4.4.2. Comments and Recommendations on the Conceptual Statewide Plan~~

~~Transmission planning participants may submit comments and make recommendations to modify the conceptual statewide plan for the purposes of informing the TPP. Proposed modifications may include alternative transmission solutions needed to access resources in locations not included in the conceptual statewide plan (e.g. sub-regional or regional interstate transmission elements) and non-transmission solutions providing alternative solutions to transmission upgrades and additions needed to meet state policy initiatives. Such modifications shall not be specific projects but rather electrical solutions to address transmission needs identified in the conceptual statewide plan. Proposals should contain sufficient detail to enable the CAISO to evaluate the proposed modification in the TPP. Submitting proposed modifications to the conceptual statewide conceptual plan does not confer approved project sponsor status on any party whose recommendation is selected as part of the comprehensive transmission plan.~~

##### ~~4.4.3. Additional Sensitivity Base Cases~~

~~Once the comment period on the conceptual statewide plan closes, the CAISO may develop additional base cases for sensitivity studies to be used in developing the conceptual statewide plan that include modeling assumptions recommended by transmission planning participants or based on information not available during phase 1. In addition, all generation solutions in the phase II cluster study have the potential of causing the need for GIP network upgrades described in section 4.6 of this BPM. As a result, there may be a need to model some or all of these generation solutions and their associated transmission upgrades in the TPP base cases for the purpose of evaluating alternative transmission upgrades. However, these base cases will be considered sensitivity base cases in addition to the base cases developed under the unified planning assumptions. These base cases will be posted on the CAISO protected web-site for~~



~~stakeholder review. Study results and recommendations from these cases will be incorporated in the transmission plan following the process shown in figure 4-1.~~

#### **4.5.4.4. Generator Interconnection Process (GIP) Network Upgrades**

The CAISO may coordinate the TPP with the GIP by evaluating certain GIP network upgrades and associated generation identified during the GIP phase II interconnection studies or interconnection facilities study process under the GIP as part of the TPP. The details of this process are described below.

##### **4.5.1.4.4.1. GIP Network Upgrade Criteria for TPP Assessment**

Beginning with the 2011-2012 planning cycle, the CAISO may consider GIP network upgrades identified in phase II GIP studies that are not already included in a signed LGIA for potential modification or addition in the TPP transmission planning process if the GIP network upgrade:

- Consists of new transmission lines 200 kV or above and have capital costs of \$100 million or more;
- Is a new 500 kV substation that has capital costs of \$100 million or more; or
- Has a capital cost of \$200 million or more.

Network upgrades included in the transmission plan may include additional components not included in the network upgrades originally identified during the phase II interconnection study or may be expansions of the network upgrades originally identified during the phase II interconnection study if the CAISO determines during the transmission planning process that such components or expansions are needed under CAISO tariff section 24.1. Construction and ownership of Network upgrades specified in the transmission plan under this section, including any needed additional components or expansions, will be the responsibility of the PTO if the phase II studies identified the original network upgrade as needed and such network upgrade has not yet been set forth in an executed large generator interconnection agreement. To the extent that additional components or expansions to network upgrades remain the responsibility of the PTO and such network upgrades are subsequently abandoned, the PTO shall be presumed to be eligible, subject to prudence and any other applicable review by FERC, to include in its TRR the costs of such Network Upgrades if the costs attributable to the abandonment of such network upgrades (as modified, replaced or otherwise reconfigured in the transmission planning process) exceed the amounts funded by interconnection customers pursuant to CAISO tariff appendix Y. This presumption shall not apply in the case of network upgrades which the applicable PTO agreed to up-front fund independent of any obligation to fund pursuant to the transmission planning process. If, through the transmission planning process, the CAISO identifies any additional components or expansions of network upgrades that result in the need for other transmission solutions, the responsibility to build and own such transmission solutions will be determined by CAISO tariff section 24, according to the category of those other transmission solutions. Any decision in the transmission planning process to modify network upgrades identified in the large generator interconnection process will not increase the cost responsibility of the interconnection customer as described in CAISO tariff appendix Y, section 7. Category 1 policy-driven transmission solutions identified under CAISO tariff section 24.4.6.6 could supplant

the need for LGIP network upgrades that would be developed in subsequent generator interconnection process cycles. To the extent that a Category 1 policy-driven transmission solution eliminates or downsizes the need for a network upgrade, the interconnection customer's cost responsibility for such network upgrade shall be eliminated or reduced. Any financial security posting shall be adjusted accordingly.

#### **4.5.2.4.4.2. Notification of Network Upgrades being assessed in the TPP**

In approximately June of each planning cycle, the CAISO will publish the list of GIP network upgrades that meet at least one of these criteria set forth in section 4.6.1 of this BPM and have been selected for consideration in TPP phase 2. The transmission plan will contain the results of the CAISO's evaluation of the identified GIP network upgrades. GIP network upgrades evaluated by the CAISO but not modified as part of the transmission plan will proceed to large generator interconnection agreements (LGIAs) through the GIP and will not be further addressed in the TPP. Similarly, GIP network upgrades that meet the tariff criteria but were not evaluated in the TPP will proceed to LGIAs through the GIP process.

### **4.6.4.5. Determining Needed Solutions**

#### **4.6.1.4.5.1. Determining Reliability Solutions**

The CAISO relies on the following guidelines for approving a proposal as an appropriate solution:

- (a) **Need** – The analysis demonstrates that mitigation is needed to be in place to ensure compliance with applicable planning criteria.
- (b) **Sufficient Data** – Sufficient information is required to be provided on each of the mitigation proposals to allow for a comparable assessment against other alternatives. The data requirements are defined in greater detail in section 4.4.3 of this BPM.
- (c) **Technically Sound** – The suggested alternatives must demonstrate an ability to eliminate the identified system performance issue(s) based on a technically sound approach. This requires that the proposed alternatives utilize technology and innovation that has been accepted by the industry. In cases where a new technology has been proposed as a preferred alternative, sufficient proof demonstrating that the alternative will work reliably, efficiently, and comply with all applicable planning standards will be required as part of the approval process.
- (d) **Cost-Effective** – The CAISO will determine the solution that meets the identified reliability need in the more efficient or cost-effective manner. The preferred alternative shall be an economically efficient approach to resolve the identified system performance issue(s). Generally, this requires the most cost effective solution to meet the identified reliability need; however, in some circumstances, the CAISO may not select the most cost effective solution to meet a specific need if the CAISO finds that another approach appears to be a more efficient overall solution for the system. For example, if the analysis identifies that several system performance issues in the same vicinity can be anticipated in the future, the CAISO may recommend transmission upgrades or additions to eliminate all system performance issues at the same time rather than incrementally addressing each system performance issues in a potentially piece-meal fashion.

The PTO with a service territory will be responsible for financing, constructing or owning a reliability solution that constitutes an upgrade to an existing PTO facility. Other reliability solutions are eligible for competitive solicitation.

#### **4.6.2.4.5.2. Determining Merchant Transmission Facility Projects**

Currently, any market participant, group of market participants or a PTO may act as a project sponsor to identify a possible transmission upgrade and seek its incorporation into the TPP for ultimate approval and construction as a merchant transmission facility. A merchant transmission facility is a transmission upgrade or addition that is part of the CAISO balancing authority area where the project sponsor does not seek cost recovery through the CAISO's transmission access charge, but rather funds the project itself and recovers its costs through an allocation of incremental merchant transmission CRRs. The CAISO will deem a merchant transmission facility to satisfy the tariff upon satisfaction of three elements:

- Mitigation of operational concerns
- Mitigation of any impact from the merchant transmission facility project that impairs the continuing feasibility of allocated long-term CRRs over the length of their terms; and
- Proof that the project sponsor is financially able to pay the construction and operating costs of the merchant transmission facility by requiring (1) a demonstration of creditworthiness (e.g. an appropriate credit rating), or (2) sufficient security in the form of an unconditional and irrevocable letter of credit or other similar security sufficient to meet its responsibilities and obligations for the full costs of the transmission addition or upgrade.

Accordingly, the CAISO and affected PTO will perform technical studies to determine whether and how the project can be safely and reliably integrated with the CAISO balancing authority area. Further, detailed facilities studies are performed by the PTO with PTO service territories who own the existing transmission facilities to which the new project would interconnect. In general, within thirty (30) days after the CAISO has determined a merchant project submission is valid, the PTOs who will conduct the study will be notified regarding each merchant project proposal. These studies will be performed at the expense of the project sponsor pursuant to provisions of the transmission owner tariff of the applicable PTO.

#### **4.6.3.4.5.3. Determining Location Constrained Resource Interconnection Facilities (LCRIF)**

The requirements for approval or conditional approval of a LCRIF are set forth in detail in CAISO tariff section 24.4.6.3 and in section 4.4.3.2 of this BPM.

#### **4.6.4.4.5.4. Determining Transmission Needed to Maintain the Feasibility of Long-Term CRRs**

The PTO's proposed transmission mitigations for long-term CRRs issue must address long-term CRRs issues that were identified from the CAISO study results, as described in section 4.4.1.5 of this BPM. In assessing the need for transmission solutions to maintain the feasibility of allocated long-term CRRs, the CAISO, in coordination with the PTO and other market participants, shall consider lower costs alternatives to the construction of transmission solutions, such as

acceleration or expansion of existing transmission solutions, demand-side management, remedial action schemes, constrained-on generation, interruptible loads, or reactive support. Additionally, in cases where the infeasibility involves a small magnitude of megawatts, the CAISO may consider ensuring against the risk of any potential revenue shortfall using the CRR balancing account and uplift mechanism described in CAISO tariff section 11.2.4. As part of the TPP, the PTO's and market participants shall provide the necessary assistance and information to the CAISO to allow it to assess and identify transmission solutions that may be necessary under CAISO tariff section 24.4.6.4. The CAISO will determine the solution that meets the identified need to maintain the feasibility of long-term CRRs in the more efficient or cost effective manner.

#### **4.7.4.6. Determining Policy-Driven Transmission Solutions**

Once the request window is closed ~~and comments on the conceptual statewide plan have been received~~, the CAISO will identify all solutions needed to maintain reliability, as well as LCRIF solutions eligible for conditional or final approval, solutions to maintain long-term CRRs, qualified merchant transmission facility projects, and needed GIP network upgrades.

The CAISO then shall evaluate transmission solutions needed to meet state, municipal, county or federal policy requirements or directives as specified in the study plan. Once the policy-driven solutions have been determined, the CAISO will include identified policy-driven solutions in the draft transmission plan.

##### **4.7.1.4.6.1. Criteria for Determining Policy-Driven Solutions**

As described in CAISO tariff section 24.4.6.6, the CAISO will determine the need for policy-driven transmission solutions to meet state, municipal, county, or federal policy requirements or directives, as specified in the study plan pursuant to the CAISO tariff using the following criteria, in conjunction with the methodology described in section 4.8.261 of this BPM:

- (a) Commercial interest in the resources in the applicable geographic area (including renewable energy zones) accessed by potential transmission solutions as evidenced by signed and approved power purchase agreements and interconnection agreements;
- (b) The results and identified priorities of the CPUC's or California Local Regulatory Authorities' resource planning processes;
- (c) The expected planning level cost of the transmission solutions as compared to the potential planning level costs of other alternative transmission solutions;
- (d) The potential capacity (MW) value and energy (MWh) value of resources in particular zones that will meet the policy requirements, as well as the cost supply function of the resources in such zones.
- (e) The environmental evaluation, using best available public data, of the zones that the transmission is interconnecting as well as analysis of the environmental impacts of the transmission solutions themselves;
- (f) The extent to which the transmission solutions will be needed to meet Applicable Reliability Criteria or to provide additional reliability or economic benefits to the CAISO grid;
- (g) Potential future connections to other resource areas and transmission solutions;

- (h) Resource integration requirements and the costs associated with these requirements in particular resource areas designated pursuant to policy initiatives;
- (i) The potential for a particular transmission solutions to provide access to resources needed for integration, such as pumped storage in the case of renewable resources;
- (j) The effect of uncertainty associated with the criteria described in section 4.8.1 of this BPM, and any other considerations that could affect the risk of stranded investment; and
- (k) The effects of other solutions being considered for approval during the planning process.

The CAISO will use publicly available sources for the data to support these criteria, and will seek to align its data sources with the relevant resource planning processes, such as those conducted by the CPUC.

#### **4.7.2.4.6.2. Category 1 and Category 2 Policy-Driven Solutions**

As part of the policy-driven solution evaluation process, the CAISO will designate the policy-driven solutions as either category 1 or category 2. Category 1 solutions are those that will be recommended to the CAISO Board for approval in the current TPP cycle. Category 2 solutions are identified, but are not recommended for approval in the current TPP cycle, because they will be re-assessed in the next planning cycle as candidate category 1 facilities based on new information regarding generation development and other factors related to the need for policy-driven transmission solutions.

The analytical approach for identifying category 1 and category 2 policy-driven elements will be to assess the need for transmission elements by developing a resource location scenario considered most likely to occur, considering the criteria described in section 4.8.1 of this BPM, and several reasonable stress scenarios that will be compared to the baseline scenario.

The baseline and stress scenarios will be developed and promulgated by the CAISO in part through consideration of the latest data on each tariff criterion with respect to the policy objective creating the need to plan for additional transmission infrastructure. The CAISO will weight its consideration of these criteria in certain ways. For example, with respect to the commercial interest criteria, and assuming that the policy goal is the implementation of renewable energy portfolio standards, a preferred set of resources for long-term procurement planning could be developed as a priority set for consideration. This preferred set of resources could be based on consideration of power purchase agreements, interconnection agreements, permitting status, and other factors, including the environmental assessment of the resource locations. Additionally, the CAISO will have completed GIP phase II interconnection studies for the current interconnection cluster, and the network upgrades identified in these studies may become part of the “baseline” set of transmission solutions determined to be needed under expected resource development scenarios (along with reliability and long-term -CRR solutions) before identifying any additional transmission needed to achieve the designated policy goals. Hence, transmission solutions needed to interconnect and deliver the preferred set (or an alternative set of high ranked commercial solutions developed through other criteria) over and above the baseline transmission upgrades would become the starting point for determining category 1 policy solutions.

Starting from the baseline set of transmission solutions described section 4.8.2 of this BPM, the CAISO will make further determinations to modify the specifications of the transmission solutions, and identify additional policy-driven solutions as needed, to accommodate the base and stressed scenarios described in section 4.8.2 of this BPM. For example, if a 230 kV transmission line has

been identified in phase II GIP studies to interconnect resources with high commercial interest in zone A, and zone A has substantial additional resource development potential as represented in the base and stressed scenarios described in section 4.8.2 of this BPM, then the CAISO will consider increasing the size of the proposed GIP network upgrade to 500 kV.

Those candidate solutions that are included in the baseline scenario and at least a significant percentage of the stress scenarios will be classified as category 1 transmission solutions. Candidate solutions that are included in the base case and an insignificant percentage of the stress scenarios, or no stress scenarios, will be considered category 2 solutions unless the CAISO determines that sufficient analytic justification exists to designate them as category 1. Information including but not limited to the estimated cost, permitting and construction time period, and need date would be considered in the decision to upgrade a solution from category 2 to category 1 or also from category 1 to category 2. Category 1 solutions that are regional transmission facilities, excluding solutions that are upgrades to existing transmission facilities, are eligible for competitive solicitation.

#### **4.8.4.7. Economic Studies & Mitigation Solutions**

Once the CAISO has identified the reliability-driven solutions, LCRIF solutions eligible for conditional or final approval, qualified merchant transmission facilities and policy-driven transmission solutions, the CAISO will conduct economic planning studies to meet planning objectives as defined in the study plan. Additional economic studies will be performed, as needed, to determine whether additional transmission solutions should be added to the draft transmission plan, or whether initially identified solutions should be modified. The policy-driven solutions and the economically-driven solutions will be developed in an integrated fashion, not sequentially, although the logic and criteria for identifying these solutions is described in sections 4.8 and 4.9 of this BPM, respectively.

Based on the results of these studies, the CAISO will include any identified economically-driven transmission solutions that mitigate congestion or address other economic needs as identified by the CAISO's economic planning studies in the draft transmission plan along with the other needed transmission solutions. Economic solutions that are regional transmission facilities, excluding solutions that are upgrades to existing facilities, are eligible for competitive solicitation.

