

October 27, 2008

Board Chairman Mason Willrich, California Independent System Operator (CAISO)
Board Member Linda Capuano
Board Member Laura Doll
Board Member Tim Gage
Board Member Thomas A. Page
Mr. Yakout Mansour, President and Chief Executive Officer

Subject: Implementation of Market Redesign and Technology Upgrade (MRTU)

Dear Mr. Mansour and CAISO Board of Governors:

The purpose of this memo is to provide you and the Board of Governors (Board) the collective perspective of Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas and Electric Company (IOUs) regarding the feasibility of a February 1, 2009 go-live date. We are sending it now, before the October 28-29, 2008 Board meeting, because of the substantial amount of information we are discussing. We do not believe we would have given you a fair chance to consider all of the information if we simply handed this memo out at the meeting.

As described below, we believe a February 1, 2009 market start, may still be feasible, and we are committed to continuing to work with the CAISO, as we have been, toward that implementation date. However, a February 1 implementation presents significant challenges and will become infeasible unless the CAISO is able to successfully address several remaining key issues, and demonstrate it can meet certain market participant needs, prior to filing the 60-day certification at FERC (December 1, 2008). Therefore, we urge you not to follow the recommendation in the October 22, 2008 Board meeting Memorandum that directs CAISO Management to file the MRTU Readiness Certification with FERC on or before December 1, 2008. Instead, we recommend that at the October 28-29, 2008 Board meeting, the CAISO not commit itself to implementing MRTU on February 1, 2009 nor make the 60 day filing on December 1, 2008. We also recommend that the Board set a meeting for late November 2008, to evaluate the feasibility of the February 1, 2009 go live date based on the information available at that time.

The Board has consistently demonstrated its support of MRTU with a focus on ensuring that expediency does not take the place of getting it right. The Board's actions on MRTU have been based on reasoned observations and input from both the CAISO Management and market participants. We commend the Board for its guidance and recognize that the Board is faced with a major decision on deciding "how good is good enough" to set the actual MRTU market start date. We also commend the CAISO management and staff for its continuous commitment to a successful deployment of MRTU and recognize that the CAISO has worked long hours for months on end to get us to where we are today.

We believe that the CAISO should not file a 60-day readiness certification with FERC until CAISO management and market participants have a shared view that MRTU is working well, and agreement that any remaining issues can be resolved in time for a successful market start. We know from painful experience that even carefully thought out markets and market structures can fail. There is nothing to be gained, and quite possibly much to be lost, from attempting to implement MRTU without a high level of confidence that it will work properly from the start. The current markets and operations are working. Therefore, it does not make sense to remove the current, functioning systems until we are sure that we are replacing them with something that will work, and that we are sure that we will not be making the change prematurely.

In order to accomplish a February 1, 2009, start date, the CAISO must address several key issues and demonstrate it can meet certain market participant needs prior to December 1, 2008.

These issues and needs can be summarized into the following areas:

- 1) Market Prices – CAISO must demonstrate prices are reasonable
- 2) Market Simulation Update 2 (U2) Exit Criteria – CAISO must demonstrate all Priority 1 U2 Exit Criteria are met and significant progress has been made towards meeting all Priority 2 Exit Criteria
- 3) Settlements – CAISO must produce two complete and accurate monthly settlement statements and corresponding invoices (consistent with the Priority 1 U2 Exit Criteria), and must demonstrate that changes are controlled in a “production-quality” change management process
- 4) Tariff Issues – CAISO must demonstrate that the critical tariff issues either undecided or yet to be filed at FERC will not put the February 1, 2009 market start at risk
- 5) Market Monitoring – Department of Market Monitoring (DMM) must demonstrate it has completed development and testing and has available for use its market simulation tool

The balance of this letter provides details on these concerns.

Market Prices – CAISO must demonstrate prices are reasonable

Locational Marginal Pricing (LMP) is one of the key features of MRTU. LMPs are to be produced at over 3,000 nodes across California to provide accurate and transparent price signals to all market participants. Since prices are so crucial to the success of any market, particularly an LMP market, the IOUs have been reviewing prices produced by the simulation since early September 2008 when the CAISO deemed its systems to be stable.

Occasional high or low prices (prices beyond the bid caps) and price volatility are to be expected in LMP markets and are acceptable when tied to and explained by legitimate, underlying root causes. However, such results, especially at extreme price levels, are not expected on a regularly recurring basis. Examination of other LMP markets shows occasions of highly volatile and extreme prices to be relatively rare.

In contrast to expectations, the IOUs have observed that market simulations are producing such prices on a regular basis. Figures 1-3 in Attachment A show a vast majority of market results from September 1 through October 17 (Integrated Forward Market or IFM, Hour Ahead Scheduling Process or HASP, and Real Time Market or RTM) display extreme positive and/or negative price “outliers” that cannot be explained by either market fundamentals (gas prices, heat rates) or observable grid constraints (e.g., congestion, derates). A common understanding of why these relatively frequent extreme prices are occurring, as well as confidence that they should not be expected to materialize in actual production, must be obtained before the IOUs can support MRTU going live.

