California ISO
Shaping a Renewed Future

Operations Highlights Report

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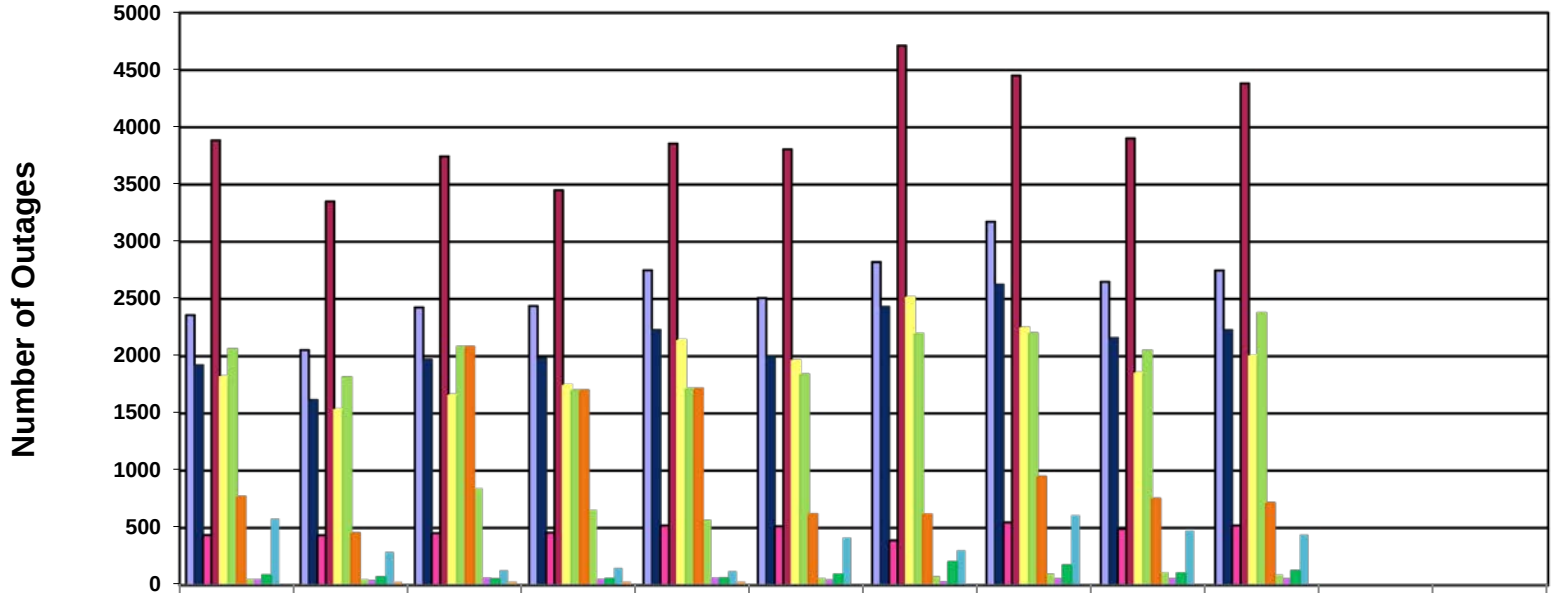
Vice President, Operations

