

Citigroup appreciates the opportunity to comment on the Imbalance Energy Offset proposal and looks forward to arriving at a market based solution that is feasible and conducive to promoting a reliable, robust and competitive market.

Summary Comments

Citigroup is not convinced that making an abrupt change to the current convergence bidding structure will produce a result that positively impacts or improves the existing market structure. Rather than adopt the proposal without the analysis that would result in a complete understanding of all intended and unintended consequences, we suggest the CAISO focus on the long-term solutions to market structure issues which are already being discussed within certain stakeholder processes. It is also our opinion that the CAISO should consider allowing the market to adapt to the convergence bidding product and allow for proper market behavior to ensue.

Whereas the CAISO has addressed some of the issues surrounding the “pricing” side of the equation, it is unclear that implementing a drastic and unanalyzed solution solely to the “Mw” side of the equation, outweighs the benefits of working toward and implementing longer term solutions. It is evident, from the fact that the Imbalance Energy Offset charge has in some months collected million of dollars since the inception of MRTU, there is a more conclusive need to focus on longer term solutions.

Cap Changes & Ramping

Whereas the CAISO did mention the cap changes, it failed to mention, or provide any analysis on the direct cost impact the cap has had on the Imbalance Energy Offset charge since MRTU implementation. It is important to understand the potential real drivers of the IEO charge and it is clear that the energy price in real-time has been a main driver of this charge since the beginning of MRTU.

The CAISO also mentioned that the lack of ramping ability continues to plague the system, causing price spike in the real-time market. Since the IEO charge has experienced months of millions of dollars collected, even prior to convergence bidding, the root cause seems to be price spikes related to ramping, operator bias, load forecasting, self-scheduling and possibly RUC procurement. With CAISO’s comments on the divergence of RT and HASP (Real-time > HASP) and the fact that this divergence has been transparent since the beginning of MRTU, the CASIO should consider whether convergence bidding is contributing to the latest convergence and inversion experienced in the market place. Has convergence bidding spotlighted the operational needs associated with the pricing side of the equation? Is convergence bidding working?

Convergence and possible inversion

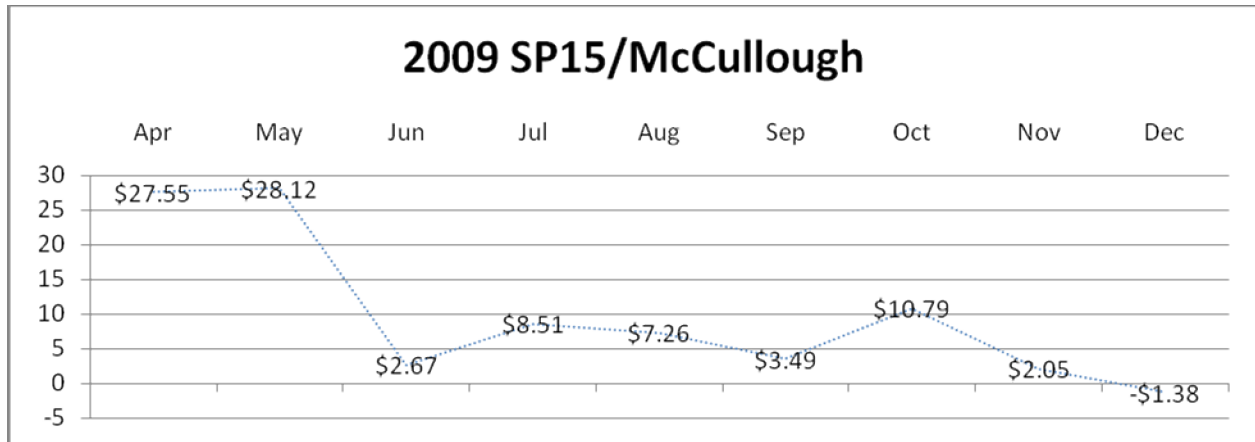
Within the whitepaper the CAISO did not mention or discuss the convergence, and inversion, that the HASP to real-time transactions could have influenced within the month of April and beginning of May. Within the white paper the CAISO does not breakout the percentages for February and March that convergence bidding contributed to the offset charge. Reviewing the previous year, where there were significant offset charges and convergence bidding was not implemented, it is unclear of convergence

bidding's overall monthly contribution to this charge. Lastly, it is not discussed or contemplated that the convergence bidding product is contributing to the overall efficiency of the market, beyond just the IEO charge.