LECG was retained by the CAISO to review the results of the CAISO's analysis track testing of its MRTU dispatch and pricing software for the day-ahead market, real-time pre-dispatch and real-time dispatch. In its report titled, “Final Report on Analysis Track Testing of MRTU Pricing and Dispatch,” (dated October 20, 2008) LECG states that at this point it has not observed “substantial unresolved problems.” However, our confidence in MRTU pricing ultimately depends on the results we observe in market simulation, and the LECG report does not alleviate the concerns we currently have over the frequency of extreme prices.

Another, equally important IOU concern is over prices produced by Residual Unit Commitment (RUC), which prices do not appear consistent with the intended policy and design of RUC. Under MRTU, resources are committed in the day ahead market (also called the Integrated Forward Market, or IFM) to meet the load put into the day ahead market. If the load put into the IFM is substantially below the CAISO's expectation of what the load the next day will actually be, then the CAISO commits additional resources using the RUC process to address the difference between expected load and what cleared in the IFM.

RUC is intended to work in tandem with the state's Resource Adequacy (RA) program. The California Public Utilities Commission (CPUC) designed a rigorous RA program that provides the CAISO with RA generation resources of at least 115 percent of its peak demand needs in any month, in the locations where capacity was needed¹. In particular, RUC is designed so that RA resources not already committed in the IFM for a particular day are required to bid into RUC at \$0 per megawatt (MW). RUC should have an ample supply of zero-cost capacity to meet most RUC capacity needs. The expected result should be RUC prices at or near-zero under most circumstances.

As shown in Figures 4 and 5 in Attachment A, the market simulation consistently produces RUC prices well above zero and often above the RUC bid cap. For example, RUC prices during the “super peak” hours from September 1 through October 16 exceeded \$0/MW 95

¹ Non-IOU load-serving market participants have similar resource adequacy requirements imposed on them by their local regulatory authorities.

percent of the time, exceeded \$100/MW 30 percent of the time, and exceeded the RUC bid cap of \$250/MW over 10 percent of the time². RUC prices during these same hours exceeded same-hour Spinning Reserve prices from IFM over 95 percent of the time. These observations may be indicative of a fundamental problem with RUC pricing and/or design. RUC was not included in the LECG analysis referenced above, so we have no independent analysis to verify that the RUC pricing methodology works correctly. If left unaddressed, such prices in production could lead to serious market distortions and create significant economic harm to market participants. It is imperative the CAISO demonstrate that RUC prices are consistent with intended policy and market design prior to filing the 60-day certification notice at FERC.

In addition, the IOUs have been in dialog with the CAISO on concerns related to the level of penalty prices used in the uneconomic adjustments of prices when algorithm constraints are relaxed. These administratively-set prices can have a dramatic influence on LMPs, especially for prices used in the scheduling run which are not limited by the bid cap limits. The IOUs have asked the CAISO to perform a robust and systematic test of different sets of penalty prices used in the calculation of the uneconomic adjustments. The testing should be completed and presented to market participants prior to the filing the 60-day certification notice.

U2 Exit Criteria – All Priority 1 Market Simulation Update 2 (U2) Exit Criteria must be met and significant progress towards meeting all Priority 2 U2 Exit Criteria must be demonstrated

In Attachment B, the IOUs present a “Scorecard” of all U2 Exit Criteria plus additional criteria that has become commonplace in our discussions with the CAISO on overall readiness.³ As shown on the Scorecard, the CAISO considers all U2 Exit Criteria to have already been met or on-track to be met in the coming weeks. By contrast, based on our observations of functionality demonstrated in market simulation, the IOUs perspective is that several of the Exit Criteria are far from being met.

The main purpose of the U2 Exit Criteria is to determine when market simulation can end and the ninety day market participant test period can begin. It has long been understood and agreed by all that to enter the ninety-day market participant test period that CAISO systems must be essentially ready for market start. Market participants are critically dependant on the CAISO to provide a full-functioning, stable market simulation in order to complete development and testing of their own systems, train employees, and complete other readiness activities necessary to ensure a successful market start. In February 2008, the CAISO agreed with market participants that ninety days is the minimum time market participants should be afforded to accomplish these activities. Then, in August 2008, the CAISO and market participants further agreed on the specific Priority 1 U2 Exit Criteria that must be met prior to

² Super-peak hours are defined here as 12:00 PM to 6:00 PM, Monday-Sunday. RUC price is the LMP for a Resource Adequacy (RA) unit. RA resources are required to bid into RUC at \$0/MW.

³ U2 Exit Criteria is the criteria developed collaboratively between the CAISO and market participants and was published by the CAISO in its status report to FERC in January 2008.

the beginning of the ninety-day readiness period. The IOUs have relied on these agreements for giving our vendors time to finalize software and for coordinating our internal readiness activities.

For MRTU to start on February 1, 2009, the CAISO has stated recently that the ninety-day period begins November 1, 2008, which means that all Priority 1 Exit Criteria should already be met. The IOUs are struggling to reconcile their observations of the status of market simulation with the CAISO's view that things are much better than they appear to the IOUs. From recent discussions with CAISO staff, one cause of these differences appear to be the weight placed on metrics used by the CAISO versus market participants to measure success. The CAISO appears to focus more on production metrics (e.g., did the market run on time, were results published on time, etc.) whereas market participants tend to focus more on the quality of results (e.g., did the market results agree with the bids, were the published results complete and accurate, etc). Neither point of view is invalid; in fact both are important and need to be taken together in determining the feasibility of a February 1, 2009 market start.