Board of Governors Meeting
General Session
December 13-14, 2012

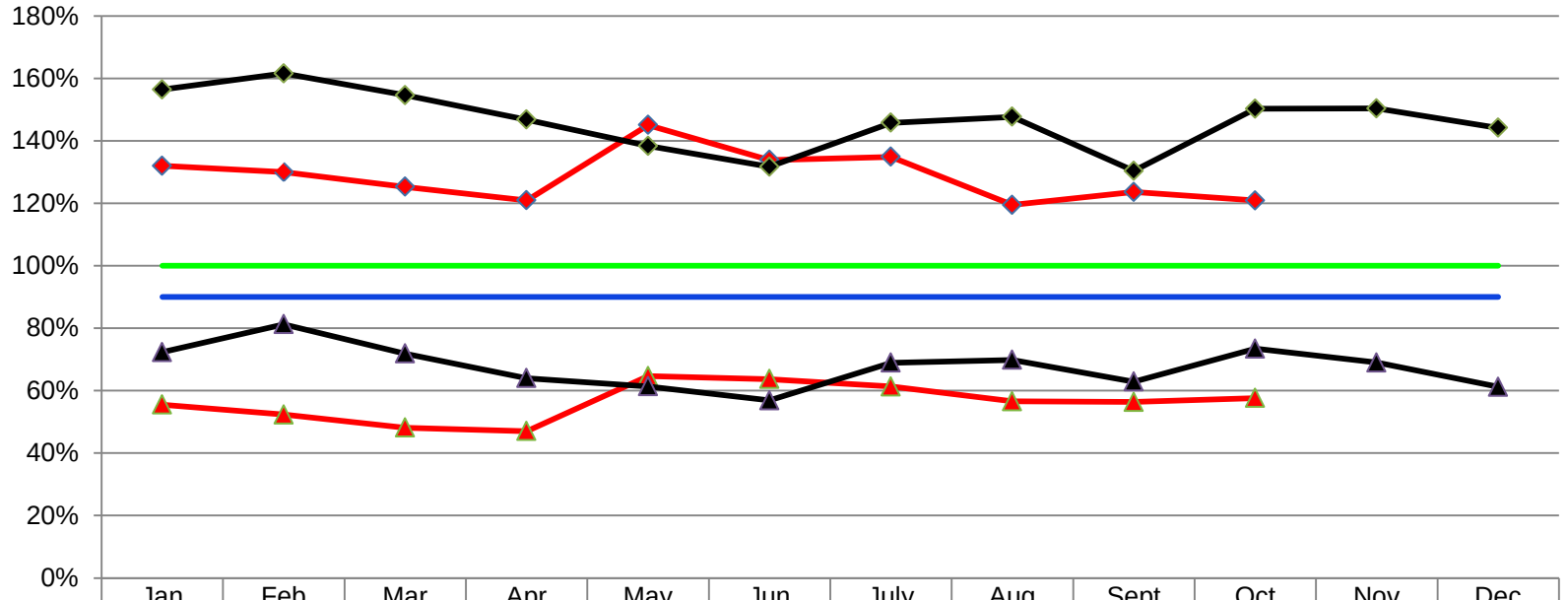
Outage Summary 2012



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Forced	2359	2054	2426	2439	2751	2509	2823	3175	2650	2750		
Forced Generation	1921	1617	1971	1980	2229	1994	2432	2625	2159	2228		
Forced Transmission	438	437	455	459	522	515	391	549	491	522		
Scheduled	3886	3352	3746	3450	3858	3807	4714	4452	3904	4384		
Scheduled Generation	1825	1537	1664	1749	2142	1966	2517	2251	1856	2007		
Scheduled Transmission	2061	1815	2082	1701	1716	1841	2197	2201	2048	2377		
Cancelled	772	454	2082	1701	1716	620	618	947	755	718		
Cancelled Forced Generation	53	51	847	658	571	63	78	101	113	92		
Cancelled Forced Transmission	53	45	68	54	68	50	34	62	62	61		
Cancelled Planned Generation	86	69	52	54	60	92	201	173	103	125		
Cancelled Planned Transmission	580	289	128	149	122	415	305	611	477	440		
RMO	0	29	31	30	31	0	0	2	0	1		

The Outage Summary graph shows the number of forced, scheduled and cancelled generation and transmission outages processed per month by the Outage Coordination office. Included in the graph is the number of restricted maintenance operations. Restricted maintenance operations accommodates additional transmission or other maintenance on the grid.

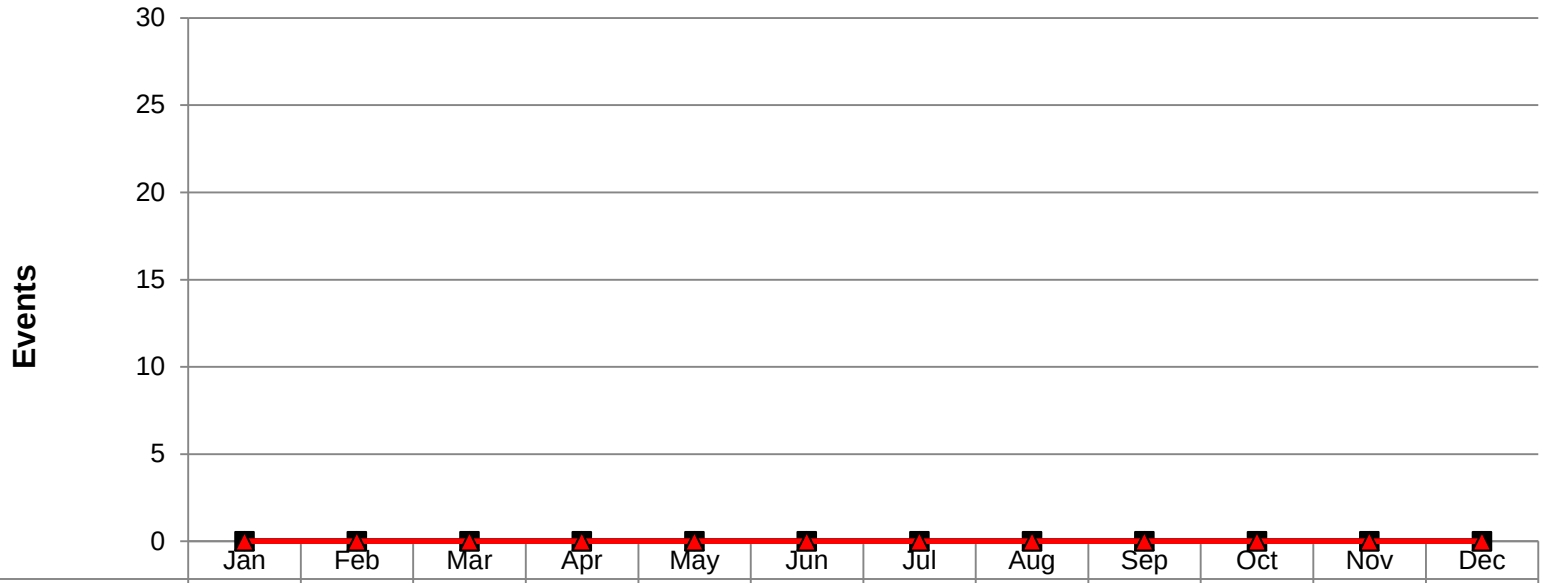
Control Performance Standard 1 and 2



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
'12 CPS 1	132%	130%	125%	121%	145%	134%	135%	119%	124%	121%		
'12 CPS 2	55.53%	52.36%	48.14%	47.01%	64.67%	63.68%	61.30%	56.60%	56.40%	57.65%		
'11 CPS 1	156%	162%	155%	147%	138%	132%	146%	148%	130%	150%	150%	144%
'11 CPS 2	72.32%	81.29%	71.90%	64.02%	61.38%	56.89%	68.94%	69.85%	62.87%	73.43%	68.99%	61.24%
CPS1 Min Req	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CPS2 Min Req	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%

