Straw Proposal

Data Release & Accessibility

Phase 2
Convergence Bidding
Data Release

December 31, 2009

Data Release & Accessibility
Phase 2: Convergence Bidding Data Release

Contents

1. Introduction

As described in the December 3, 2009 issue paper, convergence bidding is one of several market enhancements scheduled for implementation by the California Independent System Operator Corporation's (the ISO). Convergence bidding is scheduled to be implemented by February 1, 2011. At issue here is whether the ISO should release certain additional convergence bidding transaction information and whether, and to what degree, this would promote efficient, effective market development and operation. This effort is part of a broader stakeholder process to explore the issue of data release and accessibility in ISO markets.

The Data Release & Accessibility Initiative consists of three phases:

- Phase 1: Transmission Constraints,
- Phase 2: Convergence Bidding Information Release (topic of this straw proposal), and
- Phase 3: Other types of market data to support well-functioning, competitive ISO spot markets, including Price Discovery and Outage Information.

The ISO Board of Governors approved the convergence bidding design proposal at its October 2009 meeting. Information on the stakeholder process is available on the Convergence Bidding Stakeholder Initiative, http://www.caiso.com/1807/1807996f7020.html. The ISO filed its convergence bidding design proposal in docket ER06-615 on November 20, 2009.

The focus of this straw proposal is on information related to Convergence Bidding; specifically, it addresses the question of the content and timing of convergence bidding information to be publicly released by the ISO.

2. Process and Proposed Timetable

The following timetable is for the policy stakeholder and Board approval process for Phase 2. The first four milestones shown below are complete. At this time the ISO anticipates completing this phase of the stakeholder process at the February Board Meeting.

Phase 2 Timetable

Date	Milestone
December 3, 2009	**Phase 2 Issue Paper on Convergence Bidding**
December 10, 2009	On-Site Meeting -- Jointly with Phase 1 & 2 at the ISO
December 17, 2009	Comments on Issue Paper are due
Dec. 31, 2009, Thu.	**Phase 2 Straw Proposal**
Jan. 7, 2010, Thu.	On-Site Meeting
Jan. 11, 2010, Mon.	Comments on the Phase 2 Straw Proposal
Jan. 20, 2010, Wed.	**ISO Draft Final Proposal**
Jan. 27, 2010, Wed.	Conference Call
Jan. 29, 2010, Fri.	Comments on Draft Final Proposal are due.
February 11-12, 2010	**Board Meeting and Decision**

3. Convergence Bidding Information Release Options

The following five entities submitted comments on the December 3 issue paper: Dynegy, PG&E, SCE, SDG&E and WPTF. Dynegy and WPTF both support releasing the same information for both physical and virtual transactions on a 90-day lag, i.e., all submitted bids as are currently released for physical bids. SCE and SDG&E both support the Market Surveillance Committee (MSC) recommendation[1] to release the net cleared virtual quantities by node at the close of the Day-Ahead market. PG&E recommends the release of "aggregated cleared quantities of both virtual supply and virtual demand at each node," and recommends that the information be released after the completion of all markets for a particular trade date, instead of at the close of the Day-Ahead market. In its October 21, 2009 memo,[2] the ISO's Department of Market Monitoring (DMM) stated that it supported making "additional market data available to market participants in a timely fashion to the extent possible." Although SCE stated that the ISO

[1] MSC Opinion on Convergence bidding, October 19, 2009, http://www.caiso.com/244c/244cd3c96d060.pdf

[2] DMM *Memo to the ISO Board of Governors*, Convergence Bidding, October 21, 2009, http://www.caiso.com/244f/244f99f1605d0.pdf

should also consider releasing aggregate virtual supply and demand curves by node as part of the planned 90 day bid release process, the 90-day release will include all submitted bids. Thus, market participants can easily assemble the aggregate curves from this data.

3.1. 90-Day Lag Release of All Virtual and Physical Bids

Dynegy and WPTF both support the recommendation that was included in the *Draft Final Proposal* on the convergence bidding design,[3] that the same information be released for both physical and virtual transactions on a 90-day lag, i.e., all submitted bids as are currently released for physical bids. Dynegy and WPTF observe that this data release approach is used in other ISO markets with similar convergence bidding market designs. With regard to the posting of certain virtual bid information ahead of the 90-day lag, Dynegy states that (1) the convergence bidding structure proposed by the ISO is not different enough from any other implemented design to warrant posting information that no other ISO posts, and (2) the need for this additional information is not apparent given these other ISOs have not even implemented the additional safeguards – such as position limits – that the ISO has proposed for its design. WPTF states that releasing both virtual and physical bid information after three months ensures that the information is provided to all market participants without giving away competitively valuable information.