The IOUs are committed to working with the CAISO to close these gaps and come to a common understanding of the status of market simulation. We recognize the extreme pressures imposed on the CAISO by the February 1, 2009 deadline. However, it is important that the Board realize that market participants can only accept so much risk and so much compression of time available to complete our readiness activities and still support a February 1 market start. We are at that limit now.

Settlements – CAISO must produce two complete and accurate monthly settlement statements and corresponding invoices (consistent with the Priority 1 U2 Exit Criteria), and must demonstrate that changes are controlled in a “production-quality” change management process.

Complete and accurate settlement statements and invoices are a key to the success of MRTU and settlements are the consensus critical path item for MRTU launch. Due to the complex nature of MRTU settlements, each of IOUs has elected to rely on outside vendors, as well as internal staff, to provide the tools necessary to analyze and validate settlement statements. The IOU's success in validation of each MRTU charge code from bid to bill is tied to the success of our settlement vendors getting their systems working properly. To date, it has been difficult to perform this validation because of frequent CAISO changes in charge codes-- which exceeded 1,200 over the last four months. The frequent changes have forced vendors into unanticipated changes of their systems; and, have thus hampered the IOUs charge-code validations efforts,

The CAISO must implement a “production quality” change management process to control changes in settlement statements and files. The CAISO has recently implemented a change management process that is intended to give sufficient lead time for vendors and market participants to respond to changes. However, it is too soon to assess if this new process will correct past experiences. Absent a consistently executed change management process for settlements, adequate time to perform settlement charge code validation in the CAISO's market simulation will be compromised and therefore decrease the opportunity for a successful February 1 go-live.

Once CAISO change management controls are implemented, each of the IOUs can get on with the task of validating our high priority charge codes which we conveyed to the CAISO early this year. While the CAISO states that over 123 charge codes have been validated, our count of successful bid-to-bill validated charge codes is significantly less. Even though individual IOU change code validation counts may vary, there is one settlement metric that is common to each of us. As of October 24, 2008, the CAISO has not delivered a complete and correct monthly statement or invoice usable by the IOUs to test the validity of the charge code results. The magnitude of the observed errors in the monthly statements and invoices is of concern. For example, in the recently published September 2008 monthly statement and invoice our combined rounding adjustment charge exceeded \$500 million. Other large discrepancies were also noted in ancillary service and real time imbalance charge codes. The U2 Exit Criteria require publication of two complete, correct monthly statements and invoices, which will be a key indicator of whether the CAISO's charge codes are truly valid.

Tariff Issues – Several critical tariff issues either undecided at FERC or yet to be filed at FERC put a February 1 market start at risk

The level of remaining unresolved tariff and policy issues may put a February 1, 2009 market start at significant risk. For example, the FERC recently expressed concern with the “exceptional dispatch” provisions of the MRTU Tariff proposed by the CAISO⁴. Even though FERC is scheduling a technical conference for early November and is doing everything it can to assist with expeditious resolution of such matters, it is unclear if policy clarity and related impacts will be achieved by December 1. Also, the CAISO must file tariff provisions to address how “line losses” are to be treated for certain power imported into the CAISO balancing authority area.⁵ Thirteen parties recently requested rehearing of the FERC order directing that filing, so the filing is likely to be controversial. The CAISO also has to make a tariff filing that will, among other things, correct some inconsistencies between its MRTU Tariff and how its systems actually operate. These discrepancies were discovered by Science Applications International Corporation (SAIC), the entity retained by the CAISO to evaluate the Tariff and the systems for consistency.

To address some of the extreme prices we have seen in the simulations, the CAISO now proposes hard price caps of +/- \$2500/MWh. We expect this request will raise concern at FERC about the need for and the level of these caps. The market must produce reasonable prices even if FERC rejects or modifies this proposal. It is not clear what actions the CAISO will need to take if FERC rejects the CAISO's price cap proposal.

For IOUs to support a February 1, 2009 market start date, the CAISO must demonstrate by December 1, 2008 that 1) known open policy and tariff issues will not materially impact software or market rules (e.g., change in bidding, scheduling, etc.), and 2) if these issues do impact software or the market rules, the changes are deployed in market simulation with successful results prior to the start of pre-production, which is currently schedule to begin no sooner than January 1, 2009.

⁴ 125 FERC 61,055, October 16, 2008.

⁵ 124 FERC 61,271, September 19, 2008, paragraphs 103-07.

Market Monitoring – DMM must demonstrate it has completed development and testing and has available for use its market simulation tool

While the CAISO has begun efforts to ensure market monitoring protocols and processes are established and in place, these efforts remain to be finalized. Under the “readiness criteria” that the CAISO has used to evaluate its readiness for MRTU market start in the monthly report it is obligated to file with FERC, one of the criteria is “A Market simulation tool (the MRTU Sandbox/DMM Tool) that is based on the actual CAISO market software will be developed and tested by the CAISO MRTU Team and made available to the DMM three months prior to market start.” The readiness criteria indicates the system should be “available” to DMM three months prior to market start, and we interpret “available” in this context to include “developed and tested”. In their October 20, 2008 memo to their Board, DMM reports they still have not stabilized the market simulation environment. Thus we conclude the system is not fully developed and successfully tested, and as a result, this readiness criterion is not yet satisfied. Since the CAISO is continuing to refine its market software, it is not apparent how the DMM can demonstrate their systems are stable and tested by November 1, 2008.

