



March 1, 2012

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, D.C. 20426

**RE: California Independent System Operator Corporation  
Docket No. ER11-4580**

Dear Secretary Bose:

As requested by parties and Commission staff during the Technical Conference Discussing CAISO's Proposal to Eliminate Convergence Bidding at Intertie Scheduling Points held in Washington D.C., on February 2, 2012, the California Independent System Operator Corporation (ISO) hereby submits the following information.

All data used to create the slides presented during the technical conference is made available at the following website:

[http://www.caiso.com/informed/Pages/StakeholderProcesses/IntertiePricing\\_Settlement.aspx](http://www.caiso.com/informed/Pages/StakeholderProcesses/IntertiePricing_Settlement.aspx)

Parties will find the following Excel worksheets containing all the data used to produce the slides presented by the ISO and the ISO Department of Market Monitoring (DMM) during the technical conference.<sup>1</sup> These files can be downloaded from the website directly.

#### **Description of files:**

##### **1) "Technical Conference DLAP Data":**

This file provides data used to create ISO Slide 3. ISO Slide 3 presents off peak and on peak data on the divergence of prices at the Pacific Gas & Electric (PG&E) default Load Aggregation Point (LAP) from the start of the new ISO market on April 1, 2009 through the end of 2011. This file contains the monthly average prices in each of the default LAPs, *i.e.*, PG&E, San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE), calculated as a simple average off all hourly prices during the month. The file also contains these monthly average prices for both peak and off peak hours.

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<sup>1</sup> The ISO and its DMM made two separate presentations. In this document the ISO will be describing data related to both sets of slides. The ISO's slides will be referred to as the "ISO Slide" and the DMM's slides will be referred to as the "DMM Slide."

Commission staff requested the same data for all default LAPs for the time period during which convergence bidding has been in effect. Convergence bidding was implemented on February 1, 2011. The data requested by Commission staff is available in the worksheet labeled "DLAP Monthly Average Price\_CB," which contains the monthly average price for the three default LAPs together as well as each individual default LAP. This worksheet also contains similar charts provided in ISO Slide 3 for each of the default LAPs and for the time period in which convergence bidding was in effect.

All of this data is derived from hourly default LAP prices extracted from internal ISO data depositories. The pricing data is also publicly available through the ISO OASIS.<sup>2</sup>

## 2) "Technical Conference Virtual MW to Prices PEAK:"

This file contains data used to produce ISO Slides 5, 7, 8, and 9.

These slides illustrate the net daily virtual positions and pricing trends during peak hours and days for the time period from February 1, 2011 through December 31, 2011. Convergence bidding became effective on February 1, 2011. Convergence bidding at intertie scheduling points was suspended effective November 28, 2011.

The virtual bidding daily positions is provided in raw form in the worksheet labeled "Data" and in summary form in the file labeled "Summary Data and Charts." The virtual positions are presented on a ten-day moving average. The ten day moving averages are calculated based on the formulas contained in the spreadsheets.

Description of columns in the spreadsheet labeled "Data:"

VL	- total virtual load (demand and exports)
VG	- total virtual generation
VL_int	- virtual internal load positions
VG_int	- virtual internal generation positions
VL_tie	- virtual load positions at the interties
VG_tie	- virtual generation positions at the interties

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<sup>2</sup> Price data is available on the Prices tab within OASIS. Day ahead prices can be found in the Locational Marginal Prices Report and selecting internal DLAPs (DLAP\_PGAE\_APND, DLAP, DLAP\_SCE\_APND, DLAP\_SDGE\_APND) and intertie scheduling points (MALIN\_5\_N101, PALOVRDE\_5\_N101, SYLMARDC\_2\_N501). Internal real time prices can be found in the Interval Locational Marginal Prices report by selecting the appropriate DLAPs. Intertie HASP prices can be found in the HASP Locational Marginal Prices report by selecting the appropriate intertie scheduling points.

These slides depict data from February 1, 2011, when convergence bidding came into effect, through the end of 2011. This file contains data for the same time period. The prior time period is not relevant for these slides because they only depict information related to convergence bidding.

The daily virtual positions data was extracted from internal ISO data depositories. This data is also publicly available on the ISO's OASIS.<sup>3</sup>

The pricing data contained in the spreadsheet labeled "Summary Data and Charts" is derived from the data provided in the file labeled "Technical Conference Price Data" described below. The columns labeled "DA-RTD," "DA-HASP," "RTD-HASP," contain ten-day moving average prices derived from data provided in "Technical Conference Price Data." The ten-day moving average prices are calculated based on the calculations provided in that file described below.

### **3) "Technical Conference Virtual MW to Price OFF PEAK":**

This file contains data used to produce ISO Slides 5, 10, 11, and 12.