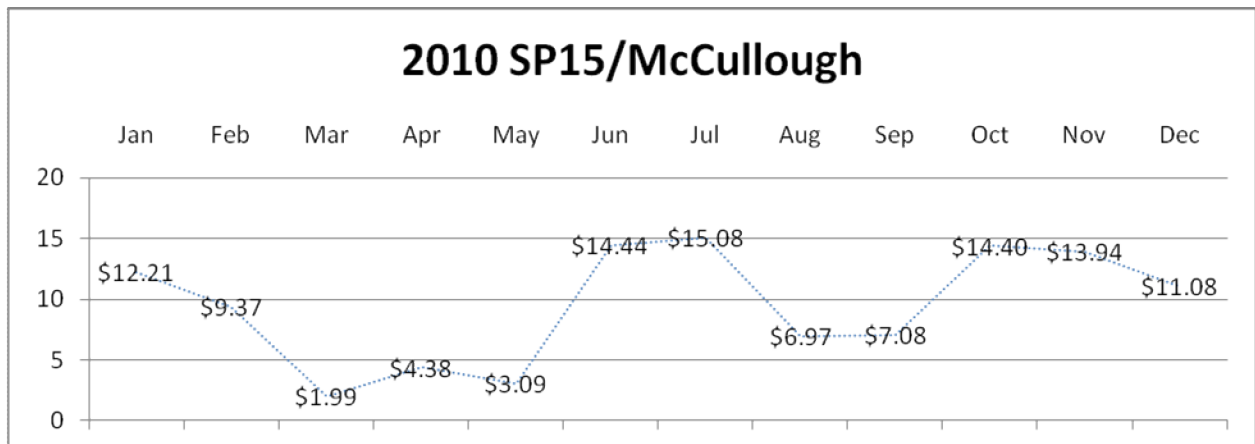
Example: Convergence and possible inversion?

- Internal LMP Point: TH_SP15_GEN-APND
- External (intertie) LMP Point: MCCULLGH_5_N101
- 1mw – All days (HE7-22)