The IOUs have been in discussion with the DMM and CAISO on CAISO efforts to identify and mitigate potential market gaming opportunities. For example, the IOUs remain concerned about the price spikes caused by ramping constraints and inter-temporal pricing. The simulations have demonstrated that low ramp rates set by market participants on their generation units (i.e., ramping constraints) and the use of a multi-period look-ahead in the real-time pricing process (i.e., inter-temporal pricing) can create large price spikes. Beyond increasing price volatility, this creates a potential opportunity for market manipulation, as adjusting ramp rates downward can be a form of physical withholding. The CAISO has proposed a price cap to limit the damage from potential algorithm shortcomings such as this one. Although we understand the price cap will help protect market participants from unknown problems, it should not be the fix for fundamental market issues that have been identified. The CAISO needs to fully understand this issue and enact market changes if necessary prior to the filing of the 60-day certification notice.

Conclusion

The IOUs want to reiterate their acknowledgement of the good progress the CAISO and market participants have made during recent months and we all believe the end is in sight. However, there is much work yet to be done on both sides, the importance of which cannot be discounted and the time requirements of which cannot be overly compressed. Shared confidence, not calendar, should be our first priority in determining when MRTU is ready to start. In its September 21, 2006 order conditionally approving the CAISO's MRTU tariff filing, FERC clearly states⁶:

We believe that it is essential that the MRTU market design be implemented only when the CAISO's and the market participants' systems, software and tools have been fully

⁶ 116 FERC 61,274, September 21, 2006, paragraph 1380.

tested and the CAISO and its stakeholders are confident that MRTU will function properly when implemented. We are strongly committed to a sound and orderly MRTU implementation plan and will not allow that to be sacrificed for the sake of expedience. Therefore, as described more fully below, we will require the CAISO to file a readiness certificate with the Commission prior to the implementation of MRTU. (emphasis added)

The IOUs continued support for a February 1 market start depends entirely on the CAISO demonstrating it can meet our readiness needs as described in this letter. The Board should convene a public meeting in late November 2008 to re-confirm the feasibility of a February 1, 2009 market start prior to filing the 60-day certification with FERC. If the issues and concerns outlined here have been addressed by that time (and no new significant issues have arisen in their place), the IOUs will be in a position to endorse a February 1, 2009, go live date. If not, the CAISO must consider establishing a new go live date based on the information available at the November 2008 Board meeting.

We appreciate the opportunity to comment and will continue to work collaboratively with the CAISO to bring about the successful deployment of MRTU.

Sincerely,

Matt Burkhart
Vice President, Electric and Gas Procurement
San Diego Gas and Electric Company

Pedro Pizarro
Executive Vice President, Power Operations
Southern California Edison

Fong Wan
Senior Vice President, Energy Procurement
Pacific Gas and Electric Company

cc: Steve Berberich, CAISO Vice President Corporate Services
Karen Edson, CAISO Vice President External Affairs
Laura J. Manz, CAISO Vice President Market and Infrastructure Development
Nancy Saracino, CAISO Vice President and General Counsel
Veronica Andrews, PG&E MRTU Implementation Director
Tiff Nelson, SDG&E MRTU Program Manager
Doug Parker, SCE Director of Energy Operations

Attachment A

Figure 1:

Market Initial Price Assessment Metrics

Bright Line:

	Fails	Significant Problems	Works w/ Problems	Works	Works Perfect
Day Ahead Market	LMP Outside (-\$300, \$2500) AND LAP Outside (-\$90, \$500)	LMP Outside (-\$300, \$5000) OR LAP Outside (-\$90, \$1500)	LMP Outside (-\$120, \$2000) OR LAP Outside (-\$60, \$750)	LMP Within (-\$120, \$2000) AND LAP Within (-\$60, \$750)	ALL Within (-\$30, \$500)
Residual Unit Commitment	LMP Outside (-\$150, \$1250) AND Proxy LAP Outside (-\$60, \$250)	LMP Outside (-\$300, \$2500) OR Proxy LAP Outside (-\$90, \$750)	LMP Outside (-\$60, \$750) OR Proxy LAP Outside (-\$60, \$500)	LMP Within (-\$60, \$750) AND Proxy LAP Within (-\$60, \$500)	ALL Within (-\$30, \$250)
Hour Ahead Scheduling Process	LMP Outside (-\$300, \$2500) AND LAP Outside (-\$90, \$500)	LMP Outside (-\$300, \$5000) OR LAP Outside (-\$90, \$1500)	LMP Outside (-\$120, \$2000) OR LAP Outside (-\$60, \$750)	LMP Within (-\$120, \$2000) AND LAP Within (-\$60, \$750)	ALL Within (-\$30, \$500)
Real Time Market	LMP Outside (-\$300, \$2500) AND LAP Outside (-\$90, \$500)	LMP Outside (-\$300, \$5000) OR LAP Outside (-\$90, \$1500)	LMP Outside (-\$120, \$2000) OR LAP Outside (-\$60, \$750)	LMP Within (-\$120, \$2000) AND LAP Within (-\$60, \$750)	ALL Within (-\$30, \$500)