CPS1 is a statistical measure of area control error (ACE) variability. It measures ACE in combination with the interconnection frequency. The CPS1 formula was developed on a conformance scale, therefore values over 100% are not only desired, but also expected.
CPS2 is a statistical measure of ACE magnitude. It is designed to limit a control area's unscheduled (or inadvertent) overflows that could result from large ACE values.
Note: Effective March 1, 2010: WECC launched the reliability based control proof-of-concept field trial. The CPS2 measure is impacted by the reliability based control field trial currently underway. The ISO has received a signed release waiving the CPS2 requirement from WECC during the participation in the trial.

Reliability Based Control



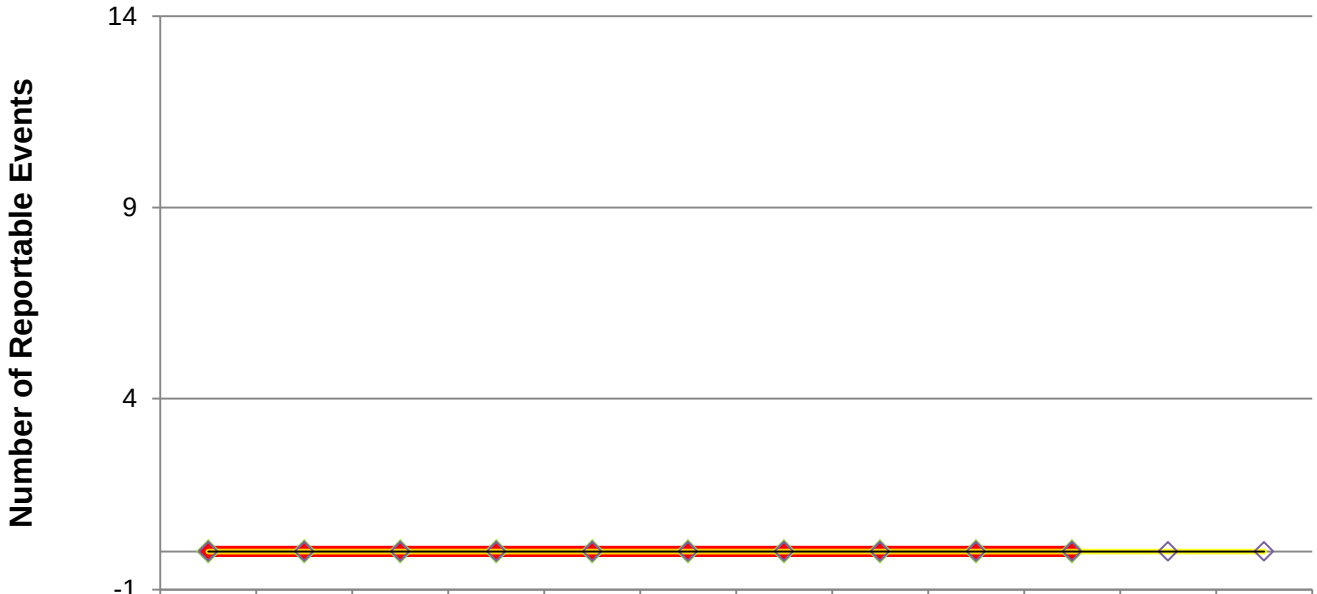
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
+/- 20 min	0	0	0	0	0	0	0	0	0	0	0	0
+/- 25 min (WECC reporting threshold)	0	0	0	0	0	0	0	0	0	0	0	0
+/- 30 min	0	0	0	0	0	0	0	0	0	0	0	0

Reliability Based Control (RBC) is an Eastern and Western Field Trial that supports the Interconnection frequency by requiring balancing areas to take action to limit the duration of operating outside a variable area control error (ACE) boundary that gets "tighter" as actual frequency deviates further from 60 Hz., during field trial reporting, which is required, but not considered a violation. The following actions are taken when exceeding balancing area ACE limit (BAAL) --***high*** or ***low*** for:

- **10 Consecutive Minutes** – Identify any period that exceeded BAAL high or BAAL low for 10 consecutive clock minutes
- **20 Consecutive Minutes** – Provide a brief explanation of the circumstances related to any period that exceeded BAAL high or BAAL low for 20 consecutive clock minutes. This is the WECC reporting threshold.
- **30 Consecutive Minutes** –Provide a detailed account of the event related to any period that exceeded BAAL high or BAAL low for 30 consecutive clock minutes. Proposed violation threshold.

The field trial started in March of 2010 and the chart indicates the number of times the BAAL exceeds a high or low limit each month. The reliability based control standard took effect on 3/1/2010 – the January and February control was monitored under CPS2.