3.2. Daily Release of Net Cleared Virtual Quantities at Each Location

SCE and SDG&E both support the MSC recommendation to release the net cleared virtual quantities by node at the close of the day-ahead market. Stakeholders were asked (1) how the release of net cleared virtual quantities will benefit the market, (2) how market participants plan to use net cleared virtual quantities data along with DA and RT historical prices, and (3) whether the release of net cleared virtual quantities could be harmful to the market in the form of reduced participation or a loss of market liquidity.

In its October 19, 2009 Final Opinion on Convergence Bidding, the MSC wrote that it supports the major features of the ISO's convergence bidding proposal. The MSC recommended a progressive information release approach: "the day-ahead release of all virtual bids and offers and sales with or without explicitly identifying the market participant." However, if this is not possible, the MSC recommended the release "of the net virtual position (total virtual supply bids accepts minus the total virtual demand bids accepted) at each location in the ISO control area and intertie point" at the close of the day-ahead market. Neither of these approaches is currently in practice at any of the other ISOs in the U.S.

With regard to benefits and use, SCE contends that (1) the market needs net cleared virtual quantities in order to formulate financial and physical reactions, and that (2) this information will accelerate the rate at which virtual bids bring convergence and overall market efficiency to the

[3] *Draft Final Proposal for the Design of Convergence Bidding* (DFP), September 14, 2009, http://www.caiso.com/2429/24291016c12990.pdf

market. SDG&E contends that the timely posting of virtual bidding day-ahead market results is just as important as the posting of the current physical market results. According to SDG&E, when virtual results are combined with the physical results from the IFM and RUC in aggregated form, it provides market participants with a complete picture of the supply and demand position going into the operating day. Currently, on OASIS under the Energy tab, market participants can view a rolled up summary of market results in the *System Load and Resource Schedules* report, which provides a next-day picture.

This *System Load and Resource Schedules* report shows total MW quantities taken in the IFM and RUC by hour, for Total Exports, Imports, Generation, and Load. This same information is also provided by transmission access charge (TAC) area. For example, if the CAISO Load Forecast for the Trade Day is 20,000 MW and Total Generation in the *System Load and Resource Schedules* report is 19,500 MW, market participants know that 500 MW will be procured in the real-time market. However, with convergence bidding, assume 1,000 MW of virtual supply (out of 19,500 MW) was procured in the IFM/RUC day-ahead market; this 1,000 MW of virtual supply would actually be met by the real-time market. Thus, in this example, a total of 1,500 MW would be procured in the real-time market, which would consist of the 500 MW difference between the DAM and CAISO Forecast, plus the 1,000 MW of virtual supply. It might be informative to add virtual supply and demand information to the *System Load and Resource Schedules* report.

Regarding potential market harm, Dynegy and WPTF both contend that that posting net cleared virtual bids at each node could disclose commercially sensitive information. According to WPTF, convergence bidding market results will be business sensitive to virtual participants as the cleared quantities will reveal the locations that bidders found commercially beneficial. According to WPTF, releasing this commercially sensitive information would be as damaging to virtual participants as would releasing bid information for physical participants. However, WPTF states that releasing the same information for virtual and physical bids after three months ensures that the information is provided to all market participants without giving away competitively valuable information.

Dynegy states that posting net cleared virtual positions at generator nodes will effectively disclose how Dynegy – or any other physical supplier – is using convergence bidding to hedge its units' production against real-time price risk. Dynegy states that it cannot anticipate where and how other parties will be submitting convergence bids, but does not expect that other parties will be bidding at Dynegy's generator nodes in ways and volumes similar to how Dynegy may use convergence bids at those nodes to hedge its physical units against real-time price risk. Consequently, Dynegy expects that disclosing net cleared virtual demand positions at all nodes – including Dynegy's generator nodes – would effectively disclose Dynegy's hedging strategy.

3.3. Daily Release of Aggregate Cleared Quantities of Virtual Supply and Demand at Each Location

PG&E recommends the release of aggregated cleared quantities of both virtual supply and virtual demand at each node, and recommends that the information be released after the completion of all markets for a particular trade date, instead of at the close of the day-ahead market. As

opposed to the net cleared virtual quantities requested by SCE and SDG&E, PG&E's request is for the two aggregated cleared volumes instead of the single netted cleared quantity to provide greater transparency into the virtual market. PG&E emphasizes that no price data would be revealed, and the aggregated nature of the data should protect the specific detail of the individual bids and bidders.