Figure 1 show the metrics used to screen prices in market simulation. Prices are tracked in the four markets (IFM, RUC, HASP and RTM). Screens apply to the most extreme outliers of both individual LMPs and LAP prices. The screen boundaries determine the level of concern over price outliers. For example, if, in a single market run the most extreme LMP or LAP price falls within the prevailing energy bid caps of -\$30/MWH and \$500/MWH, that market run is scored as “Works Perfectly”. If, instead that same market run produced an extreme LMP or LAP price that exceeded by ten times these same bid caps, that market run would be scored as “Significant Problems”. Note

Figure 2:

MRTU IMS Price Assessment
(Week 10/06/08 - 10/12/08)

Trade Day		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday																						
		10/6/2008	10/7/2008	10/8/2008	10/9/2008	10/10/2008	10/11/2008	10/12/2008																						
Overall	DAM		Works	Significant Problems	Significant Problems	Significant Problems																								
	RUC		Fails	Fails	Works w/ problems	Works w/ problems																								
	HASP	Fails	Fails	Fails		Fails																								
	RTM	Fails	Fails	Fails		Fails																								
Sc	DAM			Scenario 40		Scenario 7																								
	RTM					Scenario 29b																								
Metrics		DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	DAM	RUC	HASP	RTM	
LMP \$	low			-1587	-6925	-101	-1253	-523	-7030	-463	-1735	-2655	-7949	-596	-100			-596	-192	-5932	-1226									
	high			2673	7034	357	1148	1207	7118	388	1135	5220	6524	442	1074			500	2143	6470	2720									
LAP Price PG&E \$	low	16	0	71	33	24	0	75	55	24	0	19	-64	2	0	18	-190	7	0	49	-31	24	0	0	11	30	0	-15	-45	
	mean	62	45	103	94	71	45	90	88	61	31	121	67	59	49	337	102	58	23	659	213	63	53	163	168	62	17	185	131	
	high	84	90	175	163	101	96	109	154	79	81	500	106	100	235	5031	997	92	147	6470	761	96	237	625	611	86	101	1570	597	
LAP Price SCE \$	low	15	0	67	32	20	0	70	50	18	-51	19	-67	0	0	56	-240	3	0	47	-30	20	0	0	11	28	-1	-14	-41	
	mean	56	42	100	96	58	38	88	88	57	86	557	119	46	48	337	91	48	22	655	209	53	49	159	160	51	15	185	131	
	high	75	84	147	160	80	88	108	171	176	930	4088	587	75	236	5051	900	84	144	6470	823	80	227	608	596	70	85	1658	637	
LAP Price SD G&E \$	low	14	0	-636	-1080	17	0	-135	-875	16	0	14	-542	0	0	54	-308	3	0	46	-30	17	0	0	11	27	0	-78	-610	
	mean	54	55	59	-129	58	78	72	-69	60	144	563	53	56	48	344	93	53	21	654	211	56	62	157	140	50	17	178	18	
	high	72	131	144	149	88	456	107	135	104	974	4181	603	110	228	5051	924	101	141	6470	802	112	274	601	300	72	82	1644	619	
MIP GAP	%					0.63%	0.49%			3.62%	0.45%			3.60%	0.65%			3.73%	0.80%											
	\$					50K	29K			102K	54K			32K	29K			69K	29K											
Uplift Units						0				0				3				3												
Hypothetical Profits Not Awarded Units						2				0				4				2												
DAM A/S Outliers																														
Others																														

Footnotes:

1. Grey area indicates some key information (such as the lowest/highest LMPs, MIP GAP, etc) is not available at the time.
2. Low/High LMPs for individual nodes are from CAISO status reports if available.
3. LAP Prices are hourly average prices. DLAP prices are published on OASIS for DAM, HASP, and RTM, but not for RUC. RUC DLAPs are represented by MOSSLD_2_PSP1, SBERDO_2_PSP3, and PALOMR_2_PL1X3 APNODEs here for comparison purposes.
4. MIP Gap \$xxxx (MIP Gap %) is calculated from published MIP Gap % (MIP Gap \$) and published objective cost if applicable.

Figure 2 shows in tabular form the low/mean/high prices for market runs on 9/3/08 to 10/17/08. Prices are from ISO daily reports on market results. These prices are then “screened” and plotted on Figure 3.

