



California Independent System Operator

&

California Department of Water Resources

**Joint Transmission Planning Base Case
Preparation Process**

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December 2021

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1 Introduction

1.1 Purpose

California Department of Water Resources (CDWR) and the California Independent System Operator (CAISO) entered into a Planning Coordinator Agreement dated April 6, 2021. The purpose of this Joint Transmission Planning Base Case Preparation Process document is:

- (i) as required by NERC Reliability Standard MOD-032, Requirement 1, for CAISO as Planning Coordinator (PC) and Balancing Authority (BA), and CDWR as Transmission Planner (TP), effective September 4, 2020, to jointly develop steady state, dynamics, and short circuit modeling data requirements and reporting procedures for the PC's planning area;
- (ii) to provide details of the assumptions for the CDWR area used in the Annual CAISO Transmission Planning Process (TPP) Base Cases; and
- (iii) to provide an overview of the process used in the development of CAISO TPP and Western Electricity Coordinating Council (WECC) Base Cases.

This document was developed jointly by the CAISO and CDWR's consistent with internal processes by the appropriate subject matter experts and in accordance with MOD-032, Requirement R1, to provide:

- Guidance to model the data listed in Attachment 1 of MOD-032.
- Specifications of the following items consistent with procedures for building the interconnection-wide case(s):
 - Data format,
 - Level of detail to which equipment shall be modeled,
 - Case types or scenarios to be modeled, and
 - A schedule for submission of data at least once every 13 calendar months.
- Specifications for distribution or posting of the data requirements and reporting procedures so that they are available to those entities responsible for providing the data.

1.2 Overview of the Process

CDWR's Transmission Planners (TP) participate in the development of the Annual Transmission Planning Base Cases and the review of Western Electricity Coordinating Council (WECC) base cases through Pacific Gas and Electric (PG&E) as the area coordinator.

The Annual Transmission Planning Base Cases are developed using the best available information at the time of the update. The Annual Transmission Planning Base Cases follow the California Independent System Operator (CAISO) Transmission Planning Process (TPP) timeline and use the assumptions included in the CAISO TPP Study Plan. These base cases are used to perform Transmission Grid Assessment and to develop the Transmission Expansion Plan.

To maintain consistency, all the other base cases developed throughout the year use the approved Annual Transmission Planning Base Cases as the starting cases. The base cases are modified based upon the objective of the study and the study assumptions.

This document includes details of the assumptions used and the process followed for developing the Annual Transmission Planning Base Cases.

2 Annual Transmission Planning Base Case Development Process

The base case development process is completed on a yearly basis in order to keep the CDWR system model up-to-date and consistent with changes that have occurred throughout the year.

Previously approved WECC base cases serve as the starting cases for the CAISO TPP base cases. CDWR validates the previously approved WECC base cases to ensure that they are accurate and represent up-to-date information for modeling the CDWR system.

2.1 Roles and Responsibilities

CDWR, as its own TP, is responsible for maintaining all models and modeling data related to CDWR's ownership of transmission, resources and loads directly connected to CDWR's transmission system.

2.2 Transmission Planning Modeling Assumptions and Responsibilities

The CDWR Transmission System model will follow the WECC's Data Preparation Manual. CDWR will submit WECC base case modeling information in accordance with the CAISO-PG&E Joint Transmission Planning Base Case Preparation Process document posted on the [CAISO-PGE MOD-032-1 Requirements](#) document posted on the [CAISO web site](#). This section provides additional information on what assumptions are made and what level of detail is required for modeling the various aspects of the base cases created.

2.2.1 Transmission Project Modeling

Existing system models will be based upon as-built design and equipment test reports. Future capacity projects approved by CDWR will reflect the most up-to-date information available for both scope and in-service dates.

Future maintenance projects in-service dates are based upon the latest information on the schedule of the maintenance projects. The maintenance projects that have a firm plan to be implemented and are either "under construction" or scheduled to be "under construction" will

be modeled in the cases based upon the scope of work provided by the maintenance team.

2.2.2 *Generation*

a. Models

Existing generator models will reflect the latest models provided by CDWR.

