

California Independent System Operator

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**Hetch Hetchy Water and Power of the City and
County of San Francisco**

**Joint Transmission Planning Base Case
Preparation Process**

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June 2017

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1 Introduction

1.1 Purpose

The purpose of this document is to (i) provide an overview of the Transmission Planning Base Cases used by Hetch Hetchy Water and Power (HHWP) of the City and County of San Francisco (CCSF); (ii) provide details of the assumptions used in the Annual Transmission Planning Base Cases; and (iii) provide an overview of the process used in the development of Annual Transmission Planning Base Cases.

HHWP is owned and operated by CCSF. CCSF is registered as a Transmission Planner under the name of HHWP; thus HHWP is also used in this document to refer to CCSF.

CCSF and the California Independent System Operator (CAISO) entered into a Planning Coordinator Agreement dated May 14th, 2015. Attachment 2 of this agreement describes how the CAISO and CCSF anticipated coordinating with each other while carrying out their respective responsibilities as Planning Coordinator and Transmission Planner. This process provides additional details on coordination related to transmission planning and MOD-032 modeling data for power system modeling and analysis.

1.2 Transmission Planning Base Cases

HHWP'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

This section provides an overview of the Annual Transmission Planning Base Case Development Process. This process is completed on a yearly basis in order to keep the HHWP system model up-to-date and consistent with the changes that have occurred throughout the year.

The Annual Transmission Planning Base Cases serve as an input into the CAISO annual TPP process and are used as starting cases for other transmission planning studies throughout the year including WECC base cases, and base cases used in load and generation interconnection studies.

The process is broken up into several rounds. Each round builds off the previous round in a chronological fashion.

2.1 Roles and Responsibilities

HHWP's Transmission Planners are responsible for maintaining all models and modeling data related to CCSF's ownership of transmission, resources and loads directly connected to HHWP's transmission system.

2.2 Transmission Planning Modeling Assumptions and Responsibilities

The HHWP Transmission System model will comply with the requirements in WECC's Data Preparation Manual, as well as other requirements applicable to CCSF described in 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 model will be based upon as-built design and equipment test reports. Future capacity projects approved by HHWP 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 modelled 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 HHWP.

Future Generators or modifications to existing generators will be modeled based upon HHWP 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 based upon the Renewable Portfolio Standard (RPS) needs. 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. Typically a Large Generator Interconnection Agreement (LGIA) or Power Purchase Agreement (PPA) would be the next set of criteria for modeling based on RPS needs.

b. Dispatch

Generation dispatch for existing units will be based either on historical information (if available) or based 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 *Demand¹*

HHWP’s demand models will comply with the requirements in 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](#).

2.2.4 *Outage Information*

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

2.2.5 *Firm Transmission Service and Interchange*

Known commitments for Firm Transmission Service and Interchange will be modelled based upon the information provided by the CAISO.

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.

¹ CCSF demand is served through PG&E distribution substations; therefore PG&E is responsible for bus bar level models derived from California Energy Commission (CEC) load forecast.

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.

HHWP is responsible for providing its transmission system model updates to PG&E at least once a year, usually around October, to accurately capture HHWP's transmission system model in the annual transmission planning base case development process.

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

Version History

Version	Change	By	Date
1.0	CAISO HHWP Joint Process Document for MOD-032-1 Requirement R1 Implementation and Compliance, initial version	Catalin Micsa and Lesley Kayser-Sprouse	6/2/2017

Technical Review

Reviewed By	Name	Signature	Date
Senior Advisor Regional Transmission Engineer, Regional Transmission North (CAISO)	Catalin Micsa	Original Signed	6/2/2017
Operations & Transmission Planning Engineer, HHWP	Lesley Kayser-Sprouse	Original Signed	6/2/2017

Approval

Approved By	Name	Signature	Date
Manager, Regional Transmission North, Infrastructure Development (CAISO)	Jeffrey Billinton	Original Signed	6/2/2017
Division Manager, HHWP	Margaret Hannaford	Original Signed	6/2/2017

Appendix A. Modeling Communications

Entities responsible for providing data should send it to:

PC – ISO at: GridModelingData@caiso.com

TP – HHWP at: LKayser-Sprouse@sfwater.org and/or WGibson@sfwater.org

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. WECC Base Case Development Process

PG&E, as the WECC Area Coordinator, will be responsible for the WECC Base Cases Development Process, and follows the [CAISO-PGE MOD-032-1 Requirements](#) document posted on the [CAISO web site](#).

HHWP will provide PG&E with its updated models at least once a year and will participate in WECC base case review, as necessary.

Appendix C. 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:

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. Maintain evidence for a longer period of time if asked by the Compliance Enforcement Authority, as part of an investigation.
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 HHWP 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.