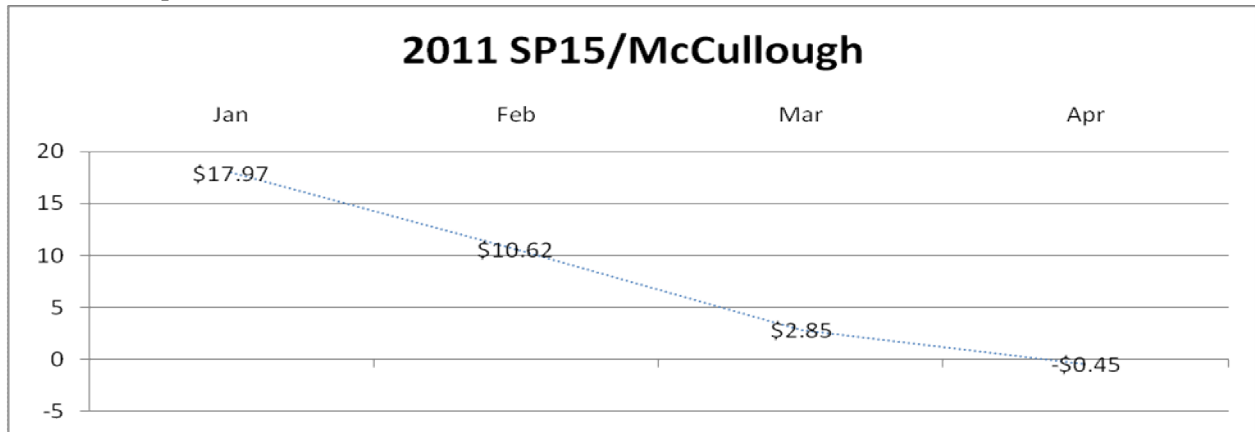
2009 April – Dec



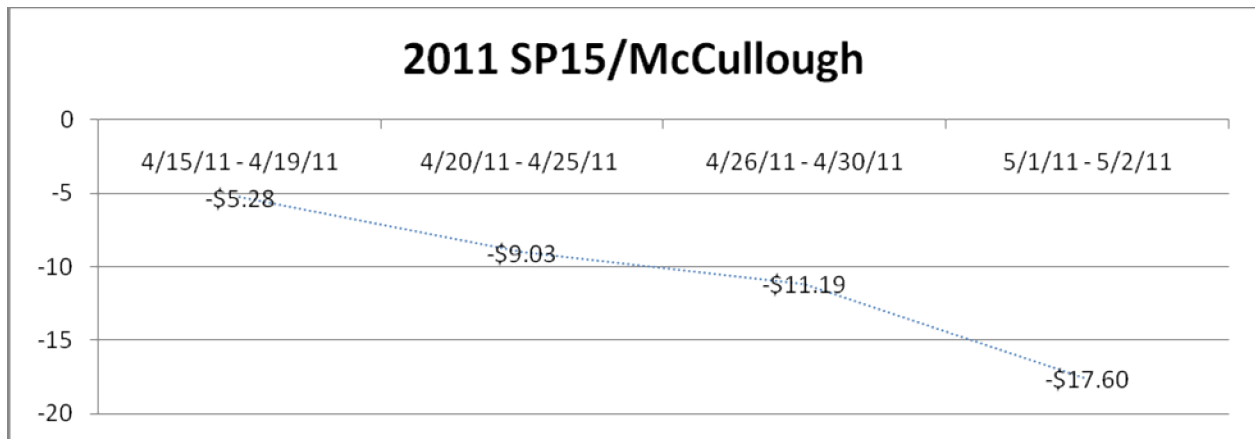
2010 Jan – Dec



2011 Jan – April



Dates: 4/15/11 – 5/2/11



The symptoms causing the offset charge were present well before convergence bidding was implemented, and it seems premature and unwarranted to implement the proposed change without allowing the market a chance to work. It's only reasonable that the CAISO would assess all the drivers of this charge and only take action when a complete understanding is developed and the change is superior to the existing market structure.

Bid Floor

The CAISO mentions that the non-symmetry between the bid floor and the cap could contribute to the pricing side of this equation, meaning that the sale position would have limited “down side” risk (-30) where the purchase position would have a potential 1000 cap. The CAISO has for years contended this fair and proper. Only recently the CAISO has taken steps to lower the floor to induce proper pricing within the market and therefore, proper market behavior. We continue to implore, to the CAISO, that these parameter and mitigation items do have unattended consequences. We would suggest that this current proposal is no different and would riddle the market with unattended consequences.

Should the CAISO determine each Counter Party's Intent?

With the CAISO proposal, the CAISO is considering taking a considerable position on the intent of each market participant's convergence bids. This is unprecedented within all of the nodal markets. The CAISO's equation clearly assumes the SC's intent without understanding an SC's entire portfolio.

All examples – Attachment “A” – Including discussion of unattended consequences

Example 1: Simple Example - Hedge Portfolio

Example 2: Out of the control of the Counterparty-Isolated Node

Example 3: Physical and unrelated – USF

Example 4: Flexible Portfolio – CAISO Over-gen

Example 5: Parameters Tuning Curtailment

*Citigroup understands there will be slight variations, in the final calculations, due to the removal of congestion and losses when evaluating the claw back penalty.