Future generators or modifications to existing generators will be modeled based upon CDWR project status using the latest generator models available. Future projects that have a status of “in construction” will be modeled in future base cases. The exception to this will be for the cases that require the Renewable Portfolio Standard (RPS) needs to be modeled. If the “in construction” list of generation does not meet the RPS needs, additional generation will be modeled to meet these needs. This additional generation shall be based upon most likely to occur generation that is still moving forward.

b. Dispatch

Generation dispatch for existing units will be based either on historical information (if available) or upon Net Qualifying Capacity (NQC) values. Future renewable generation dispatch will be based upon the CAISO TPP Study Plan for the given scenario.

2.2.3 *Demand*

CDWR’s demand models will follow WECC’s Data Preparation Manual, as well as other requirements found in the [CAISO-PGE MOD-032-1 Requirements](#) document posted on the [CAISO web site](#) as described in Section 2.2.

2.2.4 *Outage Information*

Planned outages that are at least 6 months in duration will be modeled based upon the planned dates of the outages using the outage information provided by CDWR and CAISO.

2.2.5 *Firm Transmission Service*

Known commitments for Firm Transmission Service and Interchange on the CDWR system will be modeled.

2.2.6 *Distributed Energy Resource Model*

Modelling assumptions for modelling Energy Efficiency (EE), Demand Response (DR), Distributed Generation (DG), Electric Vehicles (EV), storage are under development and will be added to this document in the future.

2.3 Annual Transmission Planning Base Case Development Process

PG&E, as the WECC Area Coordinator, is responsible for compiling full base case data sets for Northern California.

CDWR is responsible for providing its transmission system model updates to PG&E at least once a year, usually on or about November 15th, to accurately capture CDWR's transmission system model in the annual transmission planning base case development process.

CDWR is also responsible for providing comments, as necessary, to PG&E, as the WECC Area Coordinator, regarding the CDWR system models.

2.4 Short Circuit Modeling Data

CDWR maintains short circuit modeling data for its transmission planning area and will provide it to PG&E, CAISO, or WECC upon request.

Version History

Version	Change	By	Date
1.0	CAISO CDWR Joint Process Document for MOD-032-1 Requirement R1 Implementation and Compliance, initial version	Catalin Micsa, Masoud Shafa and Robert Moore	12/08/21

Technical Review

Reviewed By	Name	Signature	Date
Manager, Transmission Planning Branch SWP Power and Risk Office (CDWR)	Masoud Shafa	Original Signed	12/9/2021
Manager, Electrical Engineering Branch 1 Electrical Engineering Services (CDWR)	Robert Moore	Original Signed	12/10/2021
Senior Advisor Regional Transmission Engineer, Transmission Infrastructure Planning (CAISO)	Catalin Micsa	Original Signed	12/8/2021

Approval

Approved By	Name	Signature	Date
Manager, Electrical Engineering Services Office (CDWR)	Armando Ortiz	Original Signed	12/10/2021
Manager, Regional Transmission North Transmission Infrastructure Planning (CAISO)	Binaya Shrestha	Original Signed	12/8/2021

Appendix A. Modeling Communications

Entities responsible for providing data should send it to:

PC – ISO at: GridModelingData@caiso.com

TP – CDWR at: masoud.shafa@water.ca.gov & robert.moore@water.ca.gov

As WECC Area Coordinator, data may also be submitted to PG&E:

TP – PG&E at: AreaCoordinator@pge.com or GenModel@pge.com as applicable

Appendix B. Evidence Retention

The following evidence for demonstrating compliance with MOD-032 will be retained for a period of 4 years unless one of the following is true:

- 2.2.1 Last audit performed by the Compliance Enforcement Authority was over 4 years ago, then at a minimum, maintain evidence from the last audit until a new audit is performed.
- 2.2.2 Maintain evidence for a longer period of time if asked by the Compliance Enforcement Authority, as part of an investigation.
- 2.2.3 If an applicable entity is found non-compliant, it shall keep information related to the non-compliance, at a minimum, until mitigation is complete and approved.

The following documents need to be retained:

- Documentation showing that CDWR and CAISO jointly developed required modeling data requirements and reporting procedures;
- Modeling requirements document;
- Posting and reporting procedures for modeling requirements documents; and
- Written notification regarding technical concerns with data submitted under R2, including the technical basis or reason for the technical concerns.