With regard to the benefits of this recommended approach, PG&E cites the general DMM observation that additional data release "may provide a reasonable and effective way of increasing the potential efficiency benefits of convergence bidding and alleviating concerns about convergence bidding at a nodal level." In addition, PG&E postulates that:

> "One way the efficiency benefits may arise is that the aggregated nodal data will identify nodes with high levels of virtual activity. Alerted to this activity, other virtual bidders may enter the market with virtual bids at the high interest nodes and spur additional convergence. The additional market efficiency may help to lower costs for California customers.
>
> "Moreover, release of such information would act as a 'sunshine regulation' and allow all market participants to monitor the virtual markets and spot malicious bidding behavior or detect possible market flaws. Allowing all market participants timely access to this information would strengthen the overall monitoring of the market. This is especially important since virtual bids will not be subject Local Market Power Mitigation (LMPM) at the start of convergence bidding like physical bids.
>
> "Finally, releasing this information will allow market participants to better validate the market results at individual nodes in a timely fashion (i.e., within the price correction window). Without the aggregated nodal data it may be difficult for participants to determine if an unusual market price at a node is being influenced by virtual bids, an LDF issue or some other market modeling problem." (PG&E Comments, 12/22/2009, p.1-2)

Although the MSC recommended the release of net cleared virtual quantities at the close of the day-ahead market, PG&E instead recommends that the information be released after the completion of all markets for a particular trade date. According to PG&E, the release this information after the real-time market would prevent physical bidders from taking advantage of this information in the formulation of their real-time bids.

3.4. Department of Market Monitoring Recommendation

In its October 21, 2009 *Memo to the ISO Board of Governors*[4] on Convergence Bidding, the ISO Department of Market Monitoring (DMM) identified the use of aggregate virtual bid curves by

[4] *Memo to the ISO Board of Governors*, Convergence Bidding, October 21, 2009, http://www.caiso.com/244f/244f99f1605d0.pdf

node as one additional source of market data that could potentially be made available to market participants. DMM's discussion of this issue is shown here:

> "In the stakeholder process, LSEs have identified several types of information that – if released on a relatively frequent basis – could alleviate some of their concerns about being able to quickly and effectively modify their convergence bidding to ensure better price convergence and 'defend' against ways in which convergence bidding by other participants may raise overall costs. These include more frequent release of (1) aggregate virtual bid curves by node, (2) Nodal Load Distribution Factors, and (3) information on enforcement/unenforcement or biasing of constraints in the IFM and real-time markets. DMM believes that pursuing ways to make such information publicly available may provide a reasonable and effective way of increasing the potential efficiency benefits of convergence bidding and alleviating concerns about convergence bidding at a nodal level." (DMM Memo, p.7-8)

DMM's specific recommendation on data release:

> "Market participants have identified specific additional market data as an effective way of increasing the potential efficiency benefits of convergence bidding and alleviating concerns about convergence bidding at a nodal level. The ISO should seek to make such additional market data available to market participants in a timely fashion to the extent possible, through the various stakeholder processes that are currently being initiated on the issue of information release." (DMM Memo, p.8)

SCE notes that while the MSC and DMM make slightly different recommendations, both support increased transparency for nodal virtual bids. PG&E agrees with DMM's observation regarding the release of aggregated virtual bid data by node that it "may provide a reasonable and effective way of increasing the potential efficiency benefits of convergence bidding and alleviating concerns about convergence bidding at a nodal level."

3.5. Daily Market Summary Report

Stakeholders were asked whether the ISO should adopt the Midwest ISO (MISO) approach for the provision of trading day summary information. As described in the issue paper, the MISO Daily Day-Ahead Pricing Report[5] contains Energy Cleared in MWh and Dollars Cleared for both Virtual Supply and Virtual Demand. Reports are posted in XLS and PDF formats. A partial screenshot of the Day-Ahead Pricing Report for 10/22/2009 is shown below. To be clear, the ISO is thinking that this summary market report would be provided in addition to (not instead of) any additional information release.