The following are simple market examples that will suggest an action based on a reliability and/or economic need:

- *Force Majeure*
- *Generation outage*
- *Line de-rate or loss of transmission*
- *Parameters tuning – CAISO's put and call option at the inertia*
- *USFs*
- *Isolated nodes*
- *Load deviations – forecasting error*
- *Physical & economic need*
 - *Legitimate hedge positions*
 - *Renewable integration*
 - *Economic flexibility*

A market participant should have the ability to manage and legitimately hedge their portfolio between day-ahead, HASP and real-time, while making necessary operational adjustments to accommodate market reliability and economic risks. With parameters tuning, force majeure, and USFs, the CAISO, or another entity, would have the authority to dictate adjustments or suggest active management to facilitate reliability. With the current proposal, not only will the CAISO be stifling the market and contradicting the tariff, the CAISO proposes the assessment of a financial penalty on market participants who are intending to make proper operational decisions. These financial penalties will be assessed based on actions within, and outside of, the control of the market participant. There are numerous unattended consequences when the CAISO assumes a market participant's intent.

It is unclear why the CAISO needs to include physical transactions into this calculation for claw back. The CAISO was originally concerned with “implicit virtual bidding” prior to the convergence bidding implementation. However, the CAISO never concluded that “implicit virtual bidding” was a problem within the CAISO prior to the implementation. Currently there is a tagging timeline, “checks and

balances,” for physical intent. A counter party that follows the tagging timeline and makes adjustments to their portfolio between day-ahead and HASP could be subject to the CASIO claw back penalty. This clearly deters market participants from making sound decisions based on reliability and market needs.

More Unintended Consequences

The CAISO has not addressed how they would monitor and disperse of all profits made by organizations that could intentionally or unintentionally be using their portfolio to facilitate spread positions as outlined in the issue paper. For example; a generation owner would still have the capability to facilitate this position by using excess generation as the implied virtual long position in the CAISO market. If the CAISO were to ultimately pursue this course of action, they must consider facilitating a fair and equal market while applying the same logic within the proposal to any market participant that arrives with this position.

Lastly, the current proposal does not take into account the cost, in the day-ahead, to transact. A market participant that derives this spread position unintentionally; will be forced to pay the day-ahead costs. Not only will the counter party have limited ability to recoup these costs, they could be asked to pay an incremental penalty.

DMM Concerns - April 2011 Annual Report on Market Issues and Performance

In the DMM Annual Report, the DMM has been expressing concern associated with the high cost of this charge based on market aspect non-related to convergence bidding. When the pricing side of the equation is 0, then the IEO charge is 0, rendering the Mw side of the equation irrelevant in calculating the IEO charge. The CAISO should continue to move forward with its suggestions from the DMM to address “underlying causes of real-time price spikes and price divergence in these markets...” This will be effectively accomplished by implementing operating practices, software, and modeling enhancements.

Suggested Solution

The CAISO should focus on long-term solutions that best suit the market in its entirety. Therefore, we recommend that the CAISO to begin a robust stakeholder process that focuses on the settlement of convergence bids and physical transactions at a common LMP price.

Mid-term Solution (Contains some unintended consequences)

CAISO mid-term implementation:

- All convergence bidding nodes will be settled at RTD

Physical - HASP Market – Advisory Only

- All imports would receive the RTD price
 - BCR for any uneconomical settlement (RTD to bid)
- All exports would receive the RTD price
 - *BCR for any uneconomical settlement (RTD to bid)

- If the CAISO is unwilling to allow exports to participant in BCR, the next best settlement for exports is:
 - *Lesser of RTD or HASP price
 - *This contains some unintended consequences that could impact liquidity at the interties, however, having less of a negative impact than the current proposal.

This clearly eliminates:

- Any contribution that convergence bids (Mws) might make on the IEO charge
- Moves all convergence bidding settlement to RTD

This proposal does not:

- Allow the CASIO to determine a market participants intent related to only CAISO traded products
- Negatively impact market participants use of convergence bidding for financial hedging
- Negatively impact market participants use of physical intertie transactions for hedging or offering supply or demand options

Settling Only Convergence Bids at RTD – Solution

It has been suggested to settle convergence bids at the RTD while continuing to settle physical at HASP. We don't feel this is the best mid-term solution for the market solely because the solution ultimately defeats the purpose of the convergence bidding product. This solution does not allow a market participant to financially replicate load and generation.

