



2011 ISO Transmission Plan 2015 and 2020 Renewable Base Case Assumptions

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Stakeholder Conference Call

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Agenda: In this conference call

Welcome and overview

Tom Cuccia

Background, and generation model assumptions

Paul Didsayabutra

Generation dispatch assumptions

David Le

Network models assumptions & Next step

Binaya Shrestha

Questions & Answers

All

Background

- During the first 2011 Transmission plan stakeholder meeting, the ISO proposed more renewables to be modeled in the 2015 and 2020 reliability study cases
 - Based on generation interconnection queue,
 - Renewable-focus reliability cases
- During the comment period, several comments/suggestions were received regarding these base cases
- The purpose of the conference call is to provide additional information for the modeling of the renewable generation for 2015 and 2020 study cases
- Base cases for 2011 through 2014 scenarios have been finalized and posted on the ISO secured website

In this conference call:

- ISO staff will walk through assumptions related to renewable projects modeled in these cases such as:
 - New generation projects modeled
 - Network upgrades
 - Generation dispatch
- Provide update schedule on the completion of these cases

Study Assumptions - Generation Modeled

- New Generation Projects in LGIP Queue
 - Amendment 39
 - Serial Group
 - Transitional Cluster

- Modeling of renewables depending upon project's expected in-service dates
 - Projects with expected in-service date on or before May 2015 were modeled in both 2015 and 2020 cases
 - Projects with online in-service date after May 2015 were modeled in 2020 cases only

Detailed Study Assumptions – Generation Assumptions (2020)

	Installed	Dispatched	Energy (GWh)
Wind	6,135	3,057	17,750
Bio	80	72	631
Solar Th.	10,425	6,957	23,400
Geo	1,393	1,254	10,983
PG&E	2,237	1,554	8,276
SCE	10,092	6,642	27,419
SDG&E	2,444	1,045	6,164
IID	2,007	1,290	7,725
LADWP	1,253	808	3,180
In State	18,033	11,339	52,764
Total	18,033	11,339	52,764

- New Generation Projects Modeled for 2020 study case to meet renewable net short target
 - Dispatch is based on RETI generation profiles at 16:00 hrs
 - Consistent with assumptions used in CTPG study

Detailed Study Assumptions – Generation Assumptions (2015)

	Installed	Dispatched	Energy (GWh)
Wind	5,521	948	5,503
Bio	72	22	196
Solar Th.	9,382	2,157	7,254
Geo	1,254	389	3,405
PG&E	2,014	482	2,566
SCE	9,082	2,059	8,500
SDG&E	2,200	324	1,911
IID	1,806	400	2,395
LADWP	1,128	250	986
In State	16,229	3,515	16,357
Total	16,229	3,515	16,357

- New Generation Projects Modeled for 2015 study case
 - Data from CTPG (confidential to CTPG members) for 33% RPS in 2020
 - Modified for 20% RPS for 2015 using CEC energy forecast, subtracting existing and new 2009 renewable resources

Estimates for Net Short Renewable Energy for Meeting 20% RPS in 2015

- CEC's load energy forecast for 2015 (state-wide figure, excluding pump loads)
 - 273,468 GWH
- Calculation for net short renewable energy to meet 20% RPS target in 2015
 - $\text{Net short RE} = 0.20 \times (273,468 \text{ GWH}) - 38,174 \text{ GWH}$
 $= 16,520 \text{ GWH}$
- Since most (>90%) of new renewable generation has on-line date of 2015, the additional new resources will be modeled as a percentage of the 2020 renewable models
 - $\% \text{ new resources modeled} = 16,520 \text{ GWH} / 52,764 \text{ GWH}$
 $= 31\% \text{ of new RE resources (2020)}$

Generation Re-dispatch Assumptions

- Utilize CTPG-proprietary “Merit Order Dispatch” tool
- For 2020 study case

	Total	In-State	Out-State
Pre Gen Online	35,603	14,600	21,003
Post Gen Online	24,011	4,163	19,848
Gen Drop (Actual)	11,592	10,437	1,155
In/Out State Split	100%	90%	10%
Gen Drop (Req'd)	11,339	10,205	1,134

- For 2015 study case

	Total	In-State	Out-State
Pre Gen Online	35,603	14,600	21,003
Post Gen Online	31,939	11,302	20,637
Gen Drop (Actual)	3,664	3,298	366
In/Out State Split	100%	90%	10%
Gen Drop (Req'd)	3,515	3,164	352

Network Upgrade Assumptions

- From CTPG, network upgrades modeled, as required, in the study cases are listed at the following:
 - See Table 7.2.3 of the Draft Phase 2 CTPG Study at http://www.ctpg.us/public/images/stories/draft_phase_2_ctpg_study_report.pdf
- The following are mentions of a few of these major upgrades:
 - Tehachapi Transmission Project
 - Sunrise Powerlink Project
 - DPV2 (California portion) Project
 - ECO Substation Project
 - Ivanpah Project

Schedule for posting 2015 and 2020 RE cases

- Tentatively schedule to post these study cases on ISO secured website on April 30, 2010
- Study results will be posted on August 15, 2010