##### **4.8.1.4.7.1. Conducting Economic Studies and Determining Economic Solutions**

The primary focus of the CAISO economic planning studies is to identify solutions needed to address expected transmission congestion in the CAISO controlled grid based on the solutions specified in the draft transmission plan developed in the prior TPP cycle. Thus, these studies will provide the basis for identifying additional cost-effective transmission solutions to mitigate such congestion, as well as other congestion that might be identified in the current cycle. This will be accomplished by simulating future system conditions and considering historical congestion occurrences, local capacity area resource requirements, other expected grid conditions consistent with the unified planning assumptions, and other data submitted through the request window, such as the long-term power supply plans for long-term CRR purposes. The studies will utilize production simulation cost software using security-constrained unit commitment and security-constrained economic dispatch approaches to provide a viable framework for realistic market

conditions. The quantification of potential benefits will be consistent with CAISO's transmission economic analysis methodology (TEAM) approach.

The CAISO will perform the high priority economic planning studies in each planning cycle as identified in the study plan. These studies will consider:

- Expansion or acceleration of previously approved transmission solutions, and
- New proposed upgrades or conceptual solutions that can relieve the constraint.

In order to efficiently manage requests for economic studies, the CAISO intends to maximize the use of a batch or cluster approach to perform the high priority economic planning studies.

The CAISO intends to coordinate high priority economic planning study efforts with regional planning groups and where appropriate, TEPPC at the regional planning level. For example, congestion observed in the CAISO balancing authority area may impact multiple entities within and adjacent to the CAISO and should be addressed on a sub-regional basis.

Economically-driven solutions which the CAISO determines to be needed as mitigation solutions using the economic study methodology described section 4.9 of this BPM will be described in the transmission plan using the engineering details discussed in section 4.12.2.2 of this BPM.

#### **4.9.4.8. Interregional Transmission Project Assessment**

Following the submission and screening of interregional transmission projects outlined in section 3.4.2, the CAISO will conduct a joint analysis with the relevant planning region(s) over a two year evaluation cycle, which could be concluded earlier if all relevant planning regions complete their assessment to allow an earlier decision. However, because the CAISO's evaluation must be coordinated with the other relevant planning regions, the CAISO's evaluation cannot be concluded until all relevant planning regionals complete their assessments.

##### **4.9.1.4.8.1. Even Year – ITP Submission**

During the planning cycle in which an interregional transmission project is submitted (even year), the CAISO will make a preliminary assessment as to whether the submitted project could potentially meet a CAISO-identified regional need by eliminating or deferring the need for a regional transmission solution. This process and how it aligns with the existing TPP is shown in [Figure 4-3](#)[Figure 4-2](#) of this BPM.

Figure 4-3: Even Year Interregional Coordination Process

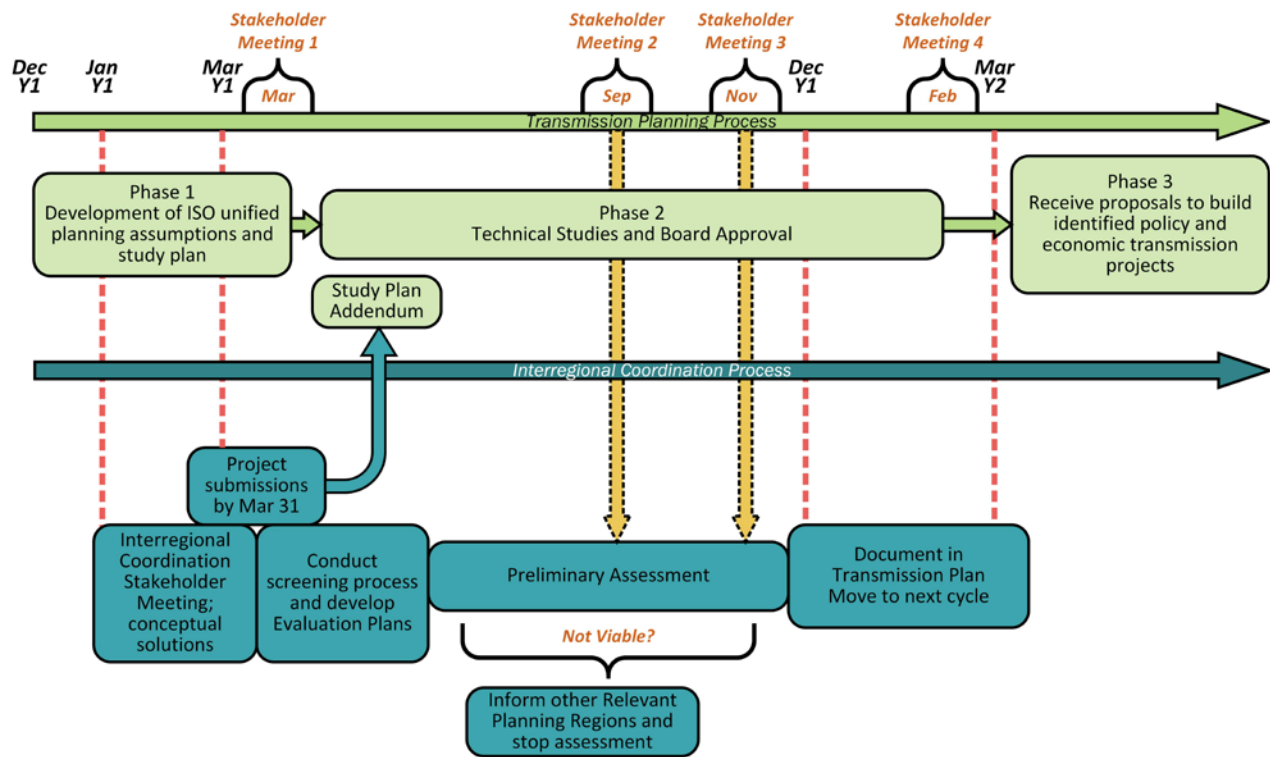
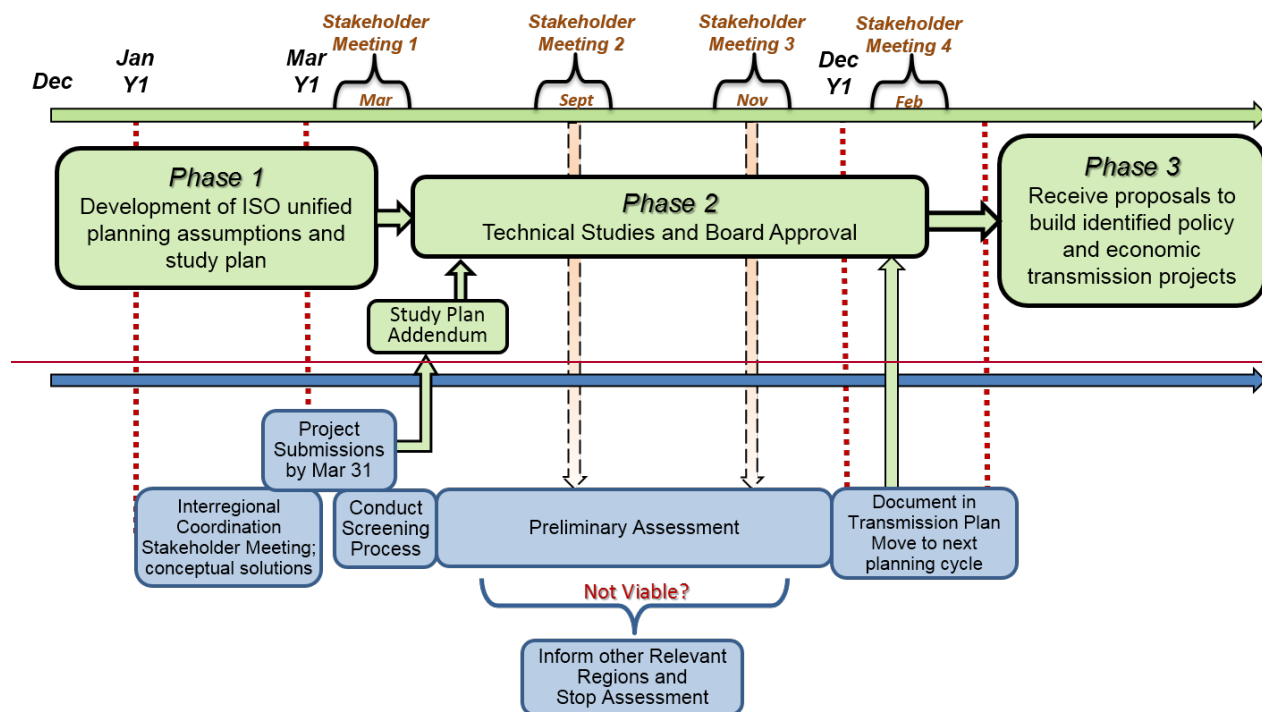


Figure 4-3: Even Year Interregional Coordination Process





Stakeholders may submit interregional transmission projects beginning on January 1 through March 31<sup>st</sup> as outlined in section 3.4.2. For project submittals that the CAISO has found to comply with the data requirements described in section 3.4.2.1 the CAISO will participate in a coordinated ITP evaluation process with other relevant planning region(s) until such time that the CAISO determines that the ITP has not been selected in the CAISO’s transmission plan as a more efficient or cost effective alternative to meet a CAISO-identified need or the other relevant planning region(s) determines that the ITP will not be selected in their regional plan. The coordinated ITP evaluation process constitutes the joint coordination of the regional planning processes that evaluate the ITP for inclusion in the regional plan of the relevant planning region(s). The goal of the coordinated ITP evaluation process is to achieve consistent planning assumptions and technical data of an ITP to be used in the relevant planning region(s) individual regional evaluations of an ITP.

**4.9.2.4.8.2. Even Year – ITP Assessment**

After the ITP submittal window has closed and the ITP submission validation process has been completed, the CAISO will post an addendum to the current transmission planning process final study plan outlining the projects that it will assess in that planning cycle and the projects that were submitted but deemed as not meeting the screening criteria. Within 75 days (approximately June) following the submittal deadline, provided the other relevant planning region(s) have provided the CAISO their information, the CAISO along with the relevant planning region(s) will select a lead planning region for the coordination effort and develop and post a coordinated ITP evaluation process plan that will include but not be limited to common study assumptions, data, methodologies, cost assumptions and a schedule for determining the selection of an ITP; and meet as identified in the plan or as needed during the evaluation process. Prior to posting the

evaluation process plan, the CAISO will host a stakeholder meeting, either in-person or by conference call, to go over the evaluation plan and receive stakeholder input. This stakeholder meeting may include participation by the other relevant planning regions.

Through the coordinated ITP evaluation process the CAISO other relevant planning region(s) will confer with or notify each other regarding the following:

- (a) Interregional transmission project data and projected interregional transmission project costs;
- (b) Study assumptions and methodologies that will be used to evaluate ITP pursuant to their regional transmission planning process;
- (c) Assumptions and inputs to be used for the purpose of determining the benefits in accordance with its regional cost allocation methodology, as applied to the ITP;
- (d) CAISO's regional benefits stated in dollars resulting from the interregional transmission project, if any; and
- (e) Assignment of costs of the interregional transmission project to each relevant planning region using the regional cost allocation methodology
- (f) Seek to resolve with the other relevant planning region(s) any differences related to the interregional transmission project data or information specific to other relevant planning region(s) insofar as such differences may affect the CAISO's or other relevant planning region's analysis. Upon the resolution of any differences, if any, the CAISO will make a preliminary assessment as to whether the submitted project could potentially meet a CAISO-identified regional need by eliminating or deferring the needs for a regional transmission solution.

As illustrated in Figure 10-1 the CAISO will share information about its ITP analysis with stakeholders through its regularly scheduled stakeholder meetings, as applicable. During the planning cycle in which an ITP is submitted, the CAISO will make a preliminary assessment as to whether the submitted project could potentially meet a CAISO-identified regional need by eliminating or deferring the need for a regional transmission solution. The CAISO, working with its stakeholders, will develop an initial estimate of the benefits, in dollars, of the CAISO share of the costs of the ITP, determine whether it meets the regional reliability, economic, or public policy need identified by the CAISO in the TPP, and will use this information to determine whether the ITP will more cost effectively or efficiently address the regional transmission need identified in the CAISO's transmission plan. The CAISO's determination will consider and compare the benefits and costs of the regional transmission solution and the estimated CAISO benefits and CAISO costs of the ITP which eliminates or defers the regional need. If the ITP could potentially meet a CAISO-identified regional need more cost-effectively and efficiently than the regional transmission solution and the project proponent has properly requested Interregional Cost Allocation from each relevant planning region, the CAISO will confer with the relevant planning regions to determine the assignment of ITP costs to the CAISO. Based on this initial assessment of ITP benefits, the CAISO cost share assignment and the urgency of the need for a regional transmission solution, the CAISO will determine whether to further evaluate the project during the next planning cycle. If the CAISO determines that the need for the regional solution is not urgent, the CAISO will defer approval of the regional solution until the ITP assessment is concluded in the second cycle. If at any time during an ITP evaluation process the CAISO determines that the ITP will not meet any of its identified regional transmission needs, the CAISO will immediately notify the other relevant planning regions(s) of its determination, after which the CAISO will have no further obligation to

participate in the joint evaluation of the interregional transmission project with the other planning region(s).

#### **4.9.3.4.8.3. Odd Year Assessment Process**

Based on the initial assessment of ITP benefits, the CAISO cost share assignment and the urgency of the need for a regional transmission solution, the CAISO will determine whether to further evaluate the project during the odd year of the planning cycle. The odd year assessment process and how it aligns with the existing TPP is shown in ~~Figure 4-4~~Figure 4-3 of this BPM.