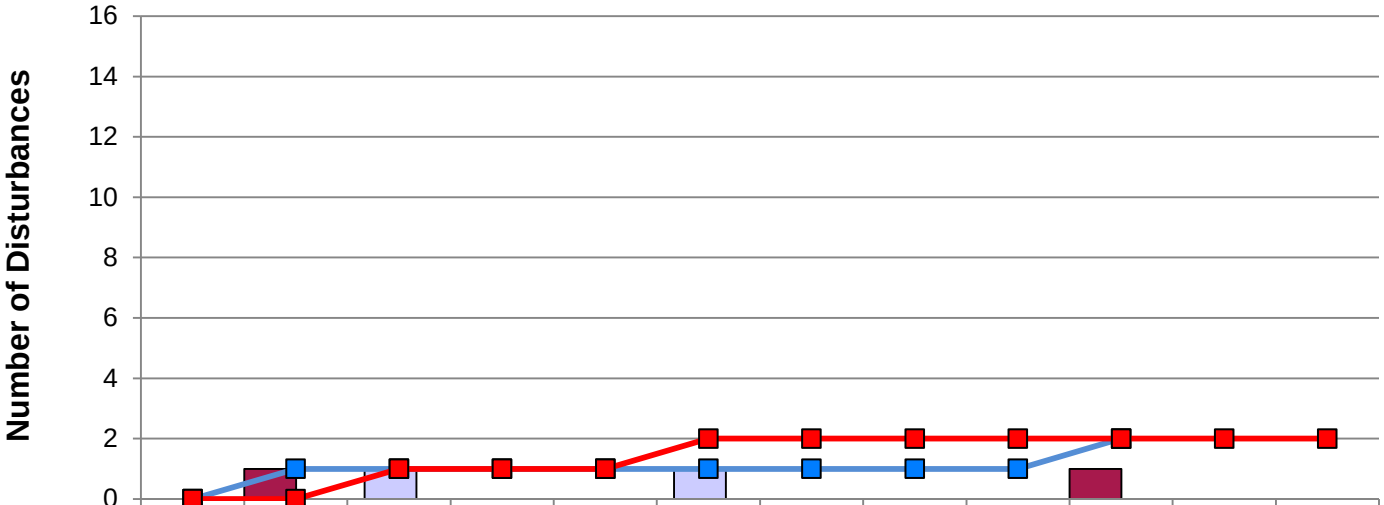
Operational Transfer Capability Reportable Events



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
'12 Reportable Events	0	0	0	0	0	0	0	0	0	0		
'11 Reportable Events	0	0	0	0	0	0	0	0	0	0	0	0
'12 YTD Reportable Events	0	0	0	0	0	0	0	0	0	0		
'11 YTD Reportable Events	0	0	0	0	0	0	0	0	0	0	0	0

Operational transfer capability reportable events are defined as path overloads that exceed WECC allowable time limits for both stability-related and thermally-related paths.

