

Market Initiatives Roadmap - High Level Ranking Results



Stakeholder Meeting July 23, 2009

Meeting Agenda

- Introduction to the Roadmap Process
- Review 2008 Market Initiative Roadmap results
- High Level Ranking Overview
- Explanation of Highly Ranked Initiatives
- Next Steps



ISO Stakeholder Process

Market Initiatives Roadmap





The purpose of this process is to prioritize the outstanding market design initiatives.



Publish 5 Year Strategic Plan Update Begin development of selected initiatives





Overview of Ranking Methodology

- High Level Prioritization
 - Categorize proposed initiatives as High, Medium and Low based on certain criteria
- Detailed Ranking
 - High priority initiatives are evaluated more thoroughly by applying ranking criteria methodology
- Strategic Planning Process
 - Analysis of initiatives with corporate goals in mind



Each initiative is ranked against these criteria.

	ISO HIGH LEVEL PRIORITIZATION CRITERIA						
ш		HIGH		MEDIUM	LOW	NONE	
#		Criteria	10	7	3	0	
1		Grid Reliability	Significant Improvement	Moderate Improvement	Minimal Improvement	No improvement	
2	Benefit	Improving Overall Market Efficiency	Significant Improvement	Moderate Improvement	Minimal Improvement	No impact	
3		Desired by Market Participants	Universally desired by Market Participants	Desired by majority of Market Participants	Desired by a small subset of Market Participants	No apparent desire	
4	— Feasibility	Market Participant Implementation Impact (\$ and resources)	No Impact	Minimal Impact	Moderate Impact	Significant impact	
5		ISO Implementation Impact (\$ and resources)	No Impact	Minimal Impact	Moderate Impact	Significant impact	



Status of 2008 High Priority Initiatives

Initiative	2009 Ranking	Comments
Model Constraints of Combined Cycle Units	N/A	Will be implemented in 4 th Quarter 2009
Standard RA Capacity Product	N/A	Will be implemented January 1, 2010
Sale of CRRs in the CRR Auction	N/A	The stakeholder process will begin soon.
MPM of Start Up and Minimum Load Bids	High	Combined with ability to bid SU & ML
Designation of A/S Contingency Hourly	Medium	Although the benefit ranking did not change, a re-analysis of the feasibility caused the score to be reduced.
Long Term CRR Auction	Medium	Although the benefit ranking did not change, a re-analysis of the feasibility caused the score to be reduced.



Status of 2008 High Priority Initiatives (cont'd)

Initiative	2009 Ranking	Comments
Multi-Settlement System for Ancillary Services	Medium	Although the benefit ranking did not change, a re-analysis of the feasibility caused the score to be reduced.
30 Minute Operating Reserves	Low	This initiative was analyzed and stakeholdered. It appeared that this initiative may not be the right solution to solve the problem at hand.
Ancillary Services Substitution	Low	Although the benefit ranking did not change, a re-analysis of the feasibility caused the score to be reduced.



Some 2008 initiatives moved from a lower ranking to make the high level cut.

	BCR for Units Running over Multiple Operating Days
Changed	Simultaneous RUC and IFM
from	Multi-Day Unit Commitment in the IFM
"High"	Ability to Bid Start Up and Minimum Load Costs & MPM
	Use of "Weighted Least Squares" CRR Optimization Algorithm
Changed	Load Aggregation Point Granularity
to "High"	Day Ahead Scheduling of Intermittent Resources



Procedure to Apply RA MOO to a Subset of Hours

	Criteria	Impact	Score	Comments
_	Grid Reliability	Moderate Improvement	7	Current RA-MOO rules apply 24x7, but some
Benefi	Improve Market Efficiency	Moderate Improvement	7	contracted for a subset of hours. Initiative provides
ť	Desired by Market Participants	Desired by a majority of MP	7	flexibility to align market treatment of RA-MOO with varying RA contract
Feas	Market Participant Implementation Impact	No Impact	10	provisions.
ibility	ISO Implementation Impact	Minimal Impact	7	
Californ		Total	38	Slide 11

Enhancements to Standard RA Capacity Product

	Criteria	Impact	Score	Comments
_	Grid Reliability	Moderate Improvement	7	SCP enhancements will subject a larger majority
3enefi	Improve Market Efficiency	Moderate Improvement	7	of the RA fleet to availability standards. FERC and many Market
ť	Desired by Market Participants	Desired by a Majority of MP	7	Participants are anxious for these enhancements.
Feas	Market Participant Implementation Impact	Minimal Impact	7	
ibility	ISO Implementation Impact	Minimal Impact	7	
Californ	ia ISO Link to Power	Total	35	Slide 12