These slides illustrate the net daily virtual positions and pricing trends during off-peak hours and days for the time period during which convergence bidding was in effect. The virtual bidding data and pricing data in this file is similar to the data in the data file labeled "Technical Conference Virtual MW to Price Peak" described above, except that in this case the information pertains to off-peak days and hours.

### **4) "Technical Conference Price Data:"**

This file contains pricing data used to produce ISO Slides 5, 7, 8, 9, 10, 11, and 12. These slides all contain pricing trends that are derived from the data contained herein.

These slides depict data from February 1, 2011, when convergence bidding came into effect, through the end of 2011. This file contains data for the same time period. The prior time period is not relevant for these slides because they only depict information related to convergence bidding.

This data is derived from internal ISO market data depositories. This data is also available publicly through the ISO's OASIS. The day-ahead and hour-ahead prices are hourly prices and are available as such from OASIS. The real-time

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<sup>3</sup> This data can be retrieved from the "Energy" tab in OASIS under the "Net Cleared Convergence Bidding Awards" at the nodal data level.

prices are hourly prices derived based on a simple average of the 5-minute prices in each hour.

**5) “Technical Conference RUC Data:”**

This file contains data used to produce ISO Slide 6. Slide 6 depicts the amount of residual unit commitment from the time the ISO implemented the new market on April 1, 2009 through the end of 2011. ISO Slide 6 provides the average RUC Award which is the amount of incremental RUC capacity that is compensated at the RUC availability price because the resource is not contracted under a resource adequacy contract. RUC incremental generation that is under a resource adequacy contract is not compensated at the RUC availability price. The RUC incremental generation is displayed on the ISO OASIS, which covers both the RUC award and RUC capacity.

**6) “Technical Conference RTIEO Monthly:”**

This file contains data used to produce ISO Slide 13, which depicts dollar amounts of the real-time imbalance energy offset since the start of the new ISO market on April 1, 2009.

This data is also published and shared regularly in the ISO’s Market Performance and Planning forum. See <http://www.caiso.com/Documents/Market%20performance%20and%20planning%20forum>.

**7) “Technical Conference Profit from Balanced Virtual Bids:”**

This file contains data used to produce ISO Slide 15, which depicts the profits made from balanced virtual import and internal bids from February 2011 to November 2011 by each scheduling coordinator. Commission staff requested this information during the technical conference.

The ISO is submitting the information provided in Attachment A pursuant to Section 388.112 of the Commission’s regulations. The ISO respectfully requests confidential treatment of Attachment A as the information provided contains commercially sensitive trade secrets and other confidential business information. The public version of this document is provided in Attachment B and is available on the ISO’s website at [http://www.caiso.com/informed/Pages/StakeholderProcesses/IntertiePricing\\_Settlement.aspx](http://www.caiso.com/informed/Pages/StakeholderProcesses/IntertiePricing_Settlement.aspx)

In the public version of the information provided in Attachment B, the identity of the scheduling coordinators has been masked. The non-public materials in Attachment A have been marked “PROTECTED MATERIALS.”

**8) “Technical Conference 30 Day Rolling:”**

This file provides the data used to produce ISO Slides 16 and 17. These slides provide information on the impact of scheduling coordinator-specific balanced virtual schedules, residual balanced schedules, and other factors on the real-time imbalance energy offset and the volumes of such activity since convergence bidding was put into effect on February 1, 2011. This data is derived from scheduling coordinator-specific data that is not publicly available because it consists of commercially sensitive trade secrets and other confidential business information. The scheduling coordinator-specific data was aggregated to produce ISO Slides 16 and 17 and, therefore, the identity of the scheduling coordinators is not discernible in the aggregated data provided in this file.

**9) “Technical Conference Dual Constraint:”**

This file contains data used to produce ISO Slide 19, which depicts the monthly impact of the price inconsistency in the dual constraints used in the scheduling and pricing runs of the ISO hour-ahead scheduling process. This data is derived from scheduling coordinator-specific data that is not publicly available because it consists of commercially sensitive trade secrets and other confidential business information. The scheduling coordinator-specific data was aggregated to produce Slide 19 and, therefore, the identity of the scheduling coordinators is not discernible in the aggregated data provided in this file.

**10) “Technical Conference Hourly Analysis:”**

This file contains the data depicted in DMM Slides 2, 3, 4, 5 and 6.

These slides provide information about the average net virtual positions and pricing trends for each of the 24 operating hours during the last two months convergence bidding on interties was in effect (October 1 to November 28, 2011) and the two months when convergence bidding on interties was no longer in effect (December 1, 2011 to January 29, 2012). The hourly averages represent simply averages.