Conclusion

The implementation of the convergence bidding product introduced the concept that any market participant had the ability to replicate generation and load to induce a more competitive environment. Convergence bidding was implemented on February 1, 2011, and there is limited historical data, as well as, a limited time frame to determine if the implementation has, or will, provide its intended benefits. With the available information and CAISO's proposal for change, Citigroup would conclude that quickly removing or changing the current construct, without proper analysis, could be more detrimental to the market than its current state. It is clear that there are many unintended consequences associated with the current proposal therefore; an alternative long-term solution should be sought.

Attachment A

**Example 1- Simple
Example – Hedge
Portfolio**

					Mws	Fixed Price	Day-ahead Price	HASP	Real-time Price		
Non-CAISO	Deal #1	Financial Transaction	HE10	(S)	200	\$44.50			\$250.00	-\$41,100.00	
CASIO	Deal #2	CB Demand SP15	HE10	(P)	200		\$42.25		\$250.00	\$41,550.00	
CASIO	Deal #3	CB Supply PV	HE10	(S)	100		\$41.85	\$44.75		<u>-\$290.00</u>	
										\$160.00	P&L associated with total portfolio
With Claw back proposal			HE10		Mws 100			\$44.75	\$250.00	<u>\$20,525.00</u>	Amount to be "Clawed back"
										<u><u>-\$20,365.00</u></u>	Total adjusted P&L

Breaking down the CAISO thought process...

- IF HASP were to clear less than RT for HE10, the CAISO would claw back any gains on 100mws due to matching Deal #2 with Deal #3 for 100mws

Breaking down the potential thought process of an SC...

- The SC was "short" in the financial market (per Deal#1) due to a portfolio hedge, and they purchase all of their short back via Deal #2. (Flat any real-time SP risk)
- They sell 100mws of PV Intertie (Deal #3)

*This is an example where Deal #3 could be unrelated to Deal #2, however, with the proposal, the CAISO assumes the transactions are related.

Example 2 - Isolated Node						Fixed Price	Day-ahead Price	HASP	Real-time Price		
CAISO	Deal #1	CB Demand SP15	HE10	(P)	Mws 75		\$42.25		\$32.50	-\$731.25	
CASIO	Deal #2	CB Supply "Gen A"	HE10	(S)	Mws 75		\$41.95		\$30.75	\$0.00	Did not clear market due to isolated node
CASIO	Deal #3	CB Supply PV	HE10	(S)	Mws 50		\$41.85	\$25.25		<u>\$830.00</u>	
										\$98.75	P&L associated with total portfolio
With Claw back proposal					Mws						
			HE10		Mws 50			\$25.25	\$32.50	<u>\$362.50</u>	Amount to be "Clawed back"
										<u><u>-\$263.75</u></u>	Total adjusted P&L

*In the example, if the market cleared within the bid parameters of all of the submitted transactions, all transactions should be cleared in the day-ahead. However, what happens when a market participant is not cleared at "Gen A" due to an isolated node? Isolated locations are not transparent to the market and market participants. The market participant would default into the HASP/RT position and "claw back" would be implemented if the market participant inadvertently benefitted.

<i>Example 3 - USF</i>						Mws	Fixed Price	Day-ahead Price	HASP	Real-time Price		
Non-CAISO	Deal #1	Financial Transaction	HE10	(S)	200	\$44.50				\$250.00	-\$41,100.00	
CASIO	Deal #2	CB Demand SP15	HE10	(P)	200		\$42.25			\$250.00	\$41,550.00	
CASIO	Deal #3	Physical PV Supply	HE10	(S)	100		\$41.85	\$44.75			-\$290.00	
CAISO	Deal #4	Physical HASP Bid	HE10	(P)	65			\$44.75				Bid to mitigate potential USF
Non-CASIO	Deal #5	PV Hub RT Sale	HE10	(S)	65	\$25.65					-\$1,241.50	
											-\$1,081.50	P&L associated with total portfolio
With Claw back proposal			HE10		Mws 65			\$44.75		\$250.00	\$13,341.25	Amount to be "Clawed back"
											-\$14,582.75	Total adjusted P&L