Figure 4-4: Odd Year Interregional Coordination Process

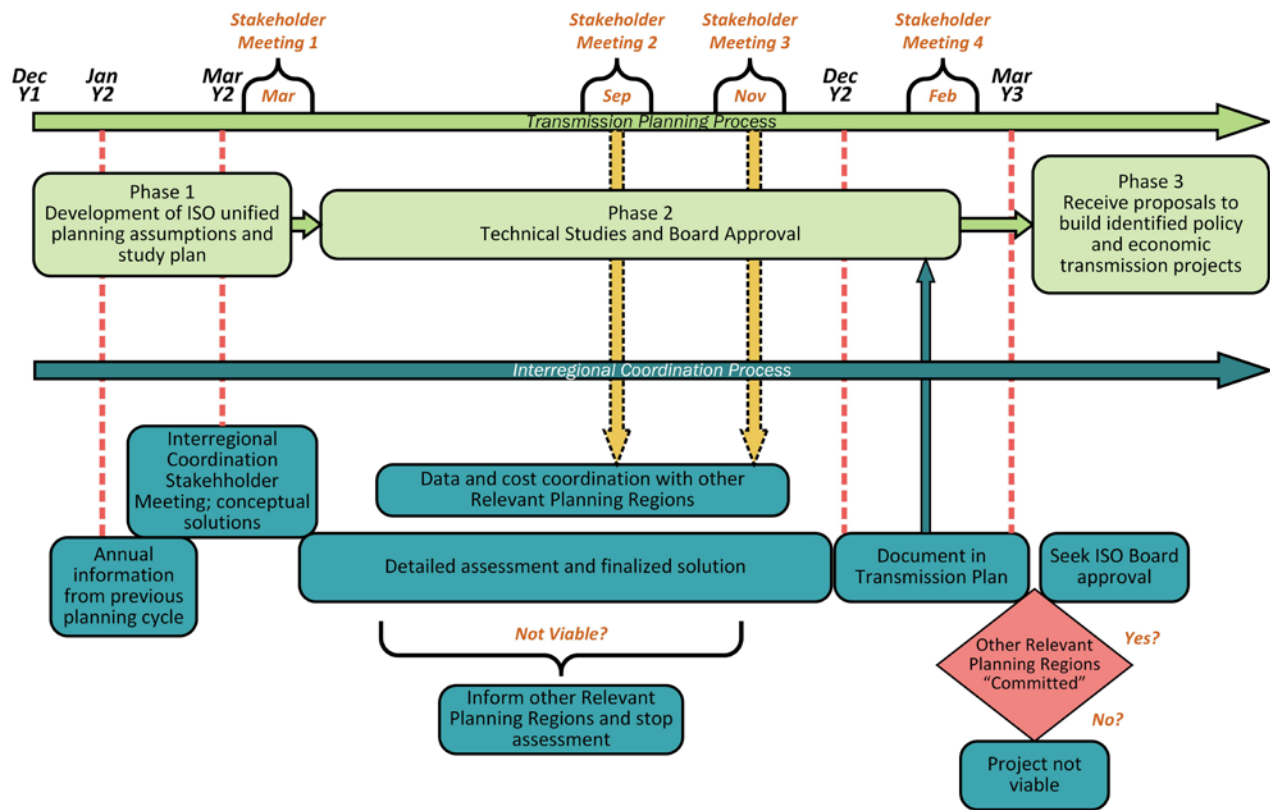
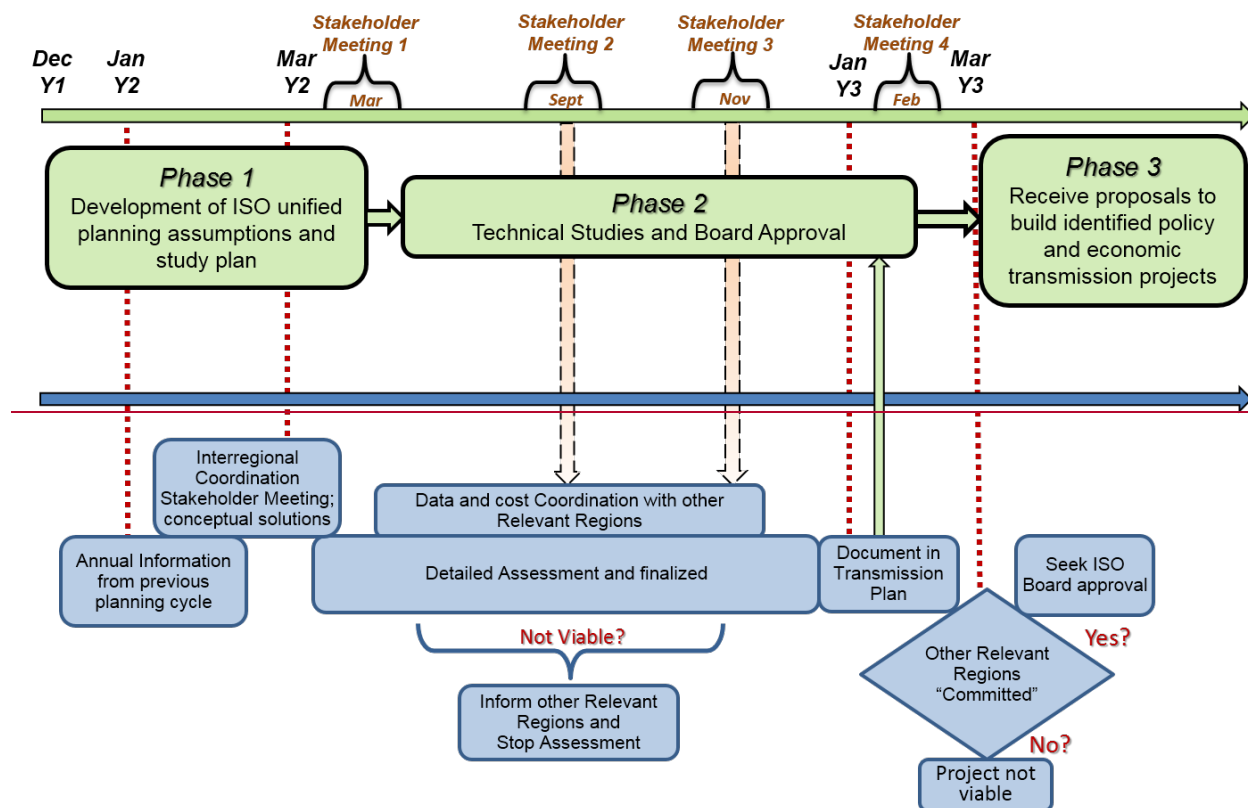


Figure 4-4: Odd Year Interregional Coordination Process



During the second planning cycle after an interregional transmission project is submitted (odd year), the CAISO will conduct a more in-depth analysis of the project proposal, which will include consideration of the timing in which the regional solution is needed and the likelihood that the proposed interregional transmission project will be constructed and operational in the same timeframe as the regional solution. The CAISO will also determine the regional benefits of the interregional transmission project to the CAISO that will be used for purposes of allocating any costs of the ITP to the CAISO. The CAISO will determine those regional benefits to the CAISO, in dollars, by calculating the following:

- the net cost (cost of regional transmission solution minus its economic benefits determined in accordance with tariff section 24.4.6.7 for which it eliminates or defers the regional need, plus
- the regional economic benefits of the interregional transmission project determined in accordance with tariff section 24.4.6.7.

If the CAISO determines that the proposed ITP is a more efficient or cost effective solution to meet a CAISO-identified regional need and the ITP can be constructed and operational in the same timeframe as the regional solution, the CAISO will identify such solution as the preferred solution in the CAISO transmission plan. The CAISO will also identify the regional transmission additions or upgrades that were initially identified but were eliminated by selecting the interregional transmission project.

Once an ITP has been selected in the CAISO transmission plan (and such transmission plan is approved by the CAISO Board of Governors) and the transmission plans of all relevant planning regions, the CAISO will seek to coordinate with the project proponent, the other Relevant

Planning Regions and all affected transmission providers to address project implementation issues, including but not limited to project financing, cost overruns, ownership and construction, operational control, scheduling rights and other matters related to the Interregional Transmission Project.

#### **4.10.4.9. Third Stakeholder Meeting**

During the fourth quarter of each calendar year and before the draft transmission plan is posted, the CAISO will conduct a third public meeting to provide updates on the development of the draft transmission plan and any policy-driven solutions that have been identified at that time. The CAISO also will provide stakeholders with updates as to the status of the economic studies and will provide economic study results, if available. Meeting details will be provided via market notice, including the time and date of the meeting and other information.

#### **4.11.4.10. Transmission Plan**

##### **4.11.1.4.10.1. Stakeholder Consideration of the Draft Transmission Plan**

The CAISO will develop a draft transmission plan based on the technical and economic study results, evaluation of the solutions submitted through the request window, the results of the CAISO's evaluation of GIP network upgrades, ~~comments and proposed recommendations regarding the conceptual statewide plan~~ and the criteria for determining policy-driven transmission solutions. The draft transmission plan will be posted on the CAISO website and presented to stakeholders for review and comment during the 4th public meeting which will be held in the first quarter (approximately February) of each year. After collecting stakeholder comments, the revised draft transmission plan will be presented to the governing board for approval in March of each year. Once approved, the CAISO will post the board-approved transmission plan on the CAISO website and advise interested parties of the website location.

At the same time, the CAISO will request the PTO, to which board-approved regional transmission facilities subject to competitive solicitation will connect, to perform detailed engineering analyses to determine short circuit mitigation and system protection requirements associated with each regional transmission facility subject to competitive solicitation.

##### **4.11.2.4.10.2. Transmission Plan Contents**

###### **4.11.2.1.4.10.2.1. Transmission Solutions**

The draft transmission plan will contain a description of all transmission solutions that are needed to address the objectives that are defined in the study plan. Specific solutions and project sponsors will be described according to the following categories:

- Solutions with capital costs of \$50 million or more for which the CAISO has completed all necessary studies.
- Solutions with capital costs of less than \$50 million that have been approved by CAISO management.
- Solutions for which additional studies are required. These solutions will be presented to the board for approval following completion of the studies. Such approvals or

conditional approvals may occur at any time after the board-approved transmission plan has been posted. Solutions with capital costs less than \$50 million for which the CAISO evaluation is complete and which have been recommended for approval will be presented to CAISO executive management in the fourth quarter of each cycle. However, CAISO executive management may consider approval of a solution with capital costs of less than \$50 million on an expedited basis if the following conditions are met: (1) there is an urgent need for the solution; (2) there is a high degree of certainty that the solution will not conflict with other solutions being evaluated in Phase 2; and (3) the need to accelerate the solution is being driven by the CAISO's evaluation process or external circumstances. Under these circumstances, solutions that require an earlier approval will be presented for stakeholder review at the 2nd or 3rd stakeholder meeting and CAISO management will brief the governing board at regularly-scheduled or special session. If the solution includes regional transmission facilities eligible for competitive solicitation, the CAISO may accelerate the competitive solicitation process as described in section 5.8 of this BPM.

- ITPs recommended for CAISO Board approval that are more efficient or cost effective solutions to meet a CAISO-identified regional need than the identified regional solutions and that can be constructed and operational in the same timeframe as the regional solutions, the CAISO will identify the ITP as the preferred solution and recommend it for approval by the CAISO Governing Board in the TPP. The CAISO will document regional solutions that are recommended to be further considered in the next planning cycle or that were initially identified but were eliminated by selecting the ITP in the draft transmission plan. It is possible that an interregional project evaluation can be completed in an even year if all relevant planning regions complete their assessments to allow for an earlier decision.

#### **4.11.2.2.4.10.2.2. Description of Solutions Eligible for Competitive Solicitation**

The CAISO will provide sufficient information about regional transmission facilities subject to the competitive solicitation process with sufficient engineering detail to permit project sponsors to submit complete proposals to build the identified regional transmission facility. Such details may include, but are not limited to:

- (a) Minimum conductor ampacity,
- (b) Approximate line impedance required;
- (c) Approximate series compensation levels;
- (d) Substation bus and breaker configuration;
- (e) Breaker clearing times;
- (f) Transformer characteristics (capacity, impedance, tap range);
- (g) Minimum shunt capacitor and reactor sizes;
- (h) Minimum FACTS device specifications;
- (i) SPS requirements;
- (j) Planning level cost estimates; and

- (k) Projected in-service date.

#### **4.11.2.3-4.10.2.3. Other Transmission Plan Information**

The draft transmission plan also may include:

- (a) Results of technical studies performed under the study plan;
- (b) Determinations and recommendations regarding the need for identified transmission solutions and their identification as either local or regional transmission facilities;
- (c) Assessments of solutions submitted as alternatives to the potential solutions to needs identified by the CAISO;
- (d) Results of economic planning studies and other studies;
- (e) Updates on the status of transmission solutions previously approved by the CAISO, including identification of mitigation plans, if necessary, to address any potential delay in the anticipated completion of an approved transmission upgrade or addition;
- (f) description of transmission solutions with an estimated capital investment of \$50 million or more for which additional studies are required before being presented to the CAISO Governing Board for approval following completion of the studies; and
- (g) A description of category 2 transmission solutions recommended for consideration in future planning cycles.

#### **4.11.3-4.10.3. Posting Key Selection Criteria**

Within 30 days after the draft transmission plan has been posted, the CAISO will post, for each regional transmission facility identified in the plan that is subject to competitive solicitation, those qualification and selection criteria, in addition to binding cost containment commitments, that the CAISO considers to be key for the purposes of selecting a project sponsor for each facility. The qualification and selection criteria are set forth in CAISO tariff sections 24.5.3.1, 24.5.3.2 and 24.5.4, and the selection process is described in further detail in section 5 of this BPM below. The CAISO posts the key selection criteria for informational purposes only and is intended to provide potential project sponsors with the information needed to complete the project applications and to highlight specific topics to which project sponsors should pay particular attention. The key selection criteria posting shall not replace or be inconsistent with the CAISO's obligation under CAISO tariff Section 24.5.4 to undertake a comparative analysis of each project sponsor with respect to qualification and selection criteria.

The CAISO will develop the key selection criteria by considering: (1) the nature, scope and urgency of the need for the solution; (2) expected severity of siting or permitting challenges; (3) the size of the transmission solution, potential financial risk, expected capital cost magnitude, cost overrun potential and the ability of a project sponsor to contain costs; (4) degree of permitting, rights-of-way, construction, operation and maintenance difficulty; (5) risks associated with the construction, operation and maintenance of the solution; (6) technical and engineering difficulty or whether specific design is required; (7) special circumstances or difficulty associated with the topography, terrain or configuration; (8) specific facility technologies or material associated with the transmission solution; (9) binding cost containment measures, including cost caps; (10) abandonment risk; and (11) whether the overall cost of the transmission solution impacts the CAISO's prior determination of the more cost effective or efficient solution in TPP Phase 2.



#### **4.11.4.4.10.4. CAISO and Board Approval Process**

Once stakeholders have had an opportunity to submit comments on the draft transmission plan, the CAISO will make appropriate revisions to the revised draft plan and present it to the board for approval at the March board meeting each year which will include interregional transmission projects recommended for further consideration and interregional transmission projects that are recommended as needed. Upon approval of the plan all transmission solutions identified in the plan that have not already been approved by CAISO management will be deemed approved by the board. The board-approved transmission plan may also include a description of transmission solutions for which additional studies are required before being presented to the board for approval following completion of the studies. The specific approvals or conditional approvals for these solutions can occur after the board-approved transmission plan is posted and before the completion of the next planning cycle. If, after completion of the additional studies, it is determined that the transmission solutions should be submitted to the board for approval, the CAISO will amend the board-approved transmission plan and post it on the website prior to the board meeting at which approval is sought. If the board approves transmission solutions that include regional transmission facilities subject to the competitive solicitation process set forth in section 5 of this BPM, the CAISO will initiate the process in the month after the board approves the amendment.

Transmission solutions recommended for board approval will be deemed approved once the board has ruled on the revised draft plan. Following board approval, the CAISO will post the board-approved transmission plan to the CAISO website and advise interested parties of the website location. The CAISO will independently provide the board-approved transmission plan to representatives from neighboring transmission providers or interconnected balancing authority areas and sub-regional and regional planning groups to facilitate transmission expansion coordination.

#### **4.12.4.11. Compliance with NERC Reliability Standards**

The transmission plan will be used by the CAISO as part of the documentation of compliance with the NERC and WECC reliability standards applicable to the CAISO as a planning coordinator. The role and function of the planning coordinator is defined in the NERC functional model.

Technical study results will be measured against the following planning standards to quantify system performance and justify transmission solutions:

- NERC Transmission Planning Standards
- WECC Regional Standards and Criteria
- CAISO Planning Standards
- Other applicable NERC and WECC Standards

#### **4.12.1.4.11.1. NERC Reliability Base Cases Developed by the PTOs**

PTOs within the CAISO balancing authority area, registered as transmission planners as defined by the NERC functional model, are responsible for developing the base cases that represent their systems for NERC compliance assessments, pursuant to the requirements of the applicable NERC reliability standards.

#### **4.12.2.4.11.2. NERC Reliability Assessments Performed by the CAISO and PTOs**

The CAISO and the PTOs are each responsible for performing NERC reliability assessments using the base cases developed by the PTOs and integrated into the CAISO balancing authority area-wide base cases. These assessments must be conducted according to the study plan, the time schedule set forth in section 2 of this BPM, and according to attachment 2 of this BPM. These assessments begin upon the finalization of the study plan. The CAISO performs the NERC reliability assessment for the entire balancing authority area.

#### **4.12.3.4.11.3. Reliability Assessment Results**

Results from the reliability assessments will identify facilities with thermal overloads, voltage concerns, stability concerns, or ensure that system performance can be met according to the requirements of the NERC transmission planning standards, the WECC transmission planning system performance criteria, and the CAISO planning standards over the ten (10) year planning horizon. Study results will be measured against the applicable planning standards to determine if system performance criteria have been met. If system performance criteria have not been met, the CAISO will identify the thermal overloads, voltage concerns, or stability concerns, and will propose mitigation solutions to address the identified reliability issues. In accordance with section 4.4.1.1 of this BPM, reliability-driven transmission solution proposals that would resolve the transmission needs identified by the CAISO shall be submitted through the request window for the transmission planning cycle in which the needs were identified.