Frequency Disturbances Inside the ISO

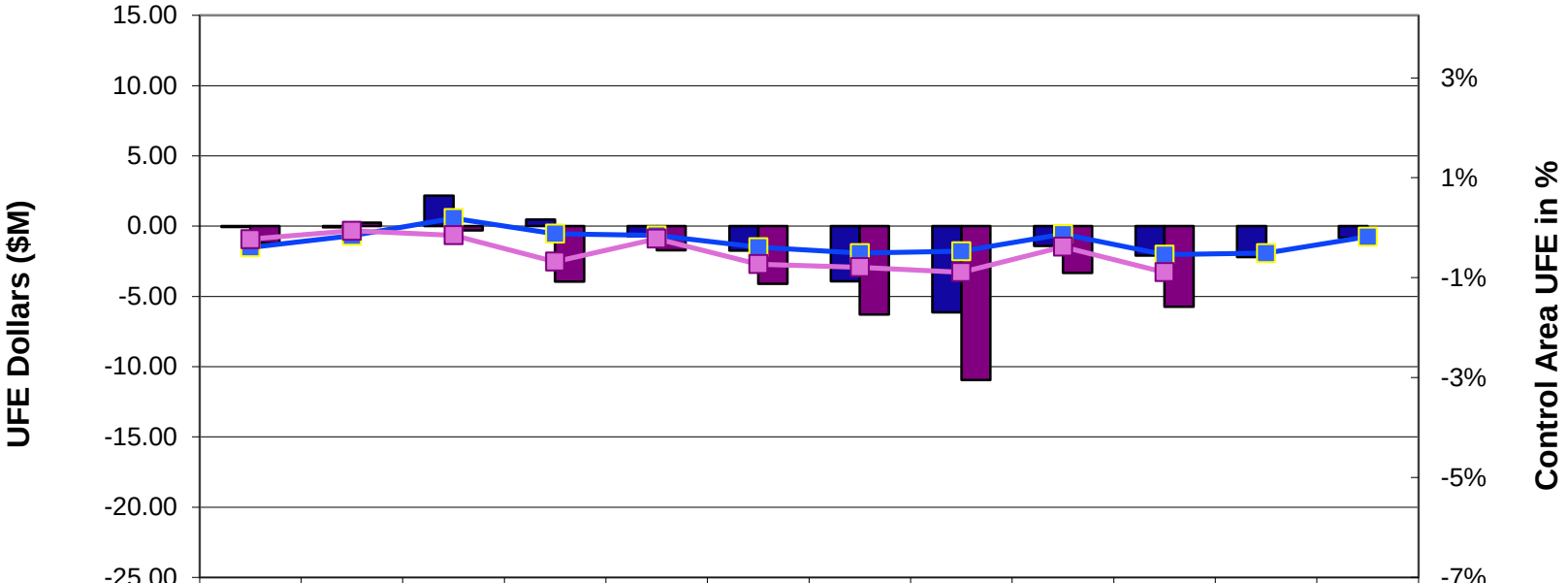


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inside ISO '12	0	1	0	0	0	0	0	0	0	1		
Inside ISO '11	0	0	1	0	0	1	0	0	0	0	0	0
ISO DCS Violations '12	0	0	0	0	0	0	0	0	0	0		
ISO DCS Violations '11	0	0	0	0	0	0	0	0	0	0	0	0
12 YTD Disturbances Total	0	1	1	1	1	1	1	1	1	2		
11 YTD Disturbances Total	0	0	1	1	1	2	2	2	2	2	2	2

Frequency Disturbances are results of a sudden loss of load or generation.

ISO DCS Violations are those internal losses of generation greater than 80% of our most severe single contingency (currently 920 MW), where the ACE is not recovered within 15 minutes. Prior to June 22, 2011, the ISO DCS Violations were those internal losses of generation greater than 35% of our most severe single contingency (which was 402.5 MW), where the ACE is not recovered within 15 minutes. Data provided is current through 10/31/2012.

System Unaccounted for Energy (UFE)

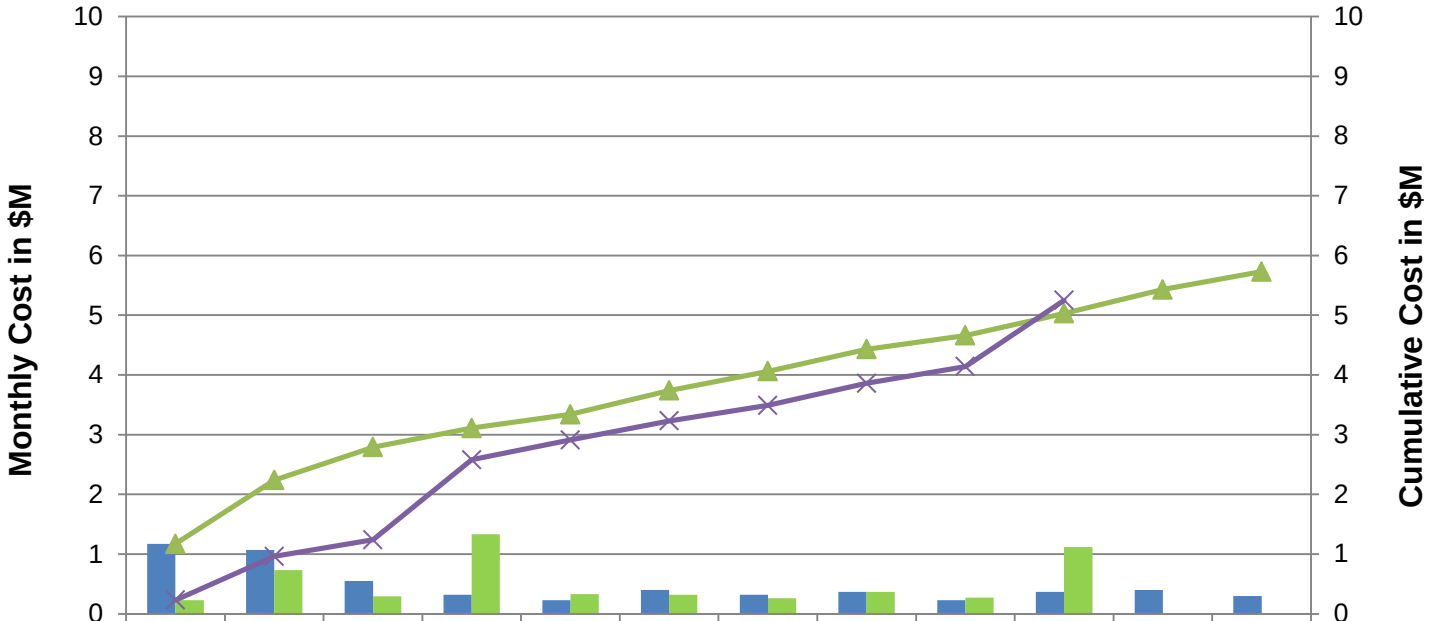


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept*	Oct*	Nov	Dec
2011 UFE Dollars	-0.06	-0.07	2.17	0.48	-0.72	-1.7	-3.9	-6.1	-1.4	-2.1	-2.2	-0.8
2012 UFE Dollars	-1.21	0.25	-0.31	-3.94	-1.72	-4.11	-6.28	-10.95	-3.32	-5.73		
2011 Control Area UFE %	-0.39%	-0.16%	0.19%	-0.12%	-0.15%	-0.39%	-0.51%	-0.47%	-0.13%	-0.54%	-0.51%	-0.18%
2012 Control Area UFE %	-0.23%	-0.06%	-0.15%	-0.68%	-0.22%	-0.73%	-0.79%	-0.89%	-0.38%	-0.89%		

The pattern for 2012 shows UFE levels trending slightly negative within acceptable ranges, similar to, but proportionately somewhat greater than in 2011.

*Estimated settlement quality meter data for the majority of the energy usage is used in the calculation of UFE Amounts for the Settlement Statements published at or before T+12B. Actual settlement quality meter data is required for and utilized in the calculation of UFE Amounts for the Settlement Statements published after T+55B.