*Market participants are encouraged to actively manage USFs to ensure reliability and mitigate risks. The proposal, due to the claw back penalty, is counter intuitive to mitigating the USF procedure and operationally complying with the WECC standard. The proposal discourages a market participant's active management of USFs in the HASP market and therefore could position a CAISO operator in a last minute intertie change that could have sever reliability consequences.

Example 4 - Flexible Portfolio

	Deal	Financial Transaction	HE4	(S)	Mws	Fixed Price	Day-ahead Price	HASP	Real-time Price			
Non-CAISO	#1	Financial Transaction	HE4	(S)	200	\$20.00			\$48.50		-\$5,700.00	
CAISO	#2	CB Demand SP15	HE4	(P)	200		\$19.75		\$48.50		\$5,750.00	
CAISO	#3	CB Supply PV	HE4	(S)	50		\$19.05	-\$5.00			\$1,202.50	
CAISO	#4	CB Supply FC	HE4	(S)	50		\$19.15	-\$5.00			\$1,207.50	
CAISO Over Gen												
CASIO	#5	HASP Purchase PV	HE4	(P)	50			-\$5.00				Bid to aid in over-gen
CAISO	#6	HASP Purchase 4C	HE4	(P)	50			-\$5.50				Bid to aid in over-gen
Non-CASIO	#7	Sale PV Hub	HE4	(S)	50	\$2.00					\$350.00	Deal #5 & Deal #7
Non-CASIO	#8	Sale 4C Hub	HE4	(S)	50	\$2.00					<u>\$375.00</u>	Deal #6 & Deal #8
											\$3,185.00	P&L associated with total portfolio
With Claw back proposal			HE4		Mws 100			-\$5.00	\$48.50		<u>\$5,350.00</u>	Amount to be "Clawed back"
											<u><u>-\$2,165.00</u></u>	Total adjusted P&L

*Within this example and due to the claw back proposal, the market will not be incentivized to manage their portfolio and aid in over gen situations, when being confronted with a penalty for acting in the best interest of the market. This is a clear example where the CAISO will discourage proper market behaviors and unintended consequences will occur.

Example 5 - Parameters Tuning Curtailment

					Mws	Fixed Price	Day-ahead Price	HASP	Real-time Price		
CAISO	Deal #1	CB Demand SP15	HE4	(P)	250		\$5.00		-\$10.00		-\$3,750.00
CAISO	Deal #2	CB Supply PV	HE4	(S)	50		\$4.50	-\$30.00			\$1,725.00
CAISO	Deal #3	CB Supply FC	HE4	(S)	50		\$4.50	-\$30.00			\$1,725.00
CASIO	Deal #4	HASP Purchase PV	HE4	(P)	50			-\$30.00			CASIO "put" power
CAISO	Deal #5	HASP Purchase 4C	HE4	(P)	50			-\$30.00			CASIO "put" power
Non-CASIO	Deal #6	Sale PV Hub	HE4	(S)	50	-\$15.00				\$750.00	Deal #5 & Deal #7
Non-CASIO	Deal #7	Sale 4C Hub	HE4	(S)	50	-\$15.00				<u>\$750.00</u>	Deal #6 & Deal #8
										\$1,200.00	P&L associated with total portfolio
With Claw back proposal			HE10		Mws 100			-\$30.00	-\$10.00	<u>\$2,000.00</u>	Amount to be "Clawed back"
										<u><u>-\$800.00</u></u>	Total adjusted P&L

*Within this example, the CAISO was able to “put” the market participant power, presumable due to parameters tuning and reliability. Even assuming the SC could sell the “put” power at a higher price than the \$-30 mitigation number, the SC will be responsible and obligated to take the power while possibly being assessed a penalty associated with their obligation.