The hourly average prices and virtual bidding quantities shown in DMM Slides 2, 3, 4, 5 and 6 were developed from ISO market data stored in DMM’s datamart. The prices and virtual bidding quantities needed to replicate these charts or do alternative analysis are available on the ISO’s OASIS site.<sup>4</sup> In a limited number of cases, minor discrepancies in prices of virtual bidding quantities could exist due to ex post corrections in market data that sometimes do not get incorporated into the DMM datamart. However, DMM is confident the impact of any such

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<sup>4</sup> Price data are available from the Prices tab of the OASIS sites and net virtual bidding data are available by going to the Energy tab of the OASIS site and selecting a report on “Net Cleared Convergence Bidding Awards.”

discrepancies would be *de minimus* in terms of the fundamental trends highlighted in these slides and the points these data are meant to support.

The average prices in these charts are average system market energy clearing price (SMEC) for the day-ahead, hour-ahead and real-time markets. The SMEC is described on OASIS as the *Energy Component* of each locational marginal price (LMP).<sup>5</sup> In theory, the SMEC or Energy Component of the LMP for each point in the ISO should be equal each time interval, with differences in LMPs being due to differences in the congestion or loss components. However, in a few cases the Energy Component posted on OASIS and in the DMM datamart may be different at different locations due to price corrections made at some locations but not others. Because of the potential for such differences, for each hour DMM first took the simple average of the Energy Component (or SMEC) of the LMPs for the twelve DLAP and GenHub prices:

DLAP\_PGAE-APND  
DLAP\_SCE-APND  
DLAP\_SDGE-APND  
TH\_NP15\_GEN-APND  
TH\_NP15\_GEN\_OFFPEAK-APND  
TH\_NP15\_GEN\_ONPEAK-APND  
TH\_SP15\_GEN-APND  
TH\_SP15\_GEN\_OFFPEAK-APND  
TH\_SP15\_GEN\_ONPEAK-APND  
TH\_ZP26\_GEN-APND  
TH\_ZP26\_GEN\_OFFPEAK-APND  
TH\_ZP26\_GEN\_ONPEAK-APND

This approach was used to avoid the potential for data to be skewed if the analysis was based on a single node and the Energy Component for that node happened to be modified through a significant price correction that time period.

Hourly average virtual bidding volumes were calculated based on transaction level data stored in DMM's datamart. The data necessary to replicate this analysis or perform other analyses is available on OASIS. The description of these data provided on the Energy tab of the OASIS site is follows:

#### **Net Cleared Convergence Bidding Awards:**

Posts Net Cleared MW for Virtual Bids for every Virtual Bidding Node per Trade Hour within a Trading Day including Trading Hubs and default LAPs. This report

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<sup>5</sup> As indicated in the description of LMPs posted on the **Prices** tab in OASIS, these data include "the LMP, plus the Congestion, Loss and Energy Components that make up the LMP".

will post after all Real Time markets have closed for the associated Trading Day.

Posts Convergence Bidding Supply Awards, Less Convergence Bidding Demand Awards per node. Under this convention, positive net cleared virtual quantities will indicate net Virtual Supply, whereas negative net cleared virtual quantities will indicate net Virtual Demand at a given node. A value of null Net Cleared Virtual quantities at a given node will indicate no virtual bids submitted at that node while a value of zero will indicate virtual supply and demand Awards netted to zero.

### **11)“Technical Conference Buybacks and Cuts:”**

This file contains data depicted in DMM Slide 12. This slide is not numbered in the DMM presentation but follows DMM Slide 11 and is entitled “Buy-back and delivery rates for imports by month.” Data for January 2012 cover the period from January 1 to 22, 2012.

The blue bars in DMM Slide 12 depict the average hourly gross day-ahead import schedules into the ISO for each month. These averages were developed by first summing up hourly import schedules stored in DMM’s datamart for each hour, and then calculating hourly average for each month.

The aggregate value of hourly gross imports is provided on the ISO’s OASIS site through the System Load and Resource Schedules report on the Energy tab. Minor discrepancies in averages developed from OASIS data and averages developed by DMM may be due to any differences in data on individual input schedules contained in the DMM datamart.

The blue line in DMM Slide 12 depicts the percentage of gross day-ahead import schedules that were “bought back” in the hour-ahead scheduling process each month. These include day-ahead import schedules that were re-bid at the same or different price in the hour-ahead market but did not clear this market, as well as schedules that were “zeroed out” (i.e. submitted with a quantity of 0 MW). These monthly percentages are derived from scheduling coordinator-specific data that are not publicly available because it consists of commercially sensitive trade secrets and other confidential business information. The scheduling coordinator-specific data was aggregated to produce DMM Slides 12 and, therefore, the identity of the scheduling coordinators is not discernible in the aggregated data provided in this file.