Reliability Must Run (RMR)

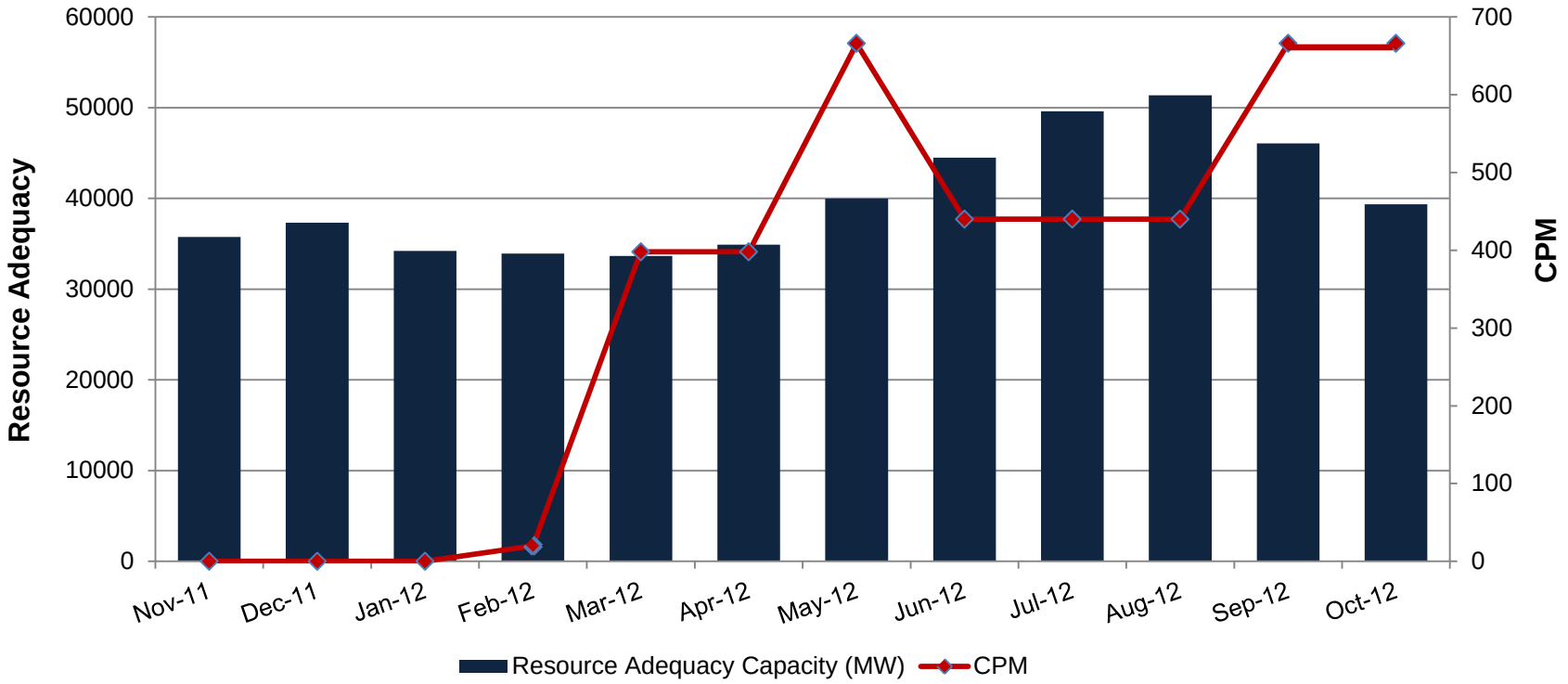


	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Monthly 2011 Cost Gross	$1.17	$1.07	$0.55	$0.32	$0.23	$0.40	$0.32	$0.37	$0.23	$0.37	$0.40	$0.30
Monthly 2012 Cost Gross	$0.23	$0.73	$0.29	$1.33	$0.33	$0.32	$0.26	$0.37	$0.27	$1.12		
2011 Cumulative Cost Gross	$1.17	$2.24	$2.79	$3.11	$3.34	$3.74	$4.06	$4.43	$4.66	$5.03	$5.43	$5.73
2012 Cumulative Cost Gross	$0.23	$0.96	$1.24	$2.58	$2.91	$3.23	$3.49	$3.86	$4.14	$5.25		

Reliability Must-Run chart has been rescaled for improved readability due to having only one reliability must –run facility for 2012.

Note: There is a 120-day lag time before final reliability must-run data becomes available.