## 5. Transmission Planning Process Phase 3

### 5.1. Phase 3 Overview

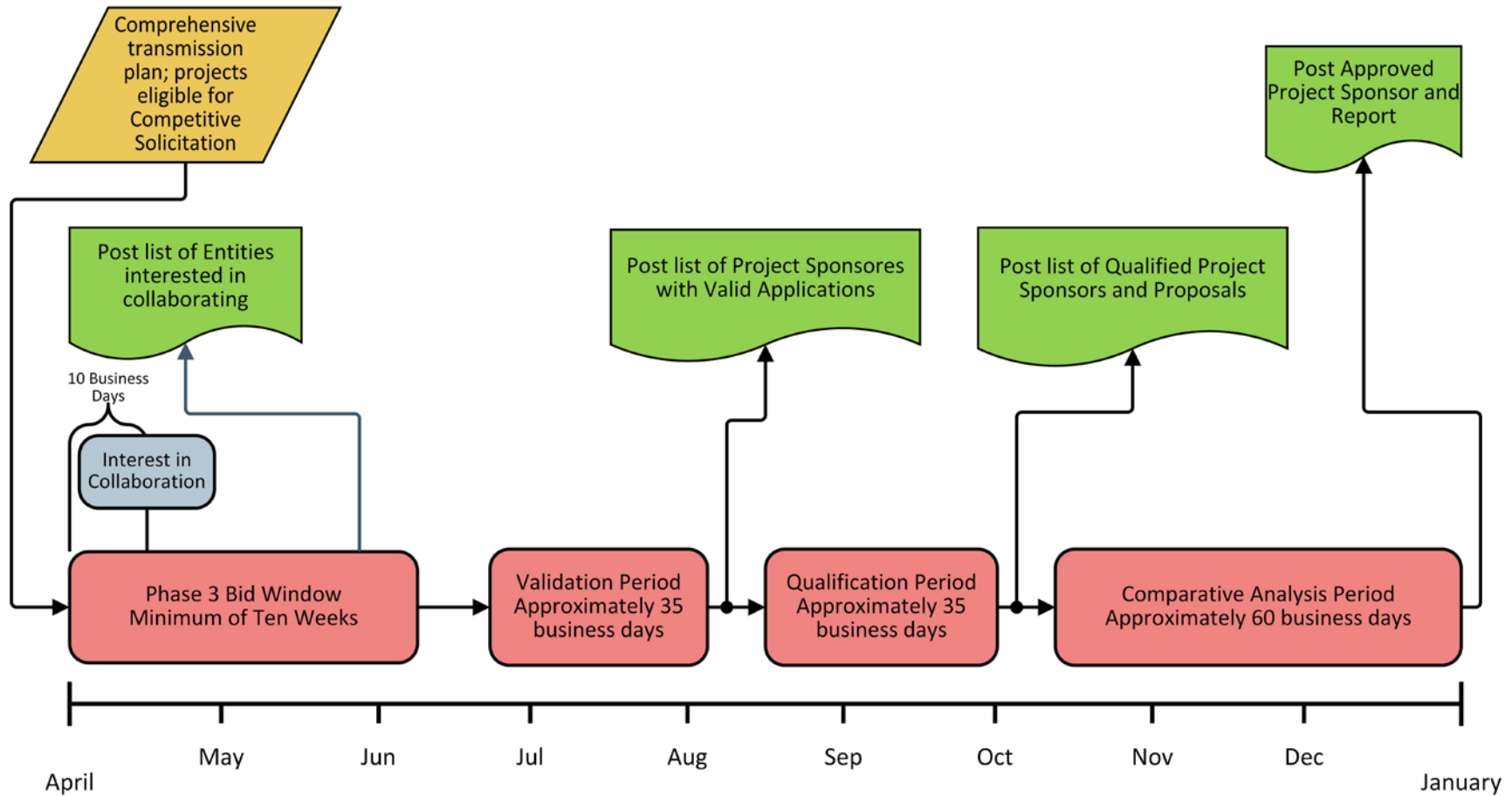
Phase 3 will take place subsequent to the end of Phase 2 if regional transmission facilities eligible for competitive solicitation were approved by the board as part of the transmission plan or in an amendment to the board-approved transmission plan.<sup>8</sup> In phase 3, the CAISO will solicit proposals to finance, construct, own, operate and maintain regional transmission facilities subject to competitive solicitation, evaluate whether the project sponsor and proposals meet the qualifications for consideration, and take the steps necessary for selecting approved project sponsor(s) according to the CAISO tariff and this BPM section. The CAISO will also solicit proposals for regional transmission facilities with capital costs of \$50 million or less that are approved by CAISO management prior to Board approval of the transmission plan. This process may be held separately from and on an accelerated basis compared to the standard Phase 3 process, depending upon the management approval date of the regional transmission facilities, and is described in section 5.8 of this BPM.

A summary of phase 3 activities is illustrated in Figure 5-1.

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<sup>8</sup> During the development of the unified study assumptions and study plan in Phase 1, as well as the transmission plan in Phase 2, the CAISO considers transmission and non-transmission alternatives as mitigation solutions for identified grid needs. Thus, the prior sections of this BPM have referred to mitigation “solutions” which can include regional transmission facilities as that phrase is defined in tariff Appendix A. Phase 3, however, focuses on regional transmission facilities that meet the tariff criteria for competitive solicitation, which is a smaller set of possible mitigation solutions. Thus, in the BPM sections that describe the competitive solicitation process and matters related to the process, the transmission mitigation solutions under consideration will be referred to as “regional transmission facilities.”

Figure 5-1: Overview of Phase 3 of the CAISO TPP

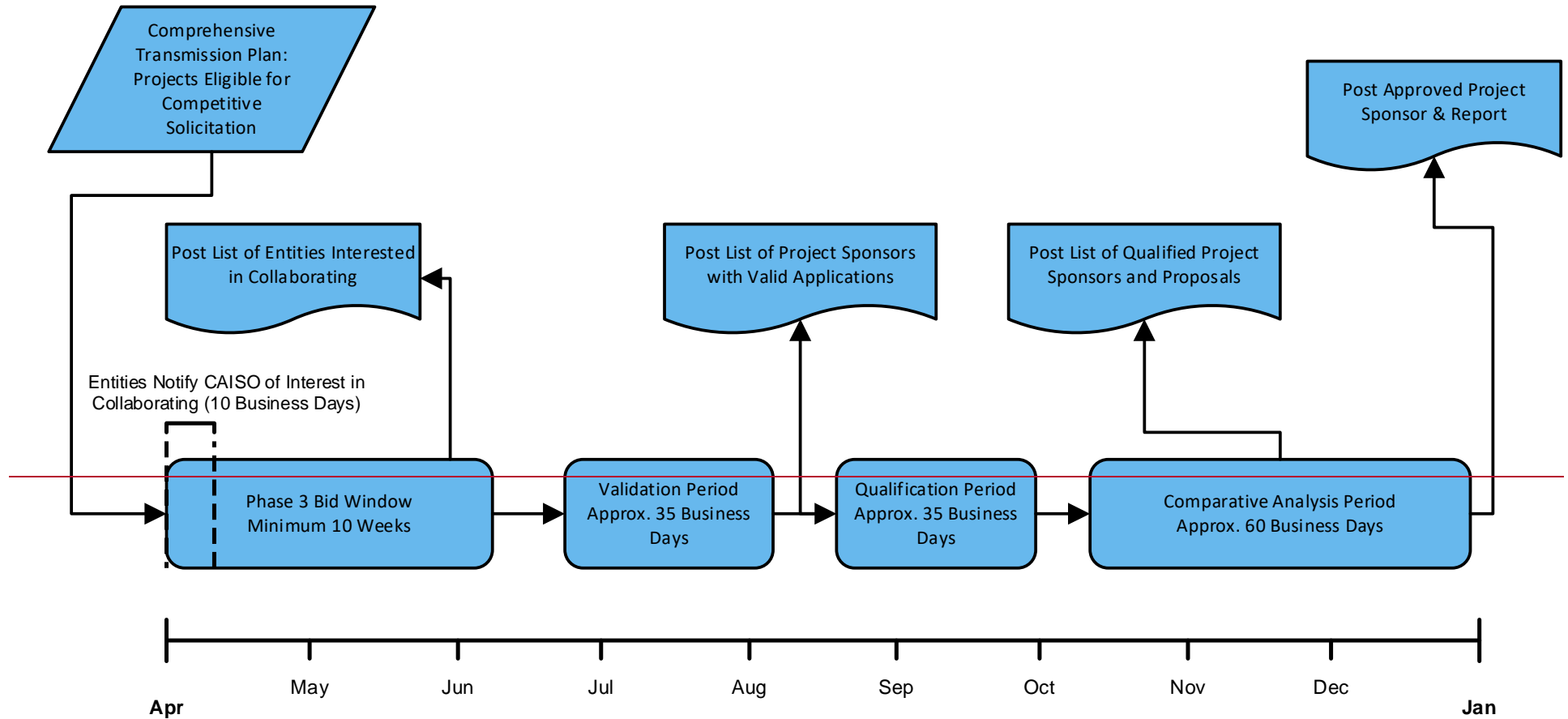


Notes:

1. The figure above is for illustrative purposes only
2. The Phase 3 Bid Window opens the month following Board approval
3. Dates may be adjusted or staggered based on number and complexity of projects

Rev. 5/25/2018

Figure 5-1: Overview of Phase 3 of the CAISO TPP



Notes:

1. The figure above is for illustrative purposes only
2. The Phase 3 Bid Window opens the month following Board approval
3. Dates may be adjusted or staggered based on number and complexity of projects

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## 5.2. Project Sponsor Solicitation

Subsequent to the board approval of the transmission plan, the CAISO will issue a market notice soliciting proposals to finance, construct, own, operate and maintain regional transmission facilities eligible for competitive solicitation. The notice will specify the bid window opening and closing dates, allowing for at least ten (10) weeks for project sponsors to submit proposal(s). The notice will provide the address to which proposals are to be submitted, reference to the locations where the requirements for proposals are available, and a contact person for additional information.

In years where there are multiple regional transmission facilities approved by the Board, the CAISO may, if necessary, stagger the bid window closing dates for proposals in order to address resource and workload issues. The CAISO will provide the staggered schedule at the opening of the bid window and include this information in the market notice issued to solicit proposals to finance, construct, own, operate and maintain regional transmission facilities eligible for competitive solicitation.

The CAISO will also post on the CAISO website a selection process schedule for each regional transmission facility eligible for competitive solicitation based on the timelines for each step of the selection process described in this section 5. The timelines serve as general guidelines and are based on the CAISO's best estimates and prior experience. The CAISO will seek to meet the original posted schedule and will notify project sponsors, and update the posted schedule if circumstances necessitate a change to the original schedule. Such notification will describe the reasons for any change.

## 5.3. Process for Submitting Project Sponsor Proposals

Proposals to finance, construct, own, operate and maintain regional transmission facilities as identified in section 5.2 of this BPM will only be considered if the project sponsor satisfactorily submits the following by the specified bid window closing date:

- \$75,000 application deposit
- Project sponsor application

A project sponsor must submit a separate deposit and application for each regional transmission facility open for competitive solicitation that the project sponsor proposes to finance, construct, own, operate and maintain. The CAISO must receive both the application and deposit by the bid window closing date or the proposal will not be accepted.

### 5.3.1. Competitive Solicitation Project Proposal Fee

Project sponsors are responsible for all actual costs on a pro rata basis that the CAISO incurs in validating, qualifying and selecting an approved project sponsor through the competitive solicitation process. This includes the cost of any expert consultants and contractors that the CAISO engages to assist with the selection process. All costs will be capped at \$150,000 (USD) per application.

### **5.3.1.1. Deposit**

Each Project Sponsor is required to pay a deposit of \$75,000 (USD) to the CAISO with the submission of each project sponsor application. Instructions for payment are included in the application. As noted before, if the project sponsor fails to pay the deposit by the bid window close date, the application will be considered incomplete and will not be considered.

### **5.3.1.2. Cost Reconciliation for Unqualified Project Sponsors**

Within seventy-five (75) days of posting the list of qualified project sponsors for each regional transmission facility as noted in section 5.4, the CAISO will determine each project sponsor's share of the costs that the CAISO incurred in validating and determining the qualified project sponsors for that regional transmission facility, and will refund to each project sponsor not included in the list of qualified project sponsors and proposals the difference between its costs, not to exceed \$150,000 per project sponsor, and the deposit. If a refund is owed the project sponsor, the refund shall include interest at the rate earned by the CAISO.

### **5.3.1.3. Reconciliation of Costs for Qualified Project Sponsors**

Within seventy-five (75) days of the CAISO's notice of the approved project sponsor as noted in section 5.6.2 of this BPM, the CAISO will determine each project sponsor's costs in validating and determining the qualified sponsors plus the costs that the CAISO incurred in selecting an approved project sponsor from among the qualified project sponsors for each regional transmission facility eligible for competitive solicitation. The CAISO will refund or charge each qualified project sponsor the difference between its costs, not to exceed \$150,000 per qualified project sponsor, and the deposit. If a refund is owed to the project sponsor, the refund shall include interest at the interest rate earned by the CAISO.

### **5.3.2. Posting Incurred Costs**

Following the reconciliation of costs noted in section 5.3.1.3 of this BPM, the CAISO will post an accounting of the costs incurred in validating, qualifying and selecting the approved project sponsor for each regional transmission facility eligible for competitive solicitation and how the deposit reconciliation for each project sponsor was calculated.

### **5.3.3. Project Sponsor Application**

The Project Sponsor shall submit completed phase 3 project sponsor application forms to the specified address, and in the format, as described in the applicable market notice. The application forms, including instructions for submission and the information and data requirements, will be posted on the CAISO website at:

<http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>. The CAISO will acknowledge receipt of the application to the applicant within three (3) business days.

#### **5.3.3.1. Opportunity for Collaboration**

Any entity interested in collaborating with another entity may notify the CAISO of its interest in collaborating within ten (10) business days after the bid window to finance, construct, own,



operate and maintain the regional transmission facility opens. The CAISO will post on its website a list, including contact information, of entities interested in collaborating. Project sponsors are not required to notify the CAISO to collaborate. After the bid window closes, there will be no further opportunity for project sponsors to collaborate.

### 5.3.3.2. Contents of Project Sponsor Applications

The project sponsor shall provide the information requested in the application, and any additional information subsequently requested by the CAISO that the CAISO finds relevant to the evaluation of the application. For each application question, if the project sponsor is submitting proposals to finance, construct, own, operate and maintain multiple regional transmission facilities open for competitive solicitation, the project sponsor should also indicate how its response would change depending on how many of its proposals are approved. For example, the project sponsor should describe how the projected in-service date of each project would be affected if the project sponsor is selected as the approved project sponsor for two or more of the regional transmission facilities eligible for competitive solicitation. To the extent a project sponsor considers any of the information submitted with its application to be confidential or proprietary; such information must be clearly identified and must include an explanation as to why the information should be handled by the CAISO as confidential. The identity of project sponsors and basic information included in the project sponsor's application is not confidential information.

The application is separated into specific sections. Each section specifies information to be provided and is assigned a unique identifier for each item of information required, for example, there are separate sections for sponsor qualifications, project qualification, environmental and public process items, substation related items, and so on.