Figure 3:

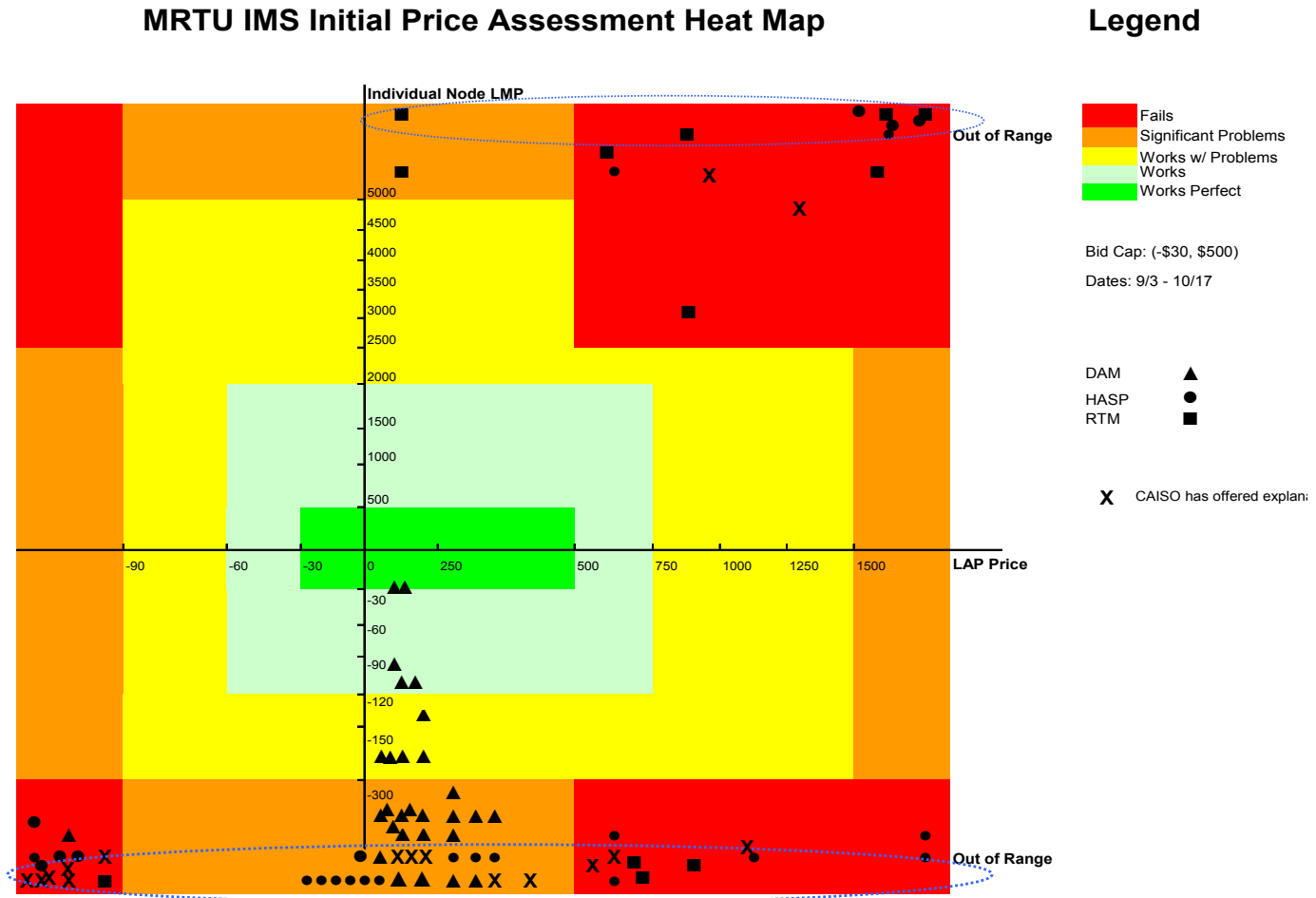


Figure 3 shows the most extreme LAP and LMP prices for market runs on 9/3/08 to 10/17/08. Each plot represents the intersection of either the highest LAP and LMP price or the lowest LAP and LMP price observed on a daily basis. LAP prices that exceed 3x bid cap and LMPs that exceed 10x bid cap are marked as “out of range” and are not to scale. The plots represented as an ‘X’ are outliers for which an explanation has been offered by the CAISO.

Figure 4:

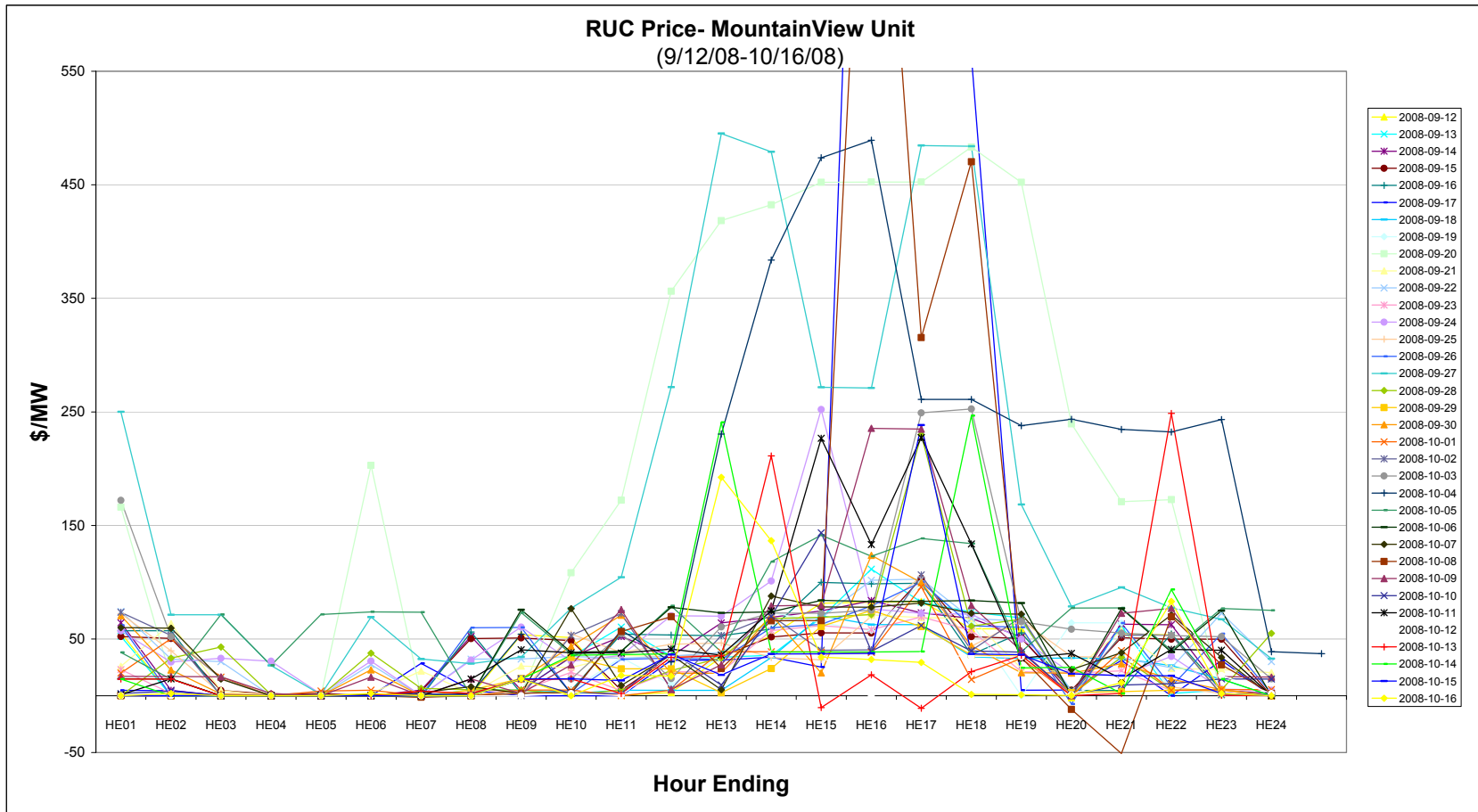


Figure 4 shows a 24 hour daily plot of RUC prices for each day from 9/12/08 to 10/16/08. As can be seen, RUC prices are rarely zero, are extremely volatile and frequently exceed the bid cap of \$250.

Figure 5:

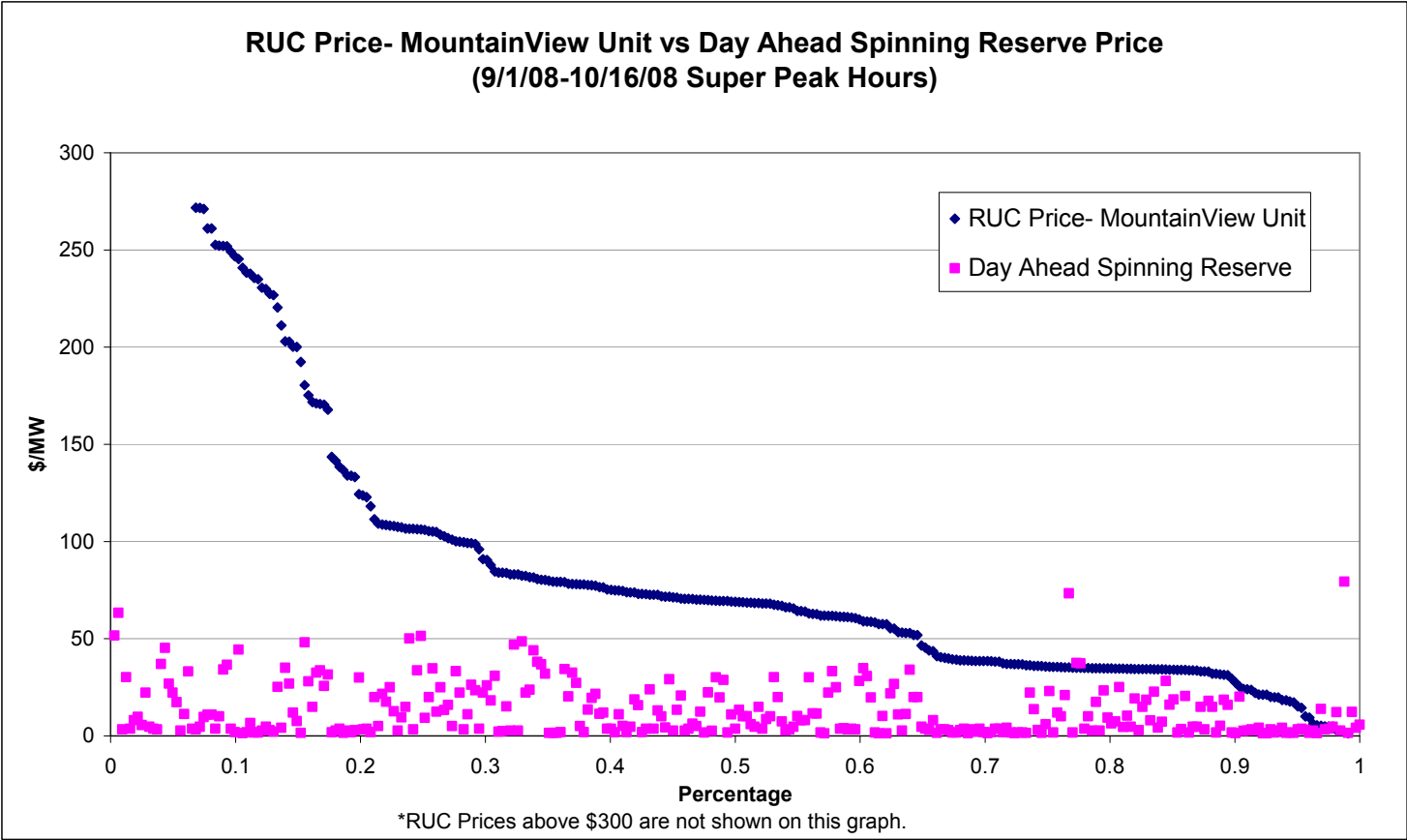


Figure 5 shows a duration curve of the RUC prices and associated IFM spin prices for the super-peak hours 12:00 PM to 6:00 PM (hour-ending 0100 through 1800) from 9/1/08 to 10/16/08. RUC prices exceed both the same-hour Spinning Reserve price and \$0/MW over 95% of the time, and exceed the RUC bid cap of \$250/MW over 10% of the time.

Attachment B

MRTU
IOU Criteria To Be Met By December 1, 2008 for Feb 1, 2009 Go-Live
As Of 10/17/2008

	Criteria #	Criteria Description	CAISO *	IOU
Priority 1 IMS Update 2 Exit Criteria	U2.02	CAISO will allow all SCs to participate.	C	C
	U2.04	Publish daily settlement statements and supporting documentation by TD+5BD.	C	S
	U2.05	Publish two monthly settlement statements and supporting documentation by TD+25BD.	C	N
	U2.06	Publish CRR Auction settlement statements and supporting documentation.	C	N
	U2.07	Publish two accurate monthly invoices.	S	N
	U2.08	DAM successfully solves and publishes by 1300 for 7 consecutive days.	S	S
	U2.09	No more than 5 consecutive 5 minute RT cases fail for 7 consecutive trading days.	C	S
	U2.10	97.5% availability of external facing applications and interfaces.	C	S
	U2.13	90% AC solution over the last 4 weeks.	C	C
	U2.14	Every charge code exercised and valid.	S	S
	U2.15	Scenarios successfully completed.	S	S
	U2.17	CAISO systems patches will be fully tested, installed, and validated.	S	S
	U2.18	HASP successfully solves and publishes ontime 95% of the time for 7 consecutive days.	S	N
U2.19	RTM successfully solves and publishes ontime 95% of the time for 7 consecutive days.	S	N	
	Number of Priority 1 Exit Criteria Met		7	2
Priority 2 Exit Criteria	U2.01	No open Critical and Very High variances. Mitigate or repair High variances.	S	S
	U2.03	CAISO to publish a daily participation list.	C	C
	U2.11	CAISO backup and restore plans executed.	S	S
	U2.12	CAISO archiving and data retention plans performed.	S	S
	U2.16	Market results based on inputs and consistent across external applications.	C	N
	Number of Priority 2 Exit Criteria Met		2	1
Additional Criteria	CR.01	CAISO systems performance and stability are proven reasonable	C	S
	CR.02	Market Prices are Reasonable	C	N
	CR.03	Resource ID issue is resolved and tested	S	S
	CR.04	CAISO achieves satisfactory progress towards providing a high level of confidence in the CAISO's market gaming prevention processes and protocols and market monitoring tools**	S	S
	CR.05	Number of charge codes passing Bid to Bill Shadow Validation at acceptable Level (C is above 60, S is between 30 and 59, N is less than 30)	Not Applicable	N
	CR.06	System changes controlled by production quality change management process	C	S
	CR.07	MRTU Tariff and Policy issues are finalized	C	N
	(C) Completed			
	(S) Started, not completed			
	(N) Not Started, or not tracking to complete by December 1, 2008			

Priority 1 Exit Criteria was to be met prior to 90-day market participation testing phase.

Priority 2 Exit Criteria can be met after 12/1/2008.

Additional Criteria must be met by 60-day FERC readiness filing.

* The CAISO assessment of Exit Criteria is interpreted based on published exit criteria statistics and daily conference calls.

** CAISO needs to complete Readiness Criteria ORG - 3.3: "A Market simulation tool (the MRTU Sandbox/DMM Tool) that is based on the actual CAISO market software will be developed and tested by the CAISO MRTU Team and made available to the DMM three months prior to Go Live." For February 1 go-live, this is November 1.

For details on Attachment B MRTU IOU Criteria, click on embedded Excel Workbook below:



C:\DATA\IOU
Comparison Metrics 2