Bid Cost Recovery for Units Running Over Multiple Operating Hours

	Criteria	Impact	Score	Comments
_	Grid Reliability	Moderate Improvement	7	Facilitates accurate BCR for units that are
3enefi	Improve Market Efficiency	Moderate Improvement	7	one calendar day to the next.
Ť	Desired by Market Participants	Desired by a Majority of MP	7	
Feas	Market Participant Implementation Impact	Minimal Impact	7	There will be settlements system impacts.
ibility	ISO Implementation Impact	Minimal Impact	7	
🔗 California ISO		Total	35	

Rules to Encourage Dispatchability of Wind & Solar Resources

	Criteria	Impact	Score	Comments
	Grid Reliability	Significant Improvement	10	As there is increased integration of renewable
Benefi	Improve Market Efficiency	Moderate Improvement	7	dispatch flexibility, there is a need for flexibility to
Ť	Desired by Market Participants	Desired by a Majority of MP	7	re-dispatch such resources in the case of over-generation or
Feas	Market Participant Implementation Impact	Minimal Impact	7	congestion.
ibility	ISO Implementation Impact	Moderate Impact	3	
Californ	ia ISO	Total	34	Slide 14

Load Aggregation Point Granularity

	Criteria	Impact	Score	Comments
	Grid Reliability	Moderate Improvement	7	Increased LAP granularity will mitigate
Benefi	Improve Market Efficiency	Significant Improvement	10	adjustments and provide locational price signals
ť	Desired by Market Participants	Desired by a Majority of MP	7	for demand response.
Feas	Market Participant Implementation Impact	Moderate Impact	3	Will require more sophisticated demand bidding.
ibility	ISO Implementation Impact	Minimal Impact	7	
Californ		Total	34	Slido 15

Simultaneous RUC and IFM

	Criteria	Impact	Score	Comments
	Grid Reliability	Moderate Improvement	7	There is potential for market efficiencies,
Benefi	Improve Market Efficiency	Moderate Improvement	7	generation conditions and potential elimination
Ť	Desired by Market Participants	Desired by a Majority of MP	7	of a market pass by being able to simultaneously solve
Feas	Market Participant Implementation Impact	Minimal Impact	7	RUC and IFM.
ibility	ISO Implementation Impact	Moderate Impact	3	
Californ	ia ISO	Total	31	Slido 16

Multi-Day Unit Commitment in the IFM

_	Criteria	Impact	Score	Comments
	Grid Reliability	Moderate Improvement	7	Extending the commitment horizon may
Benefi	Improve Market Efficiency	Moderate Improvement	7	the commitment results and reduce cycling of
ť	Desired by Market Participants	Desired by a Majority of MP	7	resources that may improve reliability.
Feas	Market Participant Implementation Impact	Minimal Impact	7	
ibility	ISO Implementation Impact	Moderate Impact	3	
California ISO		Total	31	Slide 17

Day Ahead Scheduling of Intermittent Resources

	Criteria	Impact	Score	Comments
	Grid Reliability	Moderate Improvement	7	Intermittent resources are not required to and
Bene	Improve Market Efficiency	Moderate Improvement	7	in the DAM, thus omitting from the IFM a supply
ofit	Desired by Market Participants	Desired by a Majority of MP	7	source that is significant and growing. IFM bidding by intermittents will better align the IFM and RTM.
Feas	Market Participant Implementation Impact	Moderate Impact	3	Greater impact on market participants who will need to estimate intermittent
ibility	ISO Implementation Impact	Minimal Impact	7	energy on a DA basis.
Californi Your L	a ISO ink to Power	Total	31	Slide 18

Ability to Bid Start Up and Minimum Load Costs in the IFM

	Criteria	Impact	Score	Comments	
	Grid Reliability	Moderate Improvement	7	Enable generation unit owners flexibility to	
Benefi	Improve Market Efficiency	Moderate Improvement	7	and min load costs for more efficient unit	
ť	Desired by Market Participants	Desired by a Majority of MP	7	commitment.	
Feas	Market Participant Implementation Impact	Minimal Impact	7	Will require new market power mitigation measures.	
ibility	ISO Implementation Impact	Moderate Impact	3		
California ISO		Total	31	Slide 10	

Use of "Weighted Least Squares" CRR Optimization Algorithm in CRR Allocation

		Criteria	Impact	Score	Comments
	Benefit	Grid Reliability	No Improvement	0	In the allocation process, WLS will share the impact
Beneti		Improve Market Efficiency	Moderate Improvement	7	nominated CRRs that affect the congested line.
		Desired by Market Participants	Desired by a Majority of MP	7	Current algorithm reduces the most effective CRRs, and may fall entirely on
reas	Feasibility	Market Participant Implementation Impact	No Impact	10	one nominating entity.
ibility		ISO Implementation Impact	Minimal Impact	7	
California ISO			Total	31	Slide 20