Project Sponsors participating and desiring to become an Approved Project Sponsor shall submit an application that includes the following general information (as well as detailed information related to these general categories) in response to the questions on the application form:

- (a) The following financial information:
  - (i) A proposed financial plan demonstrating that adequate capital resources are available to the Project Sponsor to finance the transmission solution, and that constructing, operating and maintaining the facilities will not significantly impair the Project Sponsor's creditworthiness or financial condition;
  - (ii) A showing from the Project Sponsor's most recent audited financial statements that the Project Sponsor's assets are in excess of liabilities as a percentage of the total cost of the transmission solution;
  - (iii) Financial funding ratios from the most recent audited financial statements;
  - (iv) Credit arrangements between affiliated entities, including corporate parent, and compliance with regulatory restrictions and requirements; and,
  - (v) Bankruptcy, dissolution, merger or acquisition history;
- (b) The credit rating from Moody's Investor Services and Standard & Poors of the Project Sponsor, or its parent company, controlling shareholder, or any other entity providing a bond guaranty or corporate commitment to the Project Sponsor;

- (c) Information showing the Project Sponsor's ability to assume liability for major losses resulting from failure of, or damage to, the transmission facility, including damage after the facility has been placed into operation;
- (d) The projected in-service date of each transmission solution with a construction plan and timetable;
- (e) A description of the Project Sponsor's proposed engineering, construction, maintenance and management teams, including relevant capability and experience;
- (f) A description of the Project Sponsor's resources for operating and maintaining the transmission solution after it is placed in-service;
- (g) A discussion of the capability and experience of the Project Sponsor that would enable it to comply with all on-going scheduling, operating, and maintenance activities required for each transmission solution, including those required by the tariff, business practice manuals, policies, rules, guidelines, and procedures established by the CAISO;
- (h) Resumes for all key management personnel, including contractors, that will be involved in obtaining siting approval and other required regulatory approvals and for constructing, operating and maintaining each transmission solution;
- (i) A description of the Project Sponsor's business practices that demonstrate consistency with Good Utility Practice for proper licensing, designing and right-of-way acquisition for constructing, operating and maintaining transmission solutions that will become part of the CAISO Controlled Grid;
- (j) The Project Sponsor's previous record regarding construction, operation and maintenance of transmission facilities within and outside the CAISO Controlled Grid; or a detailed plan for constructing, operating, and maintaining transmission facilities in the absence of a previous record regarding construction, operation and maintenance of transmission facilities;
- (k) The Project Sponsor's pre-existing procedures and practices for acquiring and managing right of way and other land for transmission facility, or, in the absence of preexisting procedures or practices, a detailed description of its plan for right of way and other land acquisition;
- (l) A description of existing rights of way or substations upon which all or a portion of the transmission facility can be located and incremental costs, if any, that would be incurred in connection with placing new or additional facilities associated with the transmission solution on such existing rights of way;
- (m) The Project Sponsor's preexisting practices or procedures for mitigating the impact of the transmission solution on affected landowners and for addressing public concerns regarding facilities associated with the transmission solution. In the absence of such preexisting practices or procedures, the Project Sponsor shall provide a detailed plan for mitigating such impacts and addressing public concerns;
- (n) A description of the following and any related or relevant information regarding:
  - (i) a plan for addressing topography issues;
- (o) Cost containment capabilities and cost cap, if any;

- (p) Description of the Project Sponsor's plan for complying with standardized maintenance and operation practices and all applicable reliability standards;
- (q) Any other strengths and advantages that the Project Sponsor and its team may have to build and own the transmission solution, as well as any specific efficiencies or benefits demonstrated in its Project Sponsor proposal; and
- (r) The authorized government body from which the Project Sponsor will seek siting approval for the transmission solution and the authority of the selected siting authority to impose binding cost caps or cost containment measures on the Project Sponsor, as well as its history of imposing such measures.

### 5.3.3.3. Initial Filings of Project Sponsors

A Project Sponsor or Approved Project Sponsor will provide to the CAISO, Participating TOs, and Approved Project Sponsors a copy of all initial filings it submits in a FERC docket that affect the rates (including the Transmission Revenue Requirement), terms, or conditions of service for any regional transmission facility that is or was the subject of a competitive solicitation process. The Project Sponsor or Approved Project Sponsor will provide such copy either via email or first class U.S. mail on the same day it makes the filing with FERC.

A listing of Participating TOs and Approved Project Sponsors can be found on the CAISO website at <http://www.caiso.com/rules/Pages/ContractsAgreements/Default.aspx>.

### 5.3.3.4. Application Validation - Review for Completeness

After the bid window referred to in section 5.2 closes, the CAISO will review the application for completeness and validate whether the application contains sufficient information necessary to determine whether the project sponsor is qualified to be selected as an approved project sponsor for the regional transmission facility for which the project sponsor submitted a bid. The CAISO will inform the applicants by e-mail whether the application is complete (valid) or whether additional information is required. A project sponsor that is notified that an application does not include all the necessary information will have ten (10) business days from the date of such notification to submit the requested information. Any application that does not include all the necessary data and information at the expiration of the ten (10) business day period will not be further considered in the process.

### 5.3.3.5. Posting List of Valid Applications

No later than thirty five (35) business days after the bid window referred to in section 5.2 closes, the CAISO will post to its website a list of those project sponsors whose applications are valid and contain sufficient information necessary for the CAISO to determine if the project sponsor is qualified to be selected as an approved project sponsor for the regional transmission facility for which the application was submitted.

## 5.4. Project Sponsor and Proposal Qualification

### 5.4.1. Project Sponsor Qualification

After posting the list of valid applications per section 5.3.3.5 of this BPM, the CAISO will evaluate the information submitted by each project sponsor in response to qualification questions set forth in the application to determine whether the project sponsor has demonstrated that its team is physically, technically, and financially capable of (i) completing the needed regional transmission facility in a timely and competent manner, and (ii) operating and maintaining the regional transmission facility in a manner that is consistent with good utility practice and applicable reliability criteria for the life of the project. The project sponsor application questions are based on the following qualification criteria described in CAISO tariff section 24.5.3.1:

- (a) Whether the project sponsor has demonstrated that it has assembled, or has a plan to assemble, a sufficiently-sized team with the manpower, equipment, knowledge and skill required to undertake the design, construction, operation and maintenance of the Regional Transmission Facility;
- (b) Whether the project sponsor and its team have demonstrated that they have sufficient financial resources, by providing information including, but not limited to, satisfactory credit ratings, audited financial statements, or other financial indicators;
- (c) Whether the project sponsor and its team have demonstrated the ability to assume liability for major losses resulting from failure of any part of the facilities associated with the transmission solution by providing information such as letters of credit, letters of interest from financial institutions regarding financial commitment to support the project sponsor, insurance policies or the ability to obtain insurance to cover such losses, the use of account set asides or accumulated funds, the revenues earned from the transmission solution, sufficient credit ratings, contingency financing, or other evidence showing sufficient financial ability to cover these losses in the normal course of business;
- (d) Whether the project sponsor has (1) proposed a schedule for development and completion of the regional transmission facility consistent with the need date identified by the CAISO, and (2) the project sponsor has the ability to meet its proposed schedule;
- (e) Whether the project sponsor and its team have the necessary technical and engineering qualifications and experience to undertake the design, construction, operation, and maintenance of the regional transmission facility.
- (f) Whether the project sponsor makes a commitment to become a PTO for the purpose of turning the regional transmission facility that the project sponsor is selected to construct and own as a result of the competitive solicitation process over to the CAISO's operational control, to enter into the transmission control agreement with respect to the regional transmission facility, to adhere to all applicable reliability criteria and to comply with NERC registration requirements and NERC and WECC standards, where applicable.

### 5.4.2. Proposal Qualification

After evaluating the project sponsor's qualifications, the CAISO will review the information provided in the application and determine whether the proposed regional transmission facility design is qualified in accordance with CAISO tariff section 24.5.3.2 as follows:

- (a) Whether the proposed facility design is consistent with needs identified in the Transmission Plan.
- (b) Whether the proposed facility design satisfies applicable reliability criteria and CAISO planning standards.

### 5.4.3. Additional Information

If at any time the CAISO determines that it needs additional information to determine whether a proposal, to finance, construct, own, operate and maintain a regional transmission facility, meets the qualification criteria, the CAISO may request the project sponsor to submit such information. The project sponsor must provide the information within the established timeline in order to remain eligible for consideration. At a minimum, the CAISO will give project sponsors five (5) business days to submit additional information.

### 5.4.4. Posting Qualified Project Sponsors and Proposals

The CAISO will post on its website a list of the qualified project sponsors and qualified project proposals. Project sponsors that were not qualified or whose project proposal did not qualify will be given ten (10) business days to cure deficiencies in the application submission. If necessary, the CAISO will re-evaluate any additional information provided by these project sponsors and will re-post the list of qualified project sponsors and project proposals. The qualification process as described in this section 5.4 of this BPM will be completed no later than thirty five (35) business days from the end of the validation period described in section 5.3 of this BPM.

## 5.5. Disposition of Proposals

### 5.5.1. Single Qualified Project Sponsor and Proposal

If the CAISO determines that only one project sponsor, who has submitted a proposal to finance, construct, own, operate and maintain a regional transmission facility is (1) qualified to finance, construct, own, operate and maintain the project; and (2) the project proposal submitted by the project sponsor is qualified, then that project sponsor will be selected as the approved project sponsor, and must execute an approved project sponsor agreement with the CAISO within one-hundred twenty (120) calendar days of CAISO approval, unless the parties mutually agree otherwise.

### 5.5.2. Multiple Project Sponsors

If there are multiple qualified project sponsors and proposals for the same regional transmission facility, the CAISO will select one of the qualified sponsors as the approved project sponsor based on a comparative analysis of the degree to which each project sponsor's proposal meets the tariff qualification criteria and selection factors set forth in section 5.6.1 of this BPM. The CAISO will engage expert consultants to assist with approved project sponsor selection. Once selected, the approved project sponsor must execute an approved project sponsor agreement with the CAISO within one-hundred twenty (120) calendar days of CAISO approval unless the parties mutually agree otherwise.

## 5.6. Approved Project Sponsor Selection when there are Multiple Qualified Project Sponsors

### 5.6.1. Selection Factors Criteria and Comparative Analysis

The CAISO will conduct a comparative analysis to select an approved project sponsor from among multiple Project Sponsor proposals. The purpose of this comparative analysis is to select a qualified project sponsor which is best able to own, design, finance, license, construct, maintain, and operate the particular regional transmission facility in a cost-effective, efficient, prudent, reliable, and capable manner over the lifetime of the facility, while maximizing overall benefits and minimizing the risk of untimely project completion, project abandonment, and future reliability, operational and other relevant problems, consistent with good utility practice, applicable reliability criteria, and CAISO documents. To conduct this comparative analysis, the CAISO will use the qualification criteria described in CAISO tariff section 24.5.3.1 and section 5.4 of this BPM as well as the following selection factors that are set forth in CAISO tariff section 24.5.4:

- (a) the current and expected capabilities of the project sponsor and its team to finance, license, and construct the regional transmission facility and operate and maintain it for the life of the facility;
- (b) the project sponsor's existing rights of way and substations that would contribute to the regional transmission facility in question;
- (c) the experience of the project sponsor and its team in acquiring rights of way, if necessary, that would facilitate approval and construction, and in the case of a project sponsor with existing rights of way, whether the project sponsor would incur incremental costs in connection with placing the regional transmission facility on such existing rights of way;
- (d) the proposed schedule for development and completion of the regional transmission facility and demonstrated ability to meet that schedule of the project sponsor and its team;
- (e) the financial resources of the project sponsor and its team;
- (f) the technical and engineering qualifications and experience of the project sponsor and its team;
- (g) if applicable, the previous record regarding construction and maintenance of transmission facilities, including facilities outside the CAISO controlled grid of the project sponsor and its team;
- (h) demonstrated capability to adhere to standardized construction, maintenance and operating practices of the project sponsor and its team;
- (i) demonstrated ability to assume liability for major losses resulting from failure of facilities of the project sponsor;
- (j) demonstrated cost containment capability of the project sponsor and its team, specifically, binding cost control measures the project sponsor agrees to accept, including any binding agreement by the project sponsor and its (planned) team to accept a cost cap that would preclude costs for the regional transmission facility above the cap from being recovered through the CAISO's transmission access charge, and, if none of the competing project sponsors proposes a binding cost cap, the authority of the selected

siting authority to impose binding cost caps or cost containment measures on the project sponsor, and its history of imposing such measures; and

- (k) any other strengths and advantages the project sponsor and its team may have to build and own this specific regional transmission facility, as well as any specific efficiencies or benefits demonstrated in their proposal.

### **5.6.1.1. Additional Information**

If at any time the CAISO determines that it needs additional information to assess a proposal, to finance, construct, own, operate and maintain a regional transmission facility, during the comparative analysis, the CAISO may request the project sponsor to submit such information. The project sponsor must provide the information within the established timeline in order to remain eligible for consideration. At a minimum, the CAISO will give project sponsors five (5) business days to submit additional information.

### **5.6.2. Posting Approved Project Sponsor List and Selection Report**

No later than sixty (60) business days after the end of the qualification period, the CAISO will post a list identifying the approved project sponsor for each regional transmission facility under consideration in that part of the process. No later than ten (10) business days after the CAISO selects an approved project sponsor, the CAISO will post a report describing the selection of the approved project sponsor.

### **5.6.3. Transmission Interconnection Request**

Approved project sponsors that are connecting the subject regional transmission facility to facilities owned by a different transmission owner must submit a transmission interconnection request to that transmission owner to perform detailed engineering studies to determine short circuit duty mitigation and protection equipment requirements. The approved project sponsor must submit the request within sixty (60) calendar days after the selection results are posted. It is expected that this will be the same study that the CAISO requested the transmission owner to perform in section 4.12.1 of this BPM, but the study may need to be updated due to possible new technical information provided by the approved project sponsor. The approved project sponsor will be responsible for the costs associated with the interconnection study and updates.

## **5.7. Supplemental Solicitation**

In cases where the approved project sponsor is subsequently unable or unwilling to build the regional transmission facility, the CAISO may, at its discretion, direct the PTO with a PTO service territory in which either terminus of the facility being upgraded or added is located to build the regional transmission facility, or open a new solicitation for project sponsors to finance, construct, own, operate and maintain the regional transmission facility. The CAISO shall establish a schedule for any additional solicitation that provides the same intervals between milestones as the initial phase 3 solicitation process.

## **5.8. Accelerated Solicitation Process**

If regional transmission facilities eligible for competitive solicitation with capital costs of \$50 million or less are approved by CAISO management prior to board approval of the draft transmission plan, the CAISO will post a market notice soliciting applications to finance, construct, own, operate and maintain such regional transmission facilities immediately following management approval. The notice will provide at least a ten (10) week bid window for submitting such proposals, which must conform to the requirements set forth in section 5.3 of this BPM. With the exception of the minimum ten week window and the project sponsor and project proposal qualification schedule, the CAISO may shorten the time period for project sponsor selection, depending on the scope and number of applications for each facility. The CAISO will follow the steps for project sponsor selection described in sections 5.3, 5.4, 5.5, and 5.6 of this BPM.



## 6. Constructing, Owning and Financing Transmission Projects and Elements

### 6.1. Approved Project Sponsor Responsibilities

#### 6.1.1. Regional Projects

Where the PTO with a PTO service territory in which either terminus of needed transmission solutions are located but for which there are no approved project sponsors, or the approved project sponsor is unable to secure all necessary approvals, shall be obligated to construct, own and finance the element. Before assigning the PTO with a service territory with the responsibility to construct, own and finance such elements, the CAISO may conduct an additional solicitation. In considering whether to hold an additional solicitation, the CAISO will consider such factors as the number of project sponsors who submitted proposals to finance, own and construct the solution and the needed online date for the solutions. A transmission owner that is neither a PTO, nor seeking merchant transmission facility treatment under the CAISO tariff, retains any rights to construct and expand transmission facilities as those rights would exist absent any other obligations the transmission owner may have under the CAISO tariff (section 24.6).

Local furnishing PTOs shall not be obligated to construct, own and finance needed projects or elements unless the CAISO or project sponsor tenders an application under federal power act, section 211, which requests the FERC to issue an order directing the local furnishing PTO to construct such facilities. After receiving the section 211 application, the local furnishing PTO is required to waive its right to request service under section 213(a) of the Federal Power Act and to the issuance of a proposed order under section 212(c) of the Federal Power Act. The obligation to construct arises after the FERC order, if granted, is no longer subject to rehearing or appeal (CAISO tariff section 24.16).

If the applicable PTO, after making a good faith effort, cannot obtain all necessary approvals and property rights under applicable federal, state and local laws, the PTO shall notify the CAISO and the CAISO shall convene a technical meeting to evaluate alternative proposals. The CAISO may take any action reasonably appropriate, after coordination with the PTO, or project sponsor if not the PTO, and other affected market participants, to develop and evaluate alternatives, including the discretion to confer the right to construct, own and finance the transmission addition or upgrade on a third party (CAISO tariff section 24.6.4).

#### 6.1.2. Interregional Transmission Projects

The CAISO will monitor the progress of an interregional transmission project selected in the transmission plan to meet regional needs with regard to the status of the project owner, financing, permitting, construction, and other milestones pertinent to the completion and commercial operation date of the interregional transmission project. Such monitoring may include a request for periodic reports from the project sponsor and the relevant planning regions or affected transmission provider who are sharing the costs of the project. The CAISO will include on the Approved Project Sponsor page on CAISO's website the template for the report of the project to be used for the projects construction plan and status reports. The CAISO will make available to all PTO's with which the project interconnects all information about the status of the project and its

progress towards completion and energization. As necessary, the CAISO will hold a call with such PTO's to review whether the project completion date for the interregional transmission project owner can reasonably be expected to be met and to review any other items of concern to either the CAISO or the PTOs.