The red line in DMM Slide 12 depicts the percentage of gross hour-ahead import schedules that were ultimately imported into the ISO each month. These include hour-ahead import schedules that were not e-tagged by the responsible scheduling coordinator, as well as hour-ahead schedules that were “cut” by the ISO and/or another control area (e.g. due to a transmission de-rate). Data in

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DMM's datamart do not provide information necessary to identify the specific reason an hour-ahead import was not ultimately delivered. These monthly percentages are derived from scheduling coordinator-specific data that are not publicly available because it consists of commercially sensitive trade secrets and other confidential business information. The scheduling coordinator-specific data was aggregated to produce DMM Slides 12 and, therefore, the identity of the scheduling coordinators is not discernible in the aggregated data provided in this file.

Respectfully submitted,

**By: /s/ Anna McKenna**

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**February 2, 2012 FERC Technical Conference Data  
California Independent System Operator Corporation  
Attachment A  
Confidential  
Contains Privileged Information  
Do Not Release**

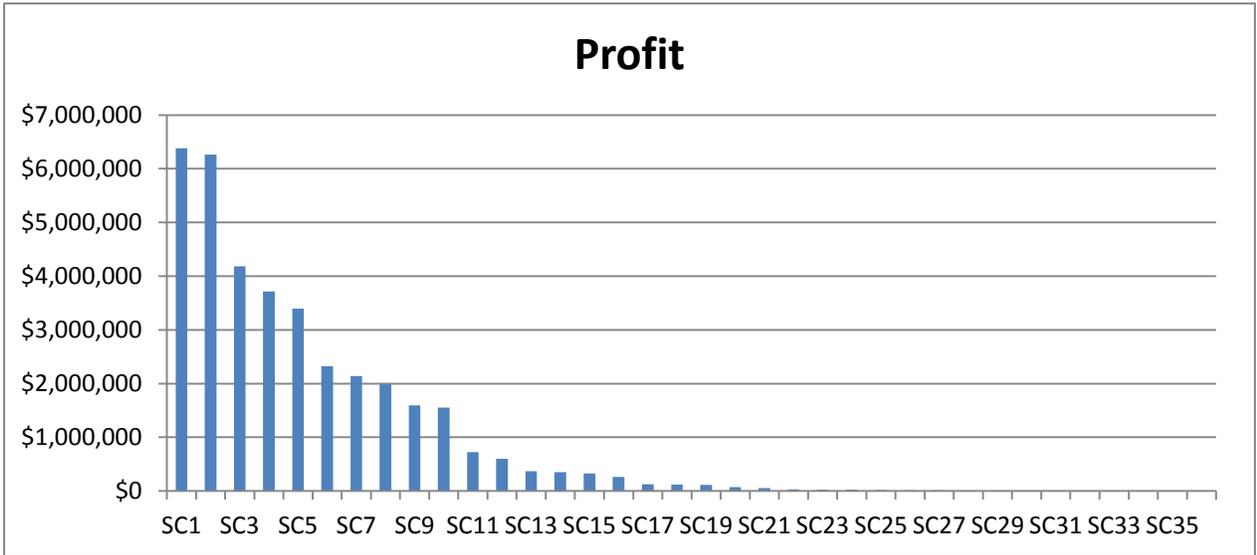
*Protected Materials*

**February 2, 2012 FERC Technical Conference Data  
California Independent System Operator Corporation  
Attachment B**

## ATTACHMENT B

SCID	Profit
SC1	\$6,381,094
SC2	\$6,262,881
SC3	\$4,185,711
SC4	\$3,715,467
SC5	\$3,394,911
SC6	\$2,321,582
SC7	\$2,139,360
SC8	\$1,984,753
SC9	\$1,593,434
SC10	\$1,556,289
SC11	\$724,580
SC12	\$599,137
SC13	\$370,889
SC14	\$349,131
SC15	\$327,363
SC16	\$260,437
SC17	\$126,109
SC18	\$118,347
SC19	\$113,676
SC20	\$73,273
SC21	\$55,734
SC22	\$32,052
SC23	\$22,761
SC24	\$22,144
SC25	\$17,964
SC26	\$15,736
SC27	\$12,580
SC28	\$3,877
SC29	\$1,949
SC30	\$1,276
SC31	\$1,101
SC32	\$1,091
SC33	\$416
SC34	\$360
SC35	\$104
SC36	\$66
SC37	\$0
SC38	\$0
SC39	-\$561
SC40	-\$1,273
SC41	-\$37,667
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## CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 1<sup>st</sup> day of March, 2012.

*/s/ Anna Pascuzzo*  
Anna Pascuzzo