Addressing Ramping Capacity Constraints

	Criteria	Impact	Score	Comments	
	Grid Reliability	Significant Improvement	10	Increased ramping capability will address	
Benefi	Improve Market Efficiency	Moderate Improvement	7	for ramping due to existing short-term	
ť	Desired by Market Participants	Desired by a Majority of MP	7	ramping insufficiencies during resource start-up, shut-down, interchange ramp, etc. This ramping need is expected to continue and increase as integration of renewables	
Feas	Market Participant Implementation Impact	Moderate Impact	3		
ibility	ISO Implementation Impact	Moderate Impact	3	increases.	
California ISO		Total	30	Slide 21	

Potential Modifications to Market Rules for DA **Intertie Schedules**

	Criteria	Impact	Score	Comments
	Grid Reliability	Moderate Improvement	7	Address potential reliability concerns of the
Benefi	Improve Market Efficiency	Minimal Improvement	3	schedules that may not be ultimately delivered.
Ť	Desired by Market Participants	Desired by a small subset	3	The ISO is relying on these schedules and the uncertainty regarding
Feas	Market Participant Implementation Impact	No Impact	10	them could jeopardize reliability.
ibility	ISO Implementation Impact	Minimal Impact	7	
Californ		Total	30	Slide 22

Items that still need to be added to the Catalogue.

- Lossy shift factors and other loss considerations
 - During high stressed market solutions, the fact that losses are being considered in the power-balance constraint but not other constraint such as congestion, ramping or ancillary services can lead to mathematically ineffective solutions to resolve simultaneous constraints.
 - Consider solutions that limit these mathematically correct but ineffective solutions.



Items that still need to be added to the Catalogue

- Limits to the pool of resources available in the IFM
 - Currently the Market Power Mitigation (MPM) rules limit the resources that considered for commitment and dispatch to only those resources that cleared MPM.
 - Based on monitoring of performance over the summer, consider eliminating this rule to allow all bid in resources to be considered MPM.



Items that still need to be added to the Catalogue.

- Initial Condition Management (submitted by PG&E)
 - Currently only resources that are scheduled in DAM to HE24 are considered to have an initial condition of online when running the next day's DAM.
 - Participants are seeking more flexibility to either indicate a resource is going to remain online via its initial condition or more flexibility to self-schedule the resource without being limited by inter-temporal constraint rules in SIBR.



Items that still need to be added to the Catalogue.

- Real Time Performance Issues
- A/S for Non-Generation Resources
- Enhanced Dec Market
- Others?



What happens next?

- Market Participants provide input on rankings
- ISO reconsiders rankings based on stakeholder Input
- Publish updated high level ranking of market design initiatives within the straw proposal.
- Market Participants provide comments on straw proposal (conference call and written comments)
- ISO staff performs initial detailed ranking of initiatives



The highest ranked initiatives move on to the detailed ranking step.

DETAILED RANKING CRITERIA							
#	Criteria		Weight HIGH		MEDIUM	LOW	NONE
		Children		10	7	3	0
1		Grid Reliability	10	Significant Improvement	Moderate Impro∨ement	Minimal Impro∨ement	No Improvement
2		Improving CAISO Market Efficiency	10	Significant improvement	Moderate improvement	Minimal improvement	No impact
3	Benefit	Promote Efficient Infrastructure Development	10	Significant improvement	Moderate improvement	Minimal impro∨ement	No improvement
5		Desired by Stakeholders 10		Universally desired by stakeholders	Desired by majority of stakeholders	Desired by a small subset of stakeholders	No apparent desire
6		Process Improvement (ISO & MP)	5	Significant improvement	Moderate improvement	Minimal improvement	No impact
7		Market Participant Implementation Cost	7	No Cost	Minimal Cost	Moderate Cost	Significant Cost
8		Market Participant Implementation impact on systems and resources	7	No Impact	Minimal Impact	Moderate Impact	Significant Impact
9	ibility	Impact on Market Participant ongoing operating costs	7	No ongoing operating costs	Minimal ongoing operating costs	Moderate ongoing operating costs	Major ongoing operating costs
10	Feas	ISO Implementation Cost	10	< \$1M	>\$1M, <\$5M	>\$5M, <\$10M	>\$10M
11		ISO Implementation impact on systems and resources	7	No Impact	Minimal Impact	Moderate Impact	Significant Impact
12		Impact on ISO Ongoing Operating Costs	7	No ongoing operating costs	Minimal ongoing operating costs	Moderate ongoing operating costs	Major ongoing operating costs

California ISO

Proposed Schedule for the Roadmap process

- July 23 Stakeholder Meeting
- July 30 Stakeholder comments due on High Level Ranking
- August 10 Publish straw proposal of high priority enhancements
- August 17 Conference call to discuss straw proposal
- August 24 Stakeholder comments due on straw proposal
- September 9 Publish draft final proposal
- September 16 Conference call to review draft final proposal
- 4th Quarter Integrate into corporate strategic planning process