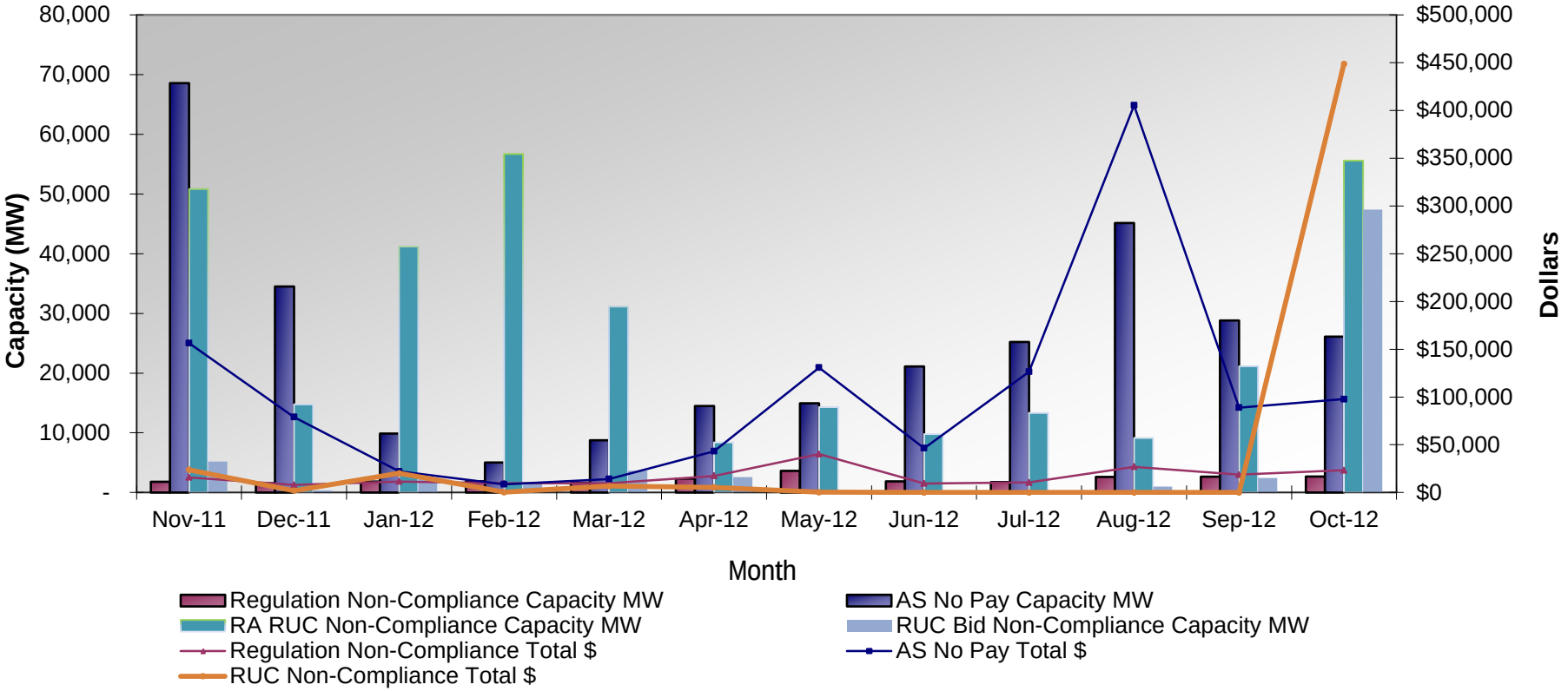
Resource Adequacy Capacity and CPM



Resource Adequacy Capacity and CPM Procurement

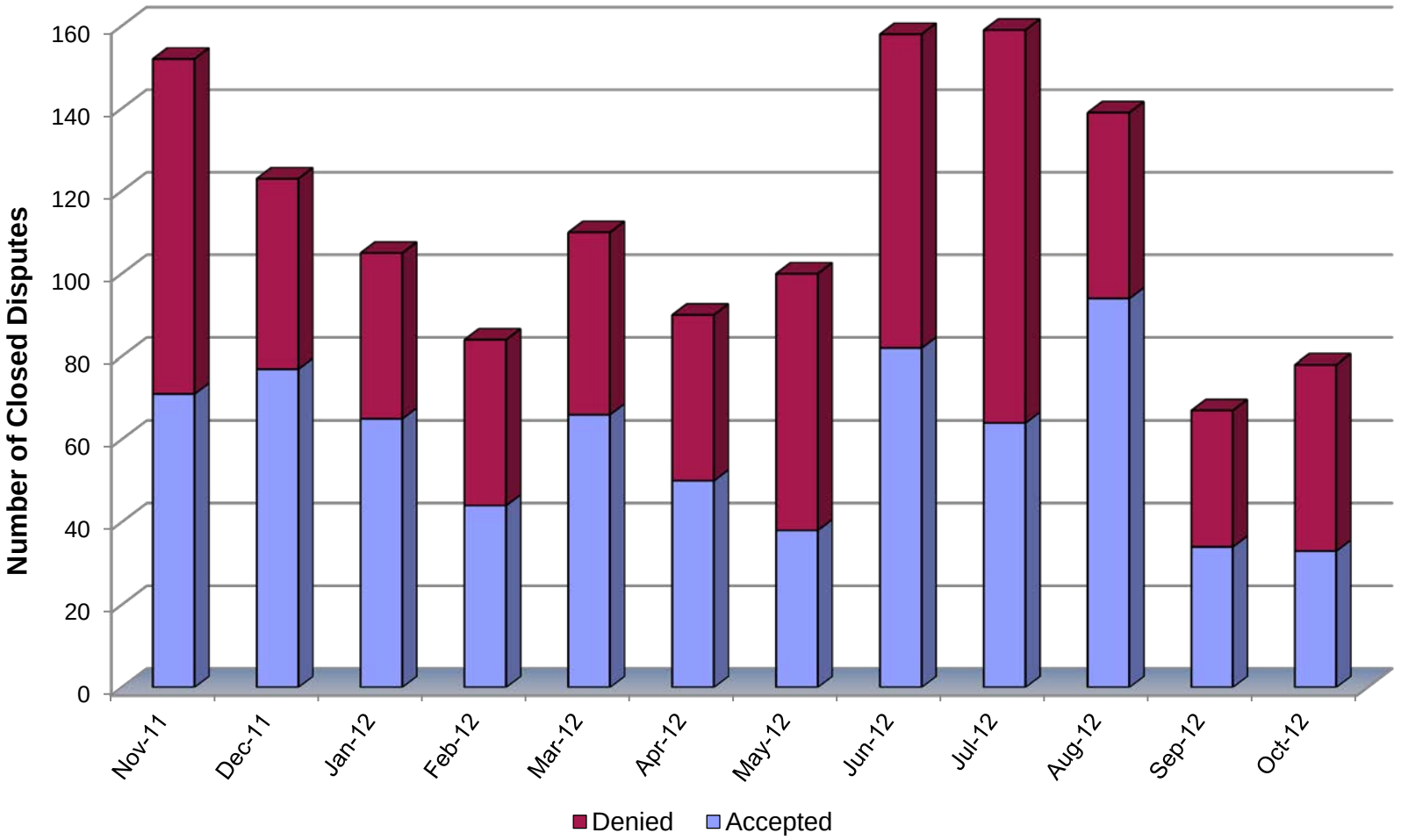
The total amount of resource adequacy capacity to meet local and system requirements as submitted in the supply plans was 46,070.14 MW in September and 39,357.82 MW in October. The ISO extended the Capacity Procurement Mechanism (CPM) until the end of October 2012 for a total of 440 MW. The following is a link to the respective Market Notice:
http://www.caiso.com/Documents/June2012SignificantEventCapacityProcurementMechanismDesignationReport.htm
In addition, a new 30 day Capacity Procurement Mechanism Designation was issued on September 5, 2012 for 225.75 MW of capacity from Huntington Beach Unit 1. The following is a link to the respective Market Notice:
http://www.caiso.com/Documents/CapacityProcurementMechanismDesignationIssued90512.htm
The maximum CPM capacity for September and October was 665.75 MW, after October 4 and through the end of the month, CPM capacity dropped to 440 MW.