[5] MISO Day-Ahead Pricing Report, http://www.midwestmarket.org/home/Market%20Reports/index.php?type=da_pr&theMonth=200910

Table A

MidwestISO
Energizing the Heartland

Day-Ahead Pricing Report
Market Date: 10/22/2009
Peak Hour: HE 20 (EST)
Minimum Hour: HE 03 (EST)
Publish Date: 10/21/2009

Pricing Results

	Demand			
	Fixed	Price Sensitive	Virtual	Total
Energy Cleared (MWh)	1,381,032.8	32,715.3	94,900.9	1,508,649.0
Dollars Cleared	$40,951,562.98	$1,031,803.31	$2,927,159.57	$44,910,525.87

	Supply		
	Physical	Virtual	Total
Energy Cleared (MWh)	1,399,728.8	53,323.7	1,453,052.5
Dollars Cleared	$38,672,105.30	$1,571,559.41	$40,243,664.71

LMP Prices ($ per MW)

	MISO System	Illinois Hub	Cinergy Hub	Michigan Hub	Minnesota Hub	First Energy Hub
Hour 01	18.31	15.55	20.17	22.17	14.26	20.95
Hour 02	17.05	14.66	19.62	21.70	13.47	20.27
Hour 03	16.89	14.91	19.42	21.31	12.93	20.11
Hour 04	16.72	15.01	19.82	21.68	12.35	20.53

The NYISO Daily Energy Report[6] contains Virtual MWh Offered and MWh Scheduled information for both Virtual Load Bids and Virtual Supply Bids. Total volume information is provided for the trading day and for each hour. Reports are posted in CSV and PDF formats. A Daily Energy Report for 10/21/2009 is shown below.

[6] NYISO Daily Energy Report, http://www.nyiso.com/public/market_data/reports/daily_energy_report.jsp

Table B

Daily Energy Report - Day Ahead Market (DAM)
Date: 10/23/2009

		MWh	**Percent**
NYISO Load Forecast		398482	
Customer Load Forecast		406592	2.0%
	Offered MWh	**Scheduled MWh**	**Percent**
Load Bids	185527	185527	100.0%
Bilateral Bids	183501	183501	100.0%
Price Capped Load Bids	14235	7944	55.8%
Virtual Load Bids	45977	32081	69.8%
Total Load	439944	419757	95.4%
Total Peak Load	315846	299951	95.0%
Total Non Peak Load	124098	119807	96.5%
Generation Bids	728776	331124	45.4%
Virtual Supply Bids	61022	46385	76.0%
Total Generation	789798	377509	47.8%
Total Peak Generation	524546	269875	51.4%
Total Non Peak Generation	265252	107634	40.6%
Imports	194656	72601	37.3%
Exports	74673	9722	13.0%
Net Imports/(Exports)	119983	62879	52.4%
Gross Imports/Exports Summary			
Wheel Throughs	6300	2290	36.3%

SCE recommends the CAISO incorporate information provided by both the MISO and NYISO into a single market report. Rather than publishing the data below on a system-wide basis, SCE recommends that the ISO consider publishing the information at the LAP level. Specifically, SCE would like to see a virtual bidding report that includes:

- Energy cleared (MWh) of virtual supply bids
- Energy offered (MWh) of virtual supply bids
- Energy cleared (MWh) of virtual demand bids
- Energy offered (MWh) of virtual demand bids
- Dollars cleared of virtual supply bids
- Dollars cleared of virtual demand bids

PG&E supports the release of a virtual trading activity summary similar to that provided by other ISOs, in addition to nodal data. However, PG&E requests that the in-state transactions be separated from virtual bids over the interties, for the reason that the two markets are settled on different prices (i.e., internal nodes using five minute real-time LMPS and interties at the HASP Intertie LMP).

Dynegy supports the MISO approach presented in the issue paper, specifically, the posting of aggregated information, not just for virtual transactions but for all transactions.

4. ISO Straw Proposal

Dynegy and WPTF contend that the data release approaches supported by PG&E, SCE, and SDG&E could disclose commercially sensitive information that would be as damaging to virtual participants as would the similar release of bid information for physical participants. The utilities contend that either the net cleared virtual quantity information or aggregate cleared information for both virtual supply and demand is needed to help: (1) formulate financial and physical positions in the market, (2) accelerate the rate at which virtual bids bring convergence and overall market efficiency to the market, (3) provide market participants with a complete picture of the supply and demand position going into the operating day, (4) identify nodes with high levels of virtual activity that will encourage participation, (5) enable monitoring of the virtual markets and spot malicious bidding behavior or detect possible market flaws, (6) facilitate better validation of market results at individual nodes in a timely fashion (i.e., within the price correction window).