If the CAISO determines that the interregional transmission project completion and energization date has been delayed beyond the date upon which the regional transmission solution was found to be needed, the CAISO will issue a market notice stating that it is necessary for the CAISO, the interregional transmission project owner, and the applicable PTOs to develop a plan to address potential NERC Reliability Standards violations as set forth in tariff section 24.6.3, as well as any other issues that may be of material concern to the CAISO or PTOs. If the potential NERC Reliability Standards violations or other issues of material concern cannot be promptly and adequately addressed, the CAISO shall reconsider the need for a regional solution and identify a regional solution to supplant the interregional transmission project. The CAISO will use its best efforts to identify such a regional solution during the planning cycle in which the CAISO determined that the interregional transmission project would not be completed and energized in the identified timeframe to meet the regional need originally identified in the transmission plan. The regional solution may consist of the same transmission elements that were originally identified in the transmission plan in which the interregional transmission project was selected, or it may be a different transmission or non-transmission solution.

## 6.2. Limitations on Transfer

Approved project sponsors shall not sell, assign or otherwise transfer their rights to construct, own and finance solutions before the project has been energized and turned over to the CAISO's operational control unless the CAISO approves such transfer (CAISO tariff section 24.6).

## 7. Regional, Interregional, and WECC Coordination

To enhance the ongoing coordination efforts with neighboring transmission providers, regional and interregional coordination with other western planning regions, as a component of the CAISO's TPP, the CAISO acts as an initiator, organizer, and participant in relevant forums for regional transmission planning and interregional and WECC coordination. This section explains the CAISO's coordination with interconnected systems at the regional, interregional, and WECC levels.

### 7.1. Regional Coordination

Through the transmission planning process, the CAISO performs the transmission planning functions for its BAA. Ensuring regional coordination through a robust coordination process is an important objective of the TPP that includes specific requirements to exchange information within the CAISO's planning region and other balancing authority areas directly connect to the CAISO.

### 7.2. Interregional Coordination

The CAISO through its TPP, offers an open, transparent, and structured opportunity for interconnected balancing authority areas to exchange planning information and objectives. The CAISO satisfies the Order 1000 requirement that transmission providers coordinate with neighboring systems to ensure simultaneous feasibility of their respective plans and assess the possibility of efficiencies through mutual cooperation.

#### 7.2.1. Planning Data and Information Exchange

The CAISO will share planning data and information with other Western Planning Regions at the times during its planning cycle that such information is made available for review and comment by others (*i.e.*, stakeholders and other entities not participating in CAISO activities). This includes, but is not limited to, study plans, regional reliability study results, economic and public policy assessments, project information, and the most recent regional transmission plans provided by the other Planning Regions.

The CAISO will seek to coordinate planning data and assumptions with the other Western Planning Regions as it undertakes its regional transmission planning process. Specifically and subject to and consistent with the CAISO's processes and procedures for CEII and non-public data collection and sharing, the CAISO will share regional planning data and information with the other Western Planning Regions within the approximate timelines and dates set forth in Table 7-1 of this BPM.

Table 7-1: Regional Planning Data and Information the CAISO will Share with Other Planning Regions

Mid-December	The CAISO sends a letter to neighboring balancing authorities, and regional planning groups requesting planning data and related information to be considered in the development of the study plan. The CAISO also issues a market notice announcing a thirty-day comment period requesting demand response assumptions and generation or other non-transmission alternatives to be considered in the unified planning assumptions.
February	The CAISO hosts public stakeholder meeting #1 to discuss the contents of the study plan with stakeholders
August 15	Request window opens
August 15	The CAISO posts preliminary reliability study results and mitigation solutions
Approximately September	The CAISO hosts public stakeholder meeting #2 to discuss the reliability study results <del>and participating TO's reliability solutions</del> <del>and the conceptual statewide plan</del> with stakeholders
October 15	Request window closes
Q4	The CAISO posts the preliminary assessment of the policy-driven and economic planning study results and the recommended solutions that are less than \$50 million.
Approximately November	The CAISO hosts public stakeholder meeting #3 to present the preliminary assessment of the policy-driven and economic planning study results and present to stakeholders the recommended solutions that are less than \$50 million.
Approximately January	The CAISO posts the draft transmission plan on the public website
Approximately February	The CAISO hosts public stakeholder meeting #4 to discuss projects recommended for approval and the contents of the draft Transmission Plan. For regional transmission facilities that will be subject to competitive solicitation, the ISO posts the key selection criteria
March	CAISO posts the board-approved transmission plan on its site

The CAISO will share its regional planning data and information in the normal course of conducting its regional planning activities by posting it to the CAISO website or other designated location. The CAISO will further notify via email to the contacts identified in Planning Regions' Designated Communication Portals the availability of the listed information.

Within the approximate timelines listed in Table 7-2 of this BPM, the CAISO will seek the following regional planning data and information from the other Western Planning Regions during the times within its regional planning cycle that such data can be usefully incorporated together with its own regional planning information in order to conduct its regional planning activities.

Table 7-2: Regional Planning Data and Information the CAISO will Seek from Other Planning Regions

Mid-January	Planning Regions, participating TOs, neighboring balancing authorities, regional planning groups and stakeholders provide planning data and related information to the CAISO in response to letter and market notice.
Two weeks following the public stakeholder meeting #1	Comment period for stakeholders to submit comments on the public stakeholder meeting #1 material and for interested parties to submit economic planning study requests to the CAISO.
Two weeks following the public stakeholder meeting #2	Comment period for stakeholders to submit comments on the public stakeholder meeting #2 material
Two weeks following the public stakeholder meeting #3	Comment period for stakeholders to submit comments on the public stakeholder meeting #3 material
Two weeks following the public stakeholder meeting #4	Comment period for stakeholders to submit comments on the public stakeholder meeting #4 material

CAISO will request the information outlined in the Table 7-2 of this BPM via market notice to the contacts identified in Planning Regions' Designated Communication Portals.

The CAISO will not be required to make available or otherwise provide to any other planning region (1) any information not developed by the CAISO in the ordinary course of its regional transmission planning process, (2) any annual interregional information to be provided by any other planning regions with respect to such other planning region, or (3) any information the CAISO reasonably determines the disclosure of which would constitute a violation of the FERC's standards of conduct or any other legal requirement. Annual interregional information made available or otherwise provided by the CAISO will be subject to applicable confidentiality and CEII restrictions and other applicable laws, under the CAISO's regional transmission planning process.

### 7.2.2. Communication among the Planning Regions

After an event that gives rise to the need to receive feedback from other Planning Regions, the CAISO will provide the planning data or information to other Planning Regions by email to the contacts identified in Planning Regions' Designated Communication Portals. The transmittal to the other Planning Regions will identify:

- (a) Whether a response is needed and the date the response is needed;
- (b) Where and how to access the planning data or information if it is located on the CAISO's website;
- (c) A request, if any, to schedule a meeting/webinar to discuss the information;

- (d) Contact information for specific individuals to receive the information if a response to other than the Planning Regions' is desired.

When receiving information or requests from other Planning Regions, the CAISO will seek to respond within the timeframes stated in those requests. The Planning Region receiving the information will consider the responses in accordance with its regional planning process.

From time to time a meeting/webinar may be needed for a Planning Region to respond to information or requests from other Planning Regions if more than a written response is warranted. The Planning Region providing the response will be responsible for requesting a meeting/webinar and making arrangements for and hosting such meeting/webinar, unless the regions agree otherwise. Such meetings/webinars, if held, will be among the members of the Planning Regions as needed to fulfill the information or requests from other Planning Regions.

### **7.3. Regional and Interregional Coordination through WECC**

CAISO actively participates at the WECC through various committees and workgroups that are established within WECC. Through this participation in WECC, the CAISO seeks to:

- Exchange and notify WECC of certain planning data and information that may impact multiple entities;
- Participate, when appropriate, in regional reliability and economic studies;
- Cooperate in development and maintenance of planning data and information related to transmission planning analysis, including power flow, stability, dynamic voltage, and economic studies (i.e., production cost simulation); and
- Appropriately consider policy guidelines and standards to maximize uniformity in the west-wide transmission planning process

## 8. Cost Responsibility for Transmission Additions or Upgrades

There are three general mechanisms by which a transmission owner can recover, or seek to recover, its revenue requirement associated with transmission facilities turned over to the CAISO's operational control. The selected mechanism will depend on whether the project sponsor is a PTO or not and, if a PTO, whether the transmission facility constitutes a network facility or an LCRIF. Figure 8-1 of this BPM illustrates the three mechanisms.

Figure 8-1: Mechanisms for Cost Allocation

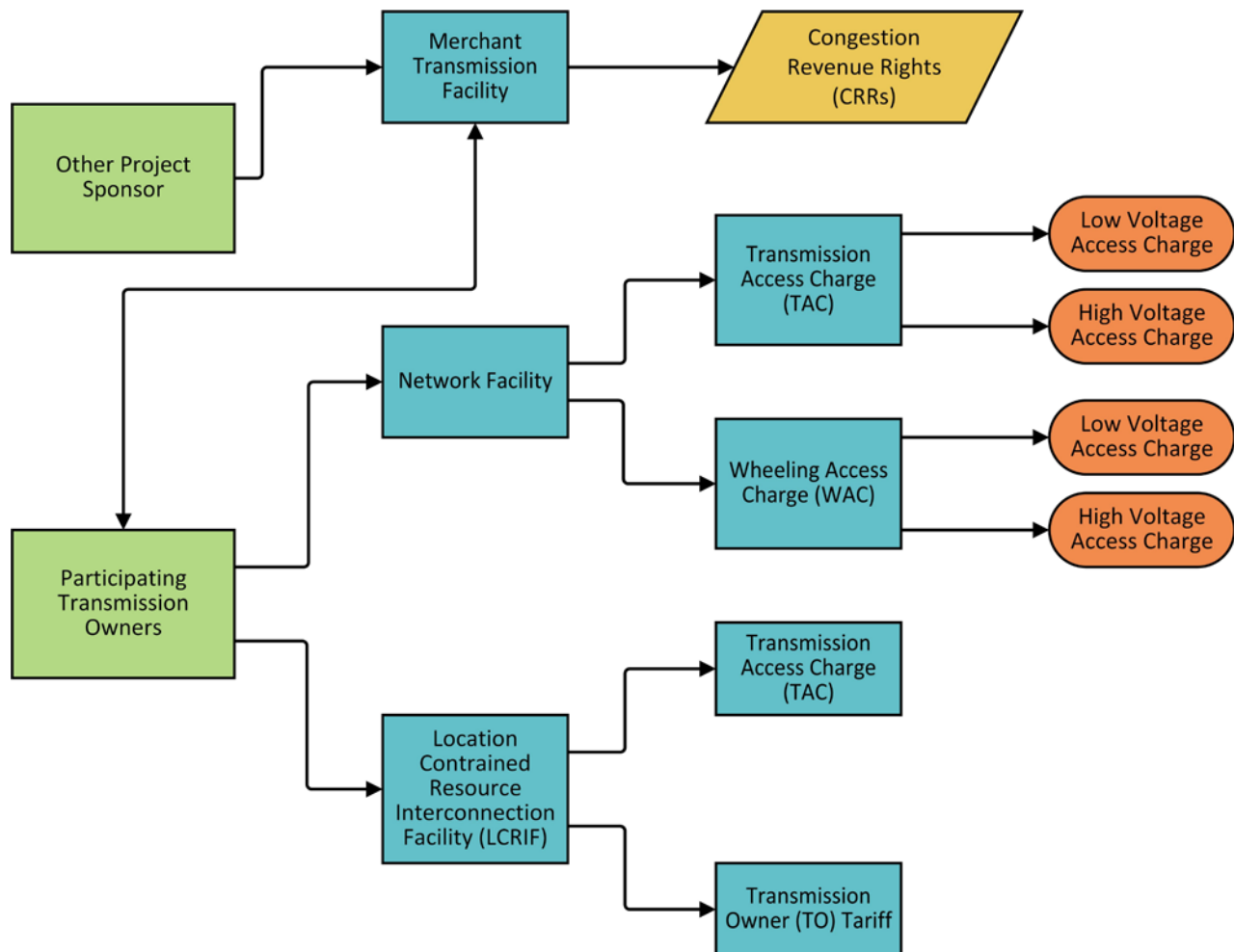
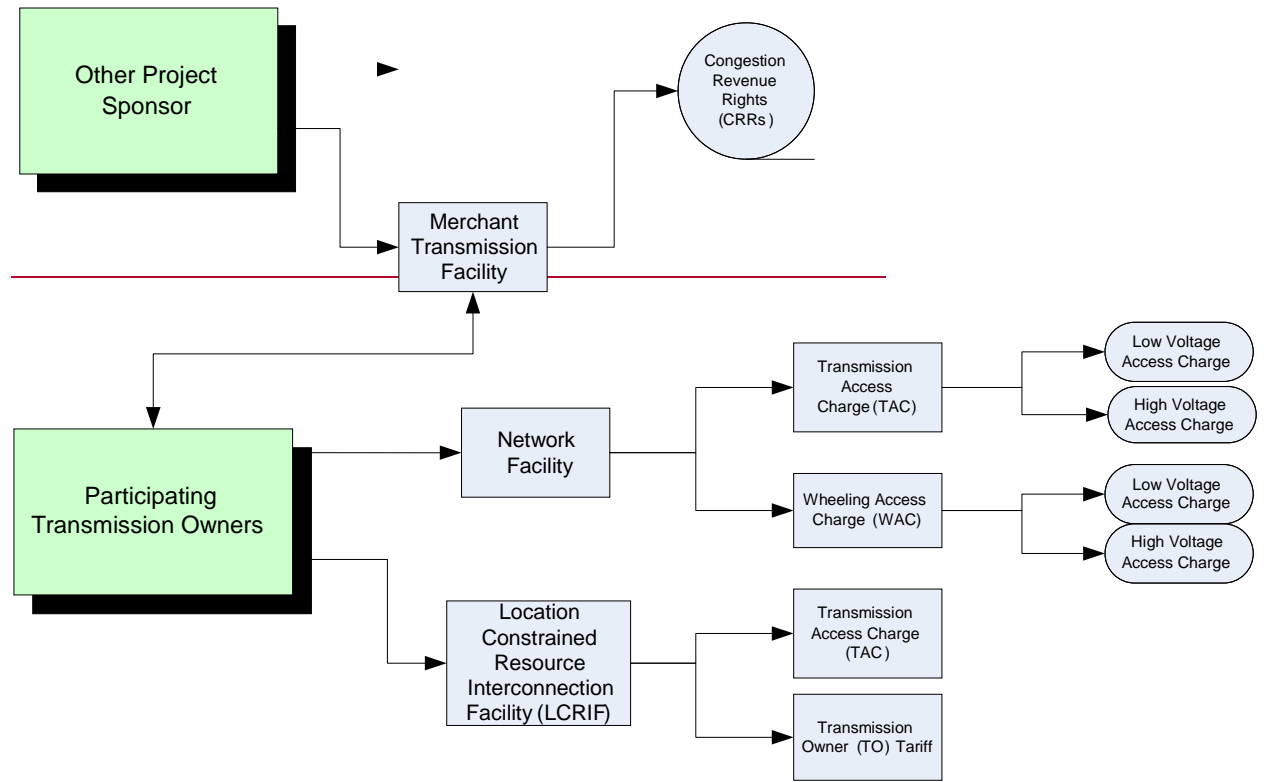


Figure 8-1: Mechanisms for Cost Allocation





## 8.1. Merchant Transmission Facility

A project sponsor may elect to fund and construct a merchant transmission facility. In this case, the project sponsor does not seek to recover the cost of the merchant transmission facility transferred to the CAISO's operational control through the CAISO's regional access charge, local access charge and wheeling access charge or other regulatory cost recovery mechanisms. Instead, the project sponsor of a merchant transmission facility seeks an allocation, at the project sponsor's election, of either CRR options or obligations that reflect the contribution of the facility to grid transfer capacity. The conditions for receiving CRRs, for determining of the quantity of CRRs to be allocated, and for determining potential revenue from allocated CRRs, are set forth in CAISO tariff section 36.11 and the BPM for Congestion Revenue Rights, located at <https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Congestion%20Revenue%20Rights> <https://bpm.caiso.com/bpm/bpm/version/000000000000131->

## 8.2. PTO Transmission Facility

A facility found to be needed and constructed by a PTO, or a non-PTO approved project sponsor selected in the competitive solicitation process, for transfer to the CAISO's operational control will be either a regional or local transmission facility, or a location constrained resource interconnection facility. Non-PTOs selected as approved project sponsors in the competitive solicitation process will become PTOs once the regional transmission facility is energized and turned over to CAISO operational control.