Ancillary Service and RUC Compliance Programs



Ancillary Services and Residual Unit Commitment (RUC) Compliance Program: shows the monthly totals of non-compliant ancillary service capacity (MW) and non-compliant RUC capacity (MW). Market Services monitors suppliers of ancillary services and RUC to ensure that ancillary service and RUC capacity awarded in the ISO market is available in real-time. The large jump in RUC Bid Non-Compliance Capacity MW and RUC Non-Compliance Total $ relates to ineligible capacity for BIGCRK_2_EXESWD and undispatchable capacity for KELSO_2_UNITS.

Closed Dispute History



The overall trend of approved disputes and the overall volume of disputes has decreased over the last few months. The ISO continues to work to resolve identified issues and to educate clients in regards to the complexities of the markets and their associated settlement results.

Definitions:

The following are definitions of the items or systems covered in this report.

Control Performance Standards 1 & 2 (CPS1 & CPS2) –

- CPS1 is intended to provide a control area with a frequency sensitive evaluation of how well it is meeting its demand requirements. CPS1 is a statistical measure of area control error (ACE) variability.
- CPS2 is a statistical measure of ACE magnitude. It is designed to limit a control area's unscheduled (or inadvertent) power flows that could result from large ACE values. CPS2 is no longer a compliance measure: the ISO received a written release from WECC.

Reliability Based Control (RBC) Field Trial –

RBC is an Eastern and Western Field Trial that supports the interconnection frequency by requiring balancing areas to take action to limit the duration of operating outside a variable area control error boundary that gets "tighter" as actual frequency deviates further from 60 Hz. The following actions are taken when exceeding balancing area ACE limit (BAAL) - high or low for:

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- 30 Consecutive Minutes – provide a detailed account of the event related to any period that exceeded BAAL high or BAAL low for 30 consecutive minutes.

Definitions, continued:

Operating Transfer Capability Reportable Events – OTC reportable events are defined as those transmission path overloads that exceed WECC allowable time limits for stability-rated and thermally-rated paths (30 minutes).

ISO Control Area Frequency – The ISO control area frequency figures report internal and external system disturbances and include reportable events of the Disturbance Control Standard (DCS) resulting from ISO control area internal disturbances, such as loss of a large generating unit or transmission line. WECC allowable time limit for disturbance recovery is 15 minutes. Per WECC criteria, qualifying disturbances are defined as those greater than 80% of our maximum generation loss from our most severe single contingency. The ISO's most severe single generation contingency is a nuclear unit with maximum generation output of 1,120 MW, 80% of which is the 896 MW thresholds used herein.

Residual Unit Commitment (RUC) Rescission Payments –

The rescission charge for a RUC award rescinds the RUC capacity payments to the extent that the resource with a RUC award does not fulfill the requirements associated with the award. The rescission charge rescinds RUC capacity payment for generating units, dynamic system resources, and non-dynamic system resources when one of the following occurs:

- Generating unit and dynamic system resource – RUC capacity is availability-limited undispatchable due to an outage, or rerate is undelivered outside of a tolerance band, or ineligible for a RUC award because it is a resource adequacy resource.
- Non-dynamic system resource – RUC award is adjusted due to differences between RUC award amount and E-tag amount.

Additional information and examples can be found in the business practice manual for compliance monitoring.