To balance the needs of markets participants for greater transparency regarding the level of virtual trading activity versus concerns about potential disclosure of sensitive commercial strategies and the need to maintain bid disclosure parity among virtual and physical bids, the ISO offers two alternatives for releasing nodal bid data and a proposal for a market summary report. These proposals are described below.

4.1. Nodal Data Release

The issue of concern between Dynegy/WPTF and the utilities is the possible unequal treatment of virtual bids relative to physical bids. Dynegy and WPTF oppose unequal disclosure of virtual bid data, whereas the utilities contend that the release of certain additional virtual bid data is necessary for market efficiency and development. There are possible two compromise solutions that would release additional market information, yet which would treat virtual and physical bids equally.

At the nodal level, the ISO proposes to post either (1) the net cleared total quantities for both virtuals and physicals, or (2) the percentage of cleared quantities for virtual and physical demand and supply. These two approaches release additional market information and treat virtual and physical bids equally. Again, these approaches are proposed as alternatives; the ISO does not propose adopting both approaches, which are described in more detail here:

1. **Straw Proposal Option 1:**
   Net Cleared Total Quantities (Both Virtual and Physical).
   To maintain virtual/physical parity while providing increased transparency, this straw proposal offers the approach of posting the net cleared total quantities (both virtual and physical). This value would be provided for each location, including LAPs and interties as well as internal PNodes. As shown in Table 1 below, the net cleared total

quantity value at the illustrated node is 70 MWh in Row 2, Column J of Table 1. This is the difference between Total Supply and Total Demand cleared at the location.

2. **Straw Proposal Option 2:**
   Percentage of Cleared Quantities (Virtual/Physical Demand and Supply).
   This straw proposal offers a second approach to maintain a virtual/physical parity while providing increased transparency. Under this approach, the percentage of cleared quantities (virtual/physical demand and supply) would be posted at each node. Specifically, the following percentages would be released: Virtual Demand as a Percentage of Total Demand, Virtual Supply as a Percentage of Total Supply, Physical Demand as a Percentage of Total Demand, and Physical Supply as a Percentage of Total Supply. These values are shown in Table 1, Row 4, Columns B, C, D, and E.

Illustrative values for the four nodal data release approaches are shown in Table 1 below. The values in Table 1 are based on the bid information shown in Table 2.

PG&E Proposal:
Aggregate Cleared Quantities of Virtual Supply and

Table 1
Submitted & Cleared Bid Summary

		Virtual Demand (VD)	Virtual Supply (VS)	Physical Demand (PD)	Physical Supply (PS)	Total Demand	Total Supply	Net Virtual	Net Physical	Net Virtual & Physical
No.	A	B	C	D	E	F=B+D	G=C+E	H=C-B	I=E-D	J=G-F
1	Submitted Bids (MW)	80	190	70	50	150	240	110	-20	90
2	Cleared Bids (MW)	30	75	25	50	55	125	45	25	70
3	Percentage Cleared MW Relative to Submitted MW (e.g., (Row 2, Col.B) ÷ (Row 1, Col.B) x 100	38%	39%	36%	100%	37%	52%	-	-	-
4	Percentage Cleared MW Relative to Total Demand or Total Supply (e.g., Row 2, (B ÷ F)x 100)	55%	60%	45%	40%	100%	100%	-	-	-
5	Submitted Bids	3	5	3	4	6	9	2	1	3
6	Cleared Bids	1	2	1	4	2	6	1	3	4