### 8.2.1. Network Transmission Facilities- PTO Cost Recovery

A PTO's recovery of costs for facilities turned over to the CAISO operational control begins with its FERC-approved Transmission Revenue Requirement (TRR). The TRR is comprised of the total annual authorized revenue requirements associated with such network transmission facilities and entitlements. The TRR includes the costs of transmission facilities and entitlements and deducts transmission revenue credits, credits for standby transmission revenue, and the transmission revenue expected to be actually received by the PTO for existing rights and converted rights. The remainder of the PTO's transmission revenue requirement is intended to be recovered through a combination of the ISO's regional or local access charges (RAC or LAC) or the wheeling access charge (WAC).

The RAC or LAC is a charge paid by entities serving Load on the transmission and distribution systems of the PTOs under the CAISO's operational control. The RAC includes cost recovery for facilities at 200kV and above. The LAC is collected by each PTO under its transmission owner tariff, based on the transmission revenue requirement associated only with its own low voltage transmission facilities (below 200 kV) and entitlements. The details of these access charges are set forth in CAISO tariff section 26 and appendix F, schedule 3.

The WAC is a charge assessed by the CAISO that is paid by a scheduling coordinator for wheeling in accordance with CAISO tariff section 26.1. Wheeling can be in the form of a wheel out or wheel through. The former is defined as the use of the CAISO balancing authority area for the transmission of energy from a generating unit located within the CAISO balancing authority area to serve a load located outside the transmission and distribution system of a PTO, except for energy utilizing an existing contract. On the other hand, a wheel through is the use of the CAISO

balancing authority area for the transmission of energy from a resource located outside the CAISO balancing authority area to serve a load located outside the transmission and distribution system of a PTO, except for energy utilizing an existing contract. The WAC may also consist of a high voltage wheeling access charge and a low voltage wheeling access charge. The details of the WAC are set forth in CAISO tariff section 26 and appendix N, part F.

### **8.2.2. LCRIF**

PTOs finance the up-front costs of constructing LCRIF. The recovery of costs for such facilities comes from two sources. First, the costs of any unsubscribed capacity of qualifying LCRIFs will be rolled into the CAISO's transmission access charges, similar to a network transmission facility. As generation resources are developed in the area and connect to the LCRIFs, cost recovery will be transferred on a going forward, pro rata basis to those new generation owners, and the costs included in transmission access charges will be reduced accordingly. Once the anticipated generation is fully developed and the capacity of the LCRIF fully subscribed, the going forward costs of the project will be borne entirely by generation developers and will not be included in the transmission access charges. Thus, the costs associated with the unsubscribed portion of the LCRIF will be included in the transmission access charges, until additional generators are interconnected, at which time costs will be assigned to such generators.

### **8.2.3. Interregional Transmission Project**

The designated owner of an interregional transmission project will recover the CAISO's assigned share of the interregional transmission project costs through its regional transmission revenue requirement as approved by FERC.

## 9. Recovering TPP Process Costs

The CAISO's costs of conducting its TPP and producing the annual Transmission Plan are generally recovered through the CAISO's grid management charge (GMC). The GMC consists of charge codes assessed monthly to participating scheduling coordinators for the purpose of recovering all of the CAISO's administrative and operating costs. GMC rates are calculated as set forth in CAISO tariff section 11 and appendix F. The formula rate methodology provides market participants with the financial security of predictable GMC pricing, while ensuring that the CAISO is able to recover its actual costs in a timely manner. The charges are shown as a monthly charge on the settlements statements for the last day of each month, with billable quantities being published on daily statements where applicable. A detailed discussion of GMC is beyond the scope of this BPM.

To the extent that a proposed transmission project, or high priority economic planning study, is accepted by the CAISO for evaluation as part of the study plan, the costs of those activities will typically be borne, based on the division of responsibilities, either by the CAISO and recovered through existing GMC procedures and practices or by the third party assigned or accepting responsibility for the study task under the study plan in accordance with that entity's tariff authority. Participants in the TPP will be financially responsible for costs incurred in participating in the TPP, including activities in support of the CAISO or PTO evaluations. Further, the cost responsibilities of performing interconnection studies are governed by the CAISO's generation interconnection processes tariff language.

However, there is an exception to the foregoing. Where a requested economic planning study is not selected for high priority status, and therefore is not included by the CAISO in the study plan, the study requestor may nevertheless conduct the study in coordination with the CAISO. The CAISO's costs of assisting the third-party requestor to conduct its own economic planning study will be the responsibility of the study requestor, and such party will be asked to enter into a study agreement with the CAISO. Further, the CAISO intends to evaluate the need to develop terms and conditions under which participants of projects included in the study plan would be required to contribute or otherwise pay for the cost of specific tasks or elements of the TP. If necessary, this cost recovery process is expected to be restricted to a "time and materials" basis.

In addition, as described in section 5.3.1 of this BPM, the CAISO will assess a deposit and application fee for each project sponsor application submitted in the competitive solicitation process. The application fee is intended to recover the CAISO's actual costs of processing the applications and selecting an approved project sponsor, up to a cap of \$150,000 per application.

## 10. Generator Modeling Overview

CAISO Tariff Section 24.8.2 requires “Participating Generators [to] provide the CAISO on an annual or periodic basis in accordance with the schedule, procedures and in the form required by the Business Practice Manual any information and data reasonably required by the CAISO to perform the Transmission Planning Process. . . .” Section 10 of this BPM establishes both: (1) what information and data must be submitted; and (2) the schedule, procedures, and format for submitting that information and data. The failure of a participating generator<sup>9</sup> to make a timely submission of the required information will subject the participating generator’s scheduling coordinator to sanctions under CAISO Tariff Section 37.6. This tariff provision imposes a \$500/day sanction for late submission to the CAISO of tariff-required information.

Accurate and up-to date generator modeling data is essential to maintain the reliability of the CAISO grid. The CAISO accordingly requires generating unit models in the GE-PSLF format and other technical information from participating generators, as identified in their generator data template. Generator data templates for different categories of participating generators will be posted on the CAISO website.<sup>10</sup> The CAISO also will provide participating generators with their applicable data template in a courtesy reminder it intends to send each participating generator in accordance with the schedule outlined in Section 10.4.5 of this BPM. The generator resource list identifying all participating generators by data category and submission phase can be accessed on the CAISO website.<sup>11</sup> The generator resource list and generator data template identifies participating generator generating units by CAISO market Resource IDs. Participating generators with multiple generating units mapped to a single Resource ID are considered aggregate resources and shall report data on individual generating unit basis, consistent with instructions provided in the generator data template.

The CAISO updates the generator resource list periodically to reflect new participating generators achieving commercial operation in CAISO markets. Please refer to section 10.4.6 of this BPM which details processes for new participating generators.

Notwithstanding this process, the CAISO may periodically request generator data, to meet new requirements under NERC reliability standards. These requests will be due by deadlines set by the CAISO under those specific requests and will not be subject to the process outlined in this section 10 of this BPM.

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<sup>9</sup> Participating Generator means “A Generator or other seller of Energy or Ancillary Services through a Scheduling Coordinator over the CAISO Controlled Grid (1) from a Generating Unit with a rated capacity of 1 MW or greater, (2) from a Generating Unit with a rated capacity of from 500 kW up to 1 MW for which the Generator elects to be a Participating Generator, or (3) from a Generating Unit providing Ancillary Services or submitting Energy Bids through an aggregation arrangement approved by the CAISO, which has undertaken to be bound by the terms of the CAISO Tariff, in the case of a Generator through a Participating Generator Agreement, Net Scheduled PGA, or Pseudo-Tie Participating Generator Agreement”, as defined in the CAISO Tariff.

<sup>10</sup> Generator data template posted at <http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>

<sup>11</sup> Generator resource category spreadsheet posted at <http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>

## 10.1. Technical Criteria

### 10.1.1. Generator modeling classification

Participating generator modeling requirements identify five different categories of operational generating units. Each operational generating unit is identified and categorized by their CAISO market Resource ID. Aggregate resources are identified and categorized by the parent CAISO market Resource ID. These categories are:

- (a) Category 1 - Participating generators connected to the Bulk Electric System (BES):
  - (i) Individual generating unit identified by a CAISO market resource ID with nameplate capacity greater than 20 MVA, or
  - (ii) Aggregate resource identified by a CAISO market Resource ID, i.e., the parent resource of multiple generating units with total aggregate nameplate capacity greater than 75 MVA.
- (b) Category 2 – Participating generators connected to facilities 60 kV and above, and not covered in category 1:
  - (i) Individual generating unit identified by a CAISO market resource ID with nameplate capacity greater than 10 MVA, or
  - (ii) Aggregate resource identified by a CAISO market Resource ID, i.e., the parent resource of multiple generating units with total aggregate nameplate capacity greater than 20 MVA.
- (c) Category 3 - Participating generators connected to BES or facilities above 60KV with generation output lower than the category 1 or 2 modeling requirement thresholds.
  - (i) Individual generating unit identified by a CAISO market Resource ID with nameplate capacity less than 10 MVA, or
  - (ii) Aggregate resource identified by a CAISO market Resource ID, i.e., the parent resource of multiple generating units with total aggregate nameplate capacity less than 20 MVA.
- (d) Category 4 - Non-Net Energy Metered (non-NEM) participating generator connected to non-BES facilities below 60KV, but explicitly modelled as an individual generating unit in transmission planning power flow and stability studies.
- (e) Category 5 - Non-Net Energy Metered (non-NEM) participating generator connected to non-BES facilities below 60KV, modelled as an aggregate resource in transmission planning power flow and stability studies.

### 10.1.2. General data requirements for Category 1, 2, 3 and 4

The following section describes the general data requirements for category 1, 2, 3 and 4 generating units. Participating generators must meet the specific and detailed requirements listed in the generator data template provided with the data request letter.

### 10.1.2.1. Steady-State Electrical Characteristics and Operating Parameters

- General information: a description of the type, model, location, point of interconnection of generating units, and data for any feeder circuit which connects the generating unit to the TO;
- Generating unit capacity: rated and interconnection MW capacity, reactive capability curves, charging capacity and associated duration for energy storage;
- Load: auxiliary load data, and on-site load for co-generation facilities;
- Collector feeders: lay out of the feeders and equivalent collector system characteristics;
- Voltage regulation devices: location, capacity, regulation of shunt capacitor banks, shunt reactors, dynamic VAR resources, etc.;
- Generating unit tie-lines: length, conductor type, rating, impedance data etc.; and
- Transformers: nominal voltages, winding connection, rating, impedance data (and MVA base), tap setting, tap change control, etc.

The CAISO and PTOs must be able to cross-validate the single line diagram, power flow model in .epc format, and other requested data. The steady state models must be provided in GE-PSLF .epc format only.

### 10.1.2.2. Dynamic Models

Dynamic models for generating units, excitor, governor, power system stabilizer (PSS), inverter electric control, power plant controller, protection and dynamic reactive devices, are required for the CAISO and PTO to assess system reliability following a disturbance. The requirement is detailed in the following sections for each category.

The dynamic models must be provided only in GE-PSLF .dyd format.

### 10.1.2.3. Control and Protection Settings

- Volt/var control scheme: description of control devices and coordination among different devices, automatic voltage regulation setting, any operation limitations, etc.;
- Active power/frequency control scheme: description of generating units/plant's capability to control active power output in response to frequency deviation, frequency droop settings, response time, any operational limitations, etc.;
- Power plant controller (PPC) settings: control mode, voltage droop settings, operating conditions that will freeze PPC, etc.; and
- Protection settings: voltage ride-through, frequency ride-through, out-of-step relay, loss of field relay, etc. The controls and protections must be accurately reflected in the power flow model and dynamic models.

#### 10.1.2.4. Short Circuit Data

- Synchronous generating units: positive, negative and zero sequence data, grounding data, etc.;
- Inverter-based generating units: maximum fault current data; and
- Induction generating units: short circuit reactance, grounding data, etc.

#### 10.1.3. Data Requirements for Category 1 and Category 2

In addition to the general data requirements described in Section 10.1.2 of this BPM, the following section outlines specific data requirements for category 1 and 2 generating units.

##### 10.1.3.1. Dynamics Data Requirements

Participating generators with generating units in category 1 and category 2 must provide test reports and modeling data. The modeling data must include the dynamic models specified in the generator data template. The test reports must verify generating unit excitation control system or plant volt/var control function model, and the turbine/governor and load control or active power/frequency control model in accordance with “WECC Generation Facility Data, Testing and Model Validation Requirements.”<sup>12</sup> The test reports must be dated within 10 years from the date when the model is submitted and after the most recent changes to the generating unit excitation control system or plant volt/var control, and the turbine/governor, load control or active power/frequency control. The submitted model must satisfy the following:

- Initialize without error;
- A no-disturbance simulation results in negligible transients;
- A disturbance simulation results in the models exhibiting positive damping and reasonable expected performance and
- If EMT model is required, the simulation results of GE-PSLF program and EMT program are considered matching each other.

##### 10.1.3.2. Real and Reactive Power Capability Requirements

Participating generators must provide real and reactive power capability and the test report(s) that verifies the real and reactive power capability. The real and reactive power capability must be verified through a staged test or using operational data. The test report must be dated within five years from when the data are submitted and after the most recent changes that affect the real power or reactive power capability by more than 10 percent of previously verified capability.

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<sup>12</sup> [http://www.oasis.oati.com/NEVP/NEVPdocs/WECC\\_Gen\\_Fac\\_Testing\\_and\\_Model\\_Validation\\_Rqmts\\_v\\_7-13-2012.pdf](http://www.oasis.oati.com/NEVP/NEVPdocs/WECC_Gen_Fac_Testing_and_Model_Validation_Rqmts_v_7-13-2012.pdf)

### 10.1.3.3. Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection

Participating generators must coordinate the voltage regulating system controls, (including in-service limiters and protection functions) with the generator capabilities and settings. A description of the generating facility volt/var control, transformer tap changer, generator voltage regulation control, operation of other var devices shall be provided. The coordination will be modeled accordingly in both the power flow and dynamic models.

### 10.1.3.4. Generator Frequency and Voltage Protective Relay Settings

Participating generators that have generator frequency and voltage protective relays will provide the relay settings to the CAISO and applicable PTO.

Participating generators will document and communicate to the CAISO and applicable PTO, any known limitation that may prevent its generator frequency or voltage protective relays from meeting the relay setting requirements in Attachment 1 and Attachment 2 of NERC reliability standard PRC-024-2.<sup>13</sup>

### 10.1.3.5. Sub-Synchronous Resonance Model

Generating units close to series compensated transmission lines are required to submit an electromagnetic transients (EMT) model suitable for sub-synchronous resonance (SSR) studies. The applicable PTO will determine if this requirement is applicable to the generating unit and include it in the generator data template.

### 10.1.3.6. Geomagnetic Disturbance Data

Participating generators must also provide information on:

- (a) Earth resistivity; and
- (b) Main transformer: grounding configuration, core type, K-Factor, DC resistance value, autotransformer or not, geo-magnetically induced currents (GIC) blocking device status, etc.

## 10.1.4. Data Requirements for Category 3

In addition to the general data requirements mentioned in Section 10.1.2 of this BPM, the following section outlines specific data requirements for category 3 generating units.

### 10.1.4.1. Dynamics Data Requirements

Participating generators will submit dynamic models from the manufacturer utilizing the latest WECC approved dynamic models.

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<sup>13</sup> <https://www.nerc.com/pa/Stand/Reliability%20Standards/PRC-024-2.pdf>



The model must satisfy the following:

- Initialize without error;
- A no-disturbance simulation results in negligible transients; and
- A disturbance simulation results in the models exhibiting positive damping and reasonable expected performance.

#### **10.1.4.2. Off Nominal Frequency and Voltage Ride Through**

Participating generators are required to provide relay setting to demonstrate compliance with the ride-through requirements in the generation interconnection agreement and the PTO's interconnection handbook. Generating facilities connected to the distribution system must demonstrate compliance with IEEE 1547 and California Rule 21.