Straw Proposal Option 2:
Percentage of Cleared Quantities

SCE, SDG&E, and MSC Proposal:
Net Cleared Virtual Quantities

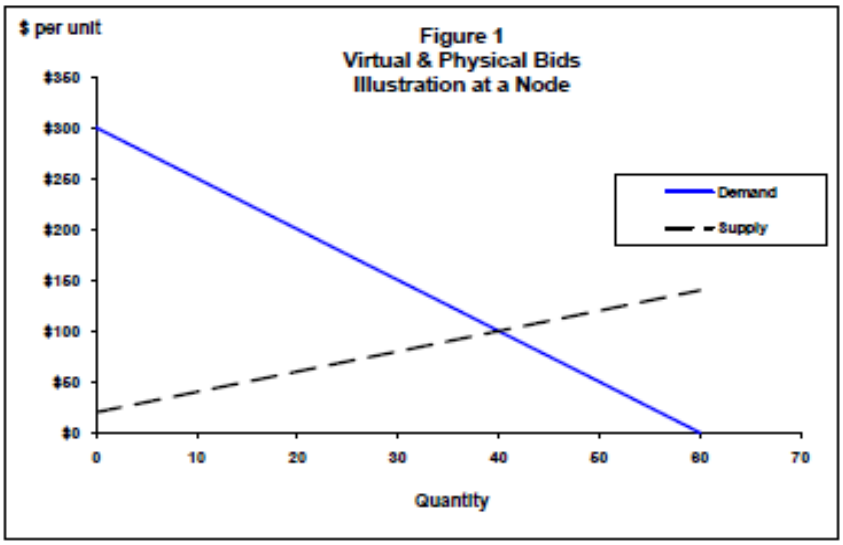
Straw Proposal Option 1:
Net Cleared Total Quantities
(Both Virtual and Physical)

Table 2
Submitted Bids

Quantity	Demand Price	Supply Price	Bid Type	Virtual Demand (VD)	Virtual Supply (VS)	Physical Demand (PD)	Physical Supply (PS)	Cleared Quantities
A	B	C	D	E	F	G	H	I
0	$300	$20	PS	0	0	0	0	0
5	$275	$30	PS	0	0	0	5	5
10	$250	$40	PS	0	0	0	10	10
15	$225	$50	PS	0	0	0	15	15
20	$200	$60	PS	0	0	0	20	20
25	$175	$70	PD	0	0	25	0	25
30	$150	$80	VD	30	0	0	0	30
35	$125	$90	VS	0	35	0	0	35
40	$100	$100	VS	0	40	0	0	40
45	$75	$110	PD	0	0	45	0	0
50	$50	$120	VD	50	0	0	0	0
55	$25	$130	VS	0	55	0	0	0
60	$0	$140	VS	0	60	0	0	0

90-Day Lag Release #1
Data from Table 2 would be released in masked form as is currently the case for physicals.

All Virtual bids, Offers & Sales #3
Virtual data from Table 2 would be released day-ahead with or without masking.



4.2. Daily Market Summary Reports

The ISO agrees with SCE's recommendation to incorporate information provided by both MISO and NYISO into a single market report. In addition to publishing data on a system-wide basis, this straw proposal recommends that day-ahead information be published at the load aggregation point (LAP) level. This would be a daily summary of the day-ahead market results. Similar to

the MISO and NYISO reports, the Market Summary Report would at least include the following elements shown in the Table 3 below.

Table 3
Straw Proposal: Day-Ahead Supply & Demand Report
Virtuals & Physicals
(Numbers are Illustrative Only to Show Format)

DEMAND	Demand Self Schedule	Demand Economic Bid	Demand Virtual	Demand Total
Energy Submitted (MWh)	1,464,566	29,896	100,234	1,594,696
Dollars Submitted	$46,061,249.36	$970,580.03	$2,945,793.49	$49,977,622.88
Energy Cleared (MWh)	1,464,566	29,896	100,234	1,594,696
Dollars Cleared	$46,061,249.36	$970,580.03	$2,945,793.49	$49,977,622.88
SUPPLY	**Supply Physical**	**Supply Virtual**	**Supply Total**	
Energy Submitted (MWh)	1,535,985	50,916	1,586,901	
Dollars Submitted	$45,061,847.00	$1,540,233.20	$46,602,080.20	
Energy Cleared (MWh)	1,535,985	50,916	1,586,901	
Dollars Cleared	$45,061,847.00	$1,540,233.20	$46,602,080.20	

In the MISO report, dollars cleared of virtual supply is the total supply dollars cleared in the day-ahead market for the market date based on virtual offers. In the MISO report, dollars cleared of virtual demand bids is the total demand dollars cleared in the day-ahead market for the market date based on virtual bids. The figures in the MISO report are described in more detail in the Day-Ahead Pricing Report Reader's Guide.[7]

At this time, we are unsure whether it would be appropriate, as PG&E requests, to separate in-state virtual bid transactions from virtual bids over the interties, for the reason that the two markets are settled on different prices (i.e., internal nodes on RT and interties on the HASP).

[7] MISO DA Report Reader's Guide, http://www.midwestmarket.org/publish/Document/2a74f7_108e84afbec_-6e1a0a48324a/1410-Midwest%20ISO%20Day-Ahead%20Pricing%20Report%20Readers%20Guide.pdf?action=download&_property=Attachment