### **10.1.5. Data Requirements for Category 4**

#### **10.1.5.1. General Data Requirements**

In addition to the general data requirements mentioned in Section 10.1.2 of this BPM, the following section outlines specific data requirements for category 4 generating units.

#### **10.1.5.2. Dynamics Data Requirements**

The Participating generators must submit dynamic models from the manufacturer utilizing the latest WECC approved dynamic models. The model must satisfy the following:

- Initialize without error;
- A no-disturbance simulation results in negligible transients; and
- A disturbance simulation results in the models exhibiting positive damping and reasonable expected performance.

#### **10.1.5.3. Off Nominal Frequency and Voltage Ride Through**

Participating generators are required to provide relay settings compliant with the ride-through requirements in the generation interconnection agreement and the PTO's interconnection handbook. Generating units connected to the distribution system will be compliant with IEEE 1547 and California Rule 21.

### **10.1.6. Data Requirements for Category 5**

#### **10.1.6.1. General Data Requirements**

Participating generators with generating units in category 5 will submit the data specified in the generator data template.

## 10.2. Generator resource category list

The list identifies the category and data submission phase for active participating generators by Resource ID, impacted by this process. The generator resource category list will be updated periodically as other participating generators reach commercial operation in CAISO markets.

## 10.3. Generator data template

The participating generator should use the appropriate generator data template provided with the data request letter from the CAISO for each generating unit. Instructions to fill out the generator data template are provided in the “Instruction” tab in the generator data template. The generator data template the CAISO sends to participating generators will include the generating unit data currently on record with CAISO and the applicable PTO.

## 10.4. Process map for generator data submission

### 10.4.1. Data request and submission process

The CAISO will send a data request letter to the participating generator identifying the specific data requirements for the generating unit. The data request letter will contain instructions for the participating generator to identify the applicable category and phase of their resource (refer to Section 10.1.1 of this BPM and generator resource category list), associated data requirements, compliance deadline, and process to submit data to the CAISO and applicable PTO. A description of the process has also been provided below:

- (a) Participating generator will submit all data as identified in the data request letter and section 10.4.3 of this BPM via e-mail, to the email address specified in the data request letter:

CAISO: GridModelingData@caiso.com

PG&E: GenModel@pge.com

SCE: basecase@sce.com

SDG&E: basecase@semprautilities.com

- (b) The e-mail should follow the e-mail subject name convention:

<Resource ID>\_<Generating unit name>\_<BPM model submission>

As an example the subject for the email could look like:

- BLPARA\_5\_SOLAR\_Blue Paradise Solar Farm\_ BPM model submission

E-mail data submission not using the correct e-mail subject line convention or not sent to the correct email address, will not be considered a valid submission.

### 10.4.2. Receipt of generating unit data

All data requested for each identified generating unit will be due by the deadline specified in section 10.4.5 of this BPM. The CAISO will provide receipt of data submission within 10 calendar days from date of submission (as per section 10.4.1 of this BPM) by the participating generator.

### 10.4.3. Determination of compliance/non-compliance and application of penalties

In order to comply with requirements, the participating generator must provide the following by the deadline described in section 10.4.5 of the BPM below:

- Completed generator data template as per instructions provided in “Instructions” tab;
- All supplemental data documents requested;
- Show .epc and .dyd files initialize in PSLF program (provide snapshot of initialization); and
- Spread of real power output (Pg) and reactive power output (Qg) in GE-PSLF simulation results for a 10 second no-fault run at full real power output should be less than 1 or 1% (provide in table format).
- Data submission is made as outlined in Section 10.4.1 of this BPM

Failure to meet any of the above listed requirements will result in a finding of non-compliance by CAISO. Once validation of submitted data is complete, the CAISO will send a response to the participating generator with a finding of compliance or non-compliance within ninety (90) calendar days from the date of submission. If data submission is deemed non-compliant with requirements identified in the data request letter and section and 10.4 of this BPM, the participating generator will have 15 calendar days to remedy the identified deficiencies from the date of written notice of deficiency from the CAISO.

Failure to make an initial submission by the deadline or failure to resubmit requested data during the 15-day cure period will subject the generating unit’s scheduling coordinator to a \$500/day penalty, as per CAISO Tariff section 37.6.1. The administration of the penalty will be as per CAISO Tariff Section 37 and the BPM for Rules of Conduct.

### 10.4.4. Penalties for submission of inaccurate generator data

Once the CAISO has accepted the submitted data as per section 10.4.3 of this BPM, the PTOs and CAISO include the validated generating unit data in transmission planning process power flow and reliability studies. If the CAISO or PTO determines that the submitted data does not accurately represent the characteristics of the generating unit which results in inconsistent powerflow and reliability study results, the CAISO will send a request to the participating generator identifying and requesting the corrections to the deficient data. Non-compliance with this request may be subject to penalties under CAISO Tariff section 37.6.2. This tariff section imposes sanctions for a market participant’s failure to provide the CAISO with information requested in the course of a CAISO investigation.

### ~~10.4.5.~~

### ~~10.4.6.~~10.4.5. Schedule of request/deadline<sup>14</sup>

Generating Units online as of January 1, 2018:

- (a) Category 1<sup>15</sup>
  - (i) Phase 1- May 31, 2019
  - (ii) Phase 2- October 30, 2019
  - (iii) Phase 3- March 30, 2020
  - (iv) Phase 4- Aug 30, 2020
- (b) Category 2
  - (i) Phase 5- Jan 31, 2021
  - (ii) Phase 6- June 30, 2021
- (c) Category 3
  - (i) Phase 7- September 30, 2021
  - (ii) Phase 8- December 31, 2021
  - (iii) Phase 9- March 31, 2022
- (d) Category 4
  - (i) Phase 10- June 30, 2022
- (e) Category 5
  - (i) Phase 11- September 30, 2022

## 10.1.1 Future generation modeling

Generating units that achieve commercial operation after September 1, 2018, must submit the required generator modeling data within one hundred and twenty (120) calendar days of achieving commercial operation in the CAISO market. The required data will be identified in the generator data template provided to the participating generator upon achieving commercial operation. The CAISO intends to send a courtesy notice to the participating generator upon commercial operation of the generating unit.

After a participating generator submits the required data, the CAISO and applicable PTO shall review and validate the submission as per sections 10.4.2, 10.4.3 and 10.4.4 of this BPM.

<sup>14</sup> If the CAISO is unable to grant an outage request under CAISO Tariff section 9 to a participating generator for meeting requirements under section 10 of this BPM, it will review the submission deadlines to include the participating generator's generating unit in a later phase.

<sup>15</sup> Submission deadlines for NERC BES category 1 Generators, as mentioned in section 10.4.5, would also serve as the 'longer time period agreed upon by the notifying Planning Coordinator or Transmission Planner' as per the Requirement R3.2 of MOD-032-1.

### **10.4.7.10.4.6. Periodic update of generator models for Category 1 and Category 2 generating units**

Category 1 and Category 2 generating units will be required to conduct tests, and submit test reports and updated data as follows-

- (a) For real and reactive capability;(1) test to be conducted 5 years from date of last test, and  
(2) updated test reports and models to be submitted to CAISO and PTO
- (b) For dynamic stability;(1) test to be conducted 10 years from date of last test, and  
(2) updated test reports and models to be submitted to CAISO and PTO

In cases where approved modifications are made to the generating unit, per the BPM for Generator Management, updated test reports and models are to be submitted as requested in the material modification process. The date of submission of the new test report will be considered as the “last test date” to calculated future periodic submissions.

## 11. The TPP Public Processes and Access to Information

### 11.1. TPP Public Processes

The CAISO initiates and coordinates a minimum of four annual meetings that are open to the public as part of the TPP. The CAISO may, in its sole discretion, arrange additional public meetings. Meetings that are open to the public will be held to 1) facilitate development of the unified planning assumptions and study plan; 2) review preliminary results of technical analyses and PTO reliability project request window submissions; 3) provide an update on the on the development of the transmission plan and study results that have become available since the previous stakeholder meeting; and, 4) present the draft CAISO transmission plan and its contents.

Public meetings are open to all interested parties. In each case, notice of the meeting will be given approximately 3 weeks prior to the scheduled meeting through market notices and will be included in the CAISO event calendar found on the CAISO website. Entities can subscribe to market notices through the CAISO website at <http://www.caiso.com/informed/Pages/Notifications/MarketNotices/MarketNoticesSubscriptionForm.aspx>. Teleconference and/or web conference services also will be provided for all meetings.

In addition, the CAISO will include on the calendar of events maintained on the CAISO website a schedule of the public meetings conducted by the CAISO or jointly conducted between the CAISO and any PTO or third party

For all events relating to the TPP, interested parties will have the opportunity to submit comments on topics discussed at the meeting. Generally, comments shall be submitted to [regionaltransmission@caiso.com](mailto:regionaltransmission@caiso.com). The CAISO shall incorporate comments in subsequent planning activities and decisional items relating to those activities. In the case of decisional items (i.e. adoption of a final study plan or a transmission plan), the CAISO will indicate the manner in which it responded to such comments.

Established CAISO public meeting process protocols and standard guidelines for market notices, document postings, and the format of the public meetings will be applied to all TPP public meetings.

- According to CAISO policy, market notices to announce the public meetings will be sent out at least 3 weeks prior to the meeting.
- According to CAISO policy, draft documents to be discussed during the public meetings are posted no later than 1 week before the meeting. Consequently, interested parties can anticipate the posting of the draft study plan, CAISO study results, draft CAISO transmission plan and any other documents that will be discussed on the CAISO website at least 7 days before each public meeting.

### 11.2. Access to Transmission Planning Process Information

The CAISO provides access to non-confidential TPP information , including data, assumptions, decision criteria, study methodologies, and results to all interested parties through the study plan, interim study reports, study manuals, the transmission plan, and relevant BPMs. Public documents related to the TPP will be posted to the CAISO website, mainly under the transmission planning webpage.

The CAISO will attempt to minimize the instances in which the TPP requires the use of confidential information that has been specifically designated as such by the provider of the information. Nevertheless, the CAISO shall maintain the confidentiality of information when:

- The information relates to procurement of resources submitted by LSEs under (CAISO tariff section 20.2(h)(1))
- The release of such information may harm the competitiveness of wholesale markets, as determined by the CAISO's Department of Market Monitoring (CAISO tariff section 20.2(h)(2))
- Release of such information may breach existing agreements and contracts, including previously executed Non-Disclosure Agreements (NDA) (CAISO tariff section 20.2(h)(3))
- The information involves third-party developed or other proprietary analysis tools, computer codes, or any other material that is protected by intellectual property rights (CAISO tariff section 20.2(h)(4))
- The information constitutes Critical Electric Infrastructure Information (CEII) in accordance with FERC regulations (CAISO tariff section 20.2(h)(5)).

Apart from public information posted to the CAISO website at transmission planning, the CAISO will post base cases relating to current initiatives the CAISO is working on to the market participant portal. More information on the instructions and qualifications to receive access to the secure webpage can be found at

<http://www.caiso.com/Documents/Regional%20transmission%20NDA>.

As part of the application process, entities will be required to comply with the following requirements to gain access to confidential planning information:

- CEII may be provided to a requestor where such person is employed or designated to receive CEII by (1) a market participant; (2) electric utility regulatory agency within California to receive CEII; (3) an interconnection customer that has submitted an interconnection request to the CAISO under the CAISO's Large Generator Interconnection Procedure/Small Generator Interconnection Procedures (GIP); (4) a developer having a pending or potential proposal for development of a generation unit or transmission additions, upgrades or facilities and who is performing studies in contemplation of filing an Interconnection Request or submitting a transmission infrastructure project through the TPP; or (5) a not-for-profit organization representing consumer regulatory or environmental interests before local regulatory agencies or federal regulatory agencies. To obtain CEII, the requestor submits a statement as to the need for the CEII, and the requestor executes and returns to the CAISO the form of the non-disclosure agreement and non-disclosure statement available on the CAISO website under transmission planning. The CAISO may, at its sole discretion, reject a request for CEII and upon such rejection, the requestor will be directed to utilize the FERC procedures for access to the requested CEII.
- Information that is confidential under section 20.2(h)(1) or 20.2.(h)(2) may be disclosed to any individual designated by a market participant, electric utility regulatory agency within California, or other transmission planning participant that signs and returns to the CAISO the form of the non-disclosure agreement, nondisclosure statement and certification that the individual is or represents a non-market participant, which is any person or entity not involved in a marketing, sales, or brokering function as market,

sales, or brokering are defined in FERC's Standards of Conduct for Transmission Providers (18 C.F.R. § 358 et seq.) except that information provided to CAISO pursuant to 20.2(h)(2) will be provided only in composite form so that information specific to individual LSEs will not be disclosed and

- Data base and other transmission planning information obtained from WECC may be disclosed to individuals designated by a market participant, electric utility regulatory agency within California, or other stakeholder in accordance with the procedures set forth as follows:
- A transmission planning participant that is a member of WECC and that requests the WECC planning data base: (i) shall execute the non-disclosure agreement which is available on the CAISO website under transmission planning and (ii) shall provide to the CAISO a non-disclosure statement, the form of which is attached as an exhibit to the non-disclosure agreement executed by the transmission planning participant and by each employee and consultant of the transmission planning participant who will have access to WECC planning data base.

A transmission planning participant who is not a member of WECC and requests the WECC planning data base: (i) shall execute the non-disclosure agreement, (ii) shall provide to the CAISO a fully executed WECC non-member confidentiality agreement for WECC Data, and (iii) shall provide to the CAISO a non-disclosure statement, the form of which is attached as an exhibit to the non-disclosure agreement executed by the transmission planning participant and by each employee and consultant of the transmission planning participant who will have access to the WECC planning data base.

## 11.3. Additional Planning Information

### 11.3.1. Information Provided by PTOs

In addition to information that must be provided to the CAISO pursuant to the NERC Reliability Standards, PTOs shall provide to the CAISO any information and data reasonably required by the CAISO to conduct the transmission planning process, including, but not limited to:

- Power flow modeling
- A description of total demand to be served from each substation, including energy efficiency programs
- Interruptible loads reflected in total demand
- Generating units to be interconnected to the distribution system
- Detailed power system models of PTO power systems
- Distribution system modification
- Transmission network information

### 11.3.2. Information Provided by Participating Generators

In addition to information that must be provided to the CAISO pursuant to the NERC reliability standards, participating generators shall provide to the CAISO on an annual or periodic basis any



information and data reasonably required by the CAISO to conduct the TPP, including, but not limited to:

- Modeling data for short circuit and stability analysis
- Data and status of any environmental or land use permits or agreements, the expiration of which may affect the operation of the generating unit

### **11.3.3. Information Provided by Load Serving Entities**

In addition to information that must be provided to the CAISO pursuant to the NERC reliability standards, the CAISO shall solicit from load serving entities, through their scheduling coordinators, any information and data reasonably required by the CAISO to conduct the TPP, including, but not limited to:

- Long-term resource plans
- Existing long-term contracts for resources and transmission service outside the CAISO BAA
- Demand forecasts, including energy efficiency and demand response programs

### **11.3.4. Information Provided by Planning Groups, BAAs and Regulators**

The CAISO shall solicit from interconnected BAAs, regional and sub-regional planning entities, the CPUC, CEC and local regulatory authorities information and data reasonably required by the CAISO to conduct the TPP, including but not limited to:

- Long term transmission system plans
- Long term resource plans
- Generation interconnection process information
- Demand forecasts
- Any other data necessary for the development of power flow, short-circuit and stability cases over the CAISO planning horizon

### **11.3.5. Obligation to Provide Updated Information**

If material changes occur to the information provided to the CAISO pursuant to CAISO tariff section 24.8.5, the providers must advise the CAISO of such changes.

## 12. Dispute Resolution Process

The Alternative Dispute Resolution (ADR) Procedures set forth in CAISO tariff section 13 apply to all disputes arising under CAISO Documents, including those related to the TPP. The ADR procedures can be found at <http://www.aiso.com/1bcc/1bcc775734780ex.html>. The ADR procedures provide for a three-tier process, progressing from negotiation to mediation to arbitration. Both substantive and procedural disputes arising from the TPP will be addressed through the existing ADR procedures.