California ISO
Shaping a Renewed Future

Operations Highlights Report

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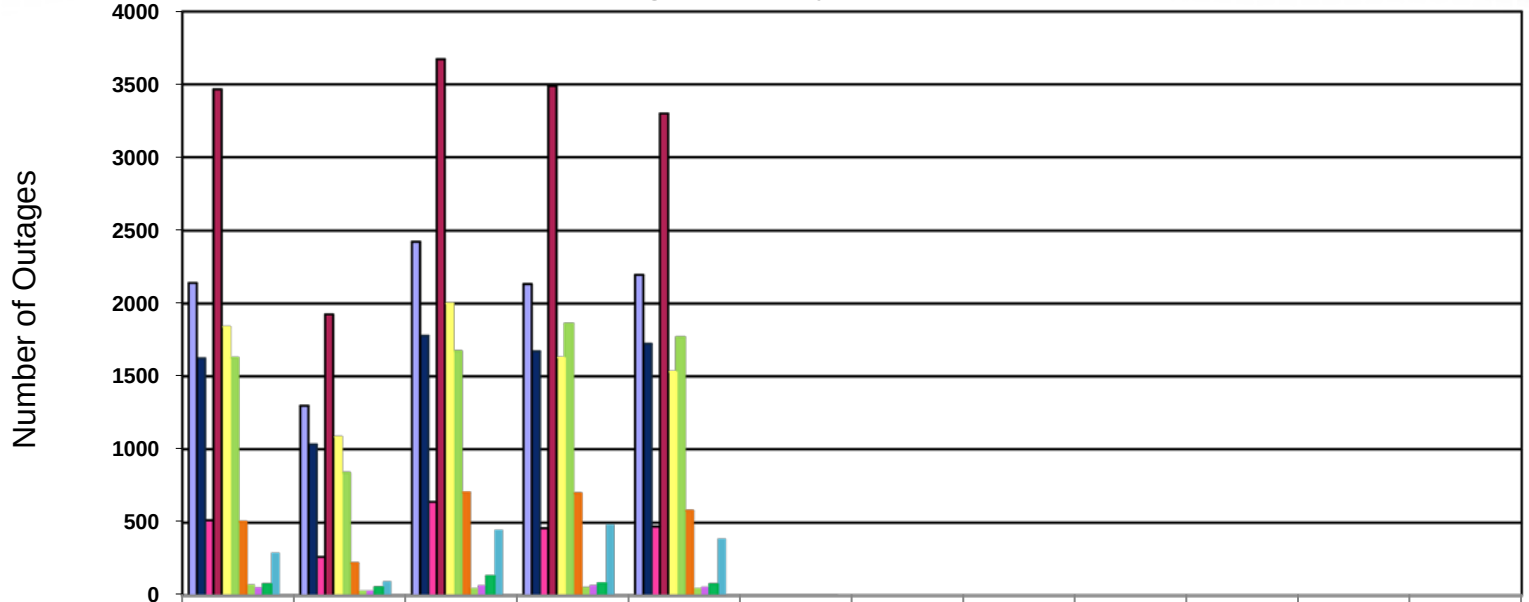
Board of Governors Meeting
General Session
July 13-14, 2011

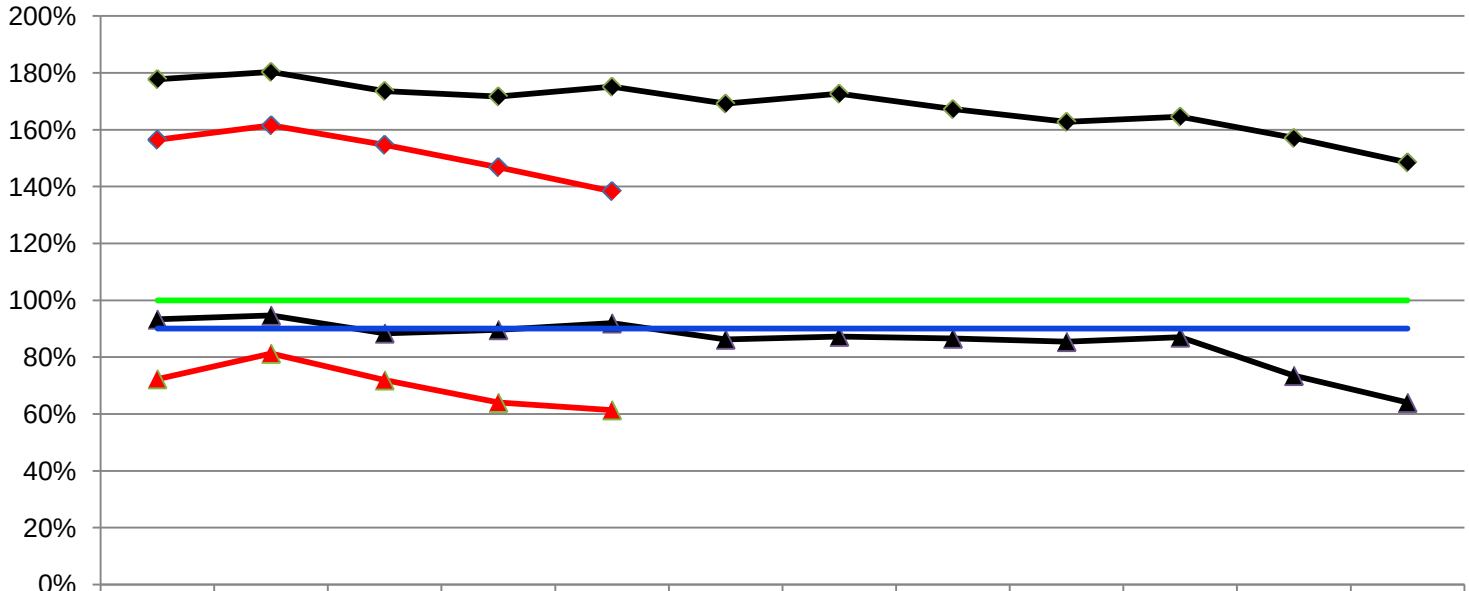
Outage Summary 2011



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Forced	2141	1298	2424	2134	2197							
Forced Generation	1624	1033	1779	1672	1723							
Forced Transmission	517	265	643	462	474							
Scheduled	3466	1926	3673	3489	3300							
Scheduled Generation	1839	1084	2000	1628	1531							
Scheduled Transmission	1627	842	1673	1861	1769							
Cancelled	506	222	707	702	582							
Cancelled Forced Generation	76	34	52	59	52							
Cancelled Forced Transmission	57	34	70	72	61							
Cancelled Planned Generation	78	56	133	83	78							
Cancelled Planned Transmission	295	98	452	488	391							
RMO	0	0	0	0	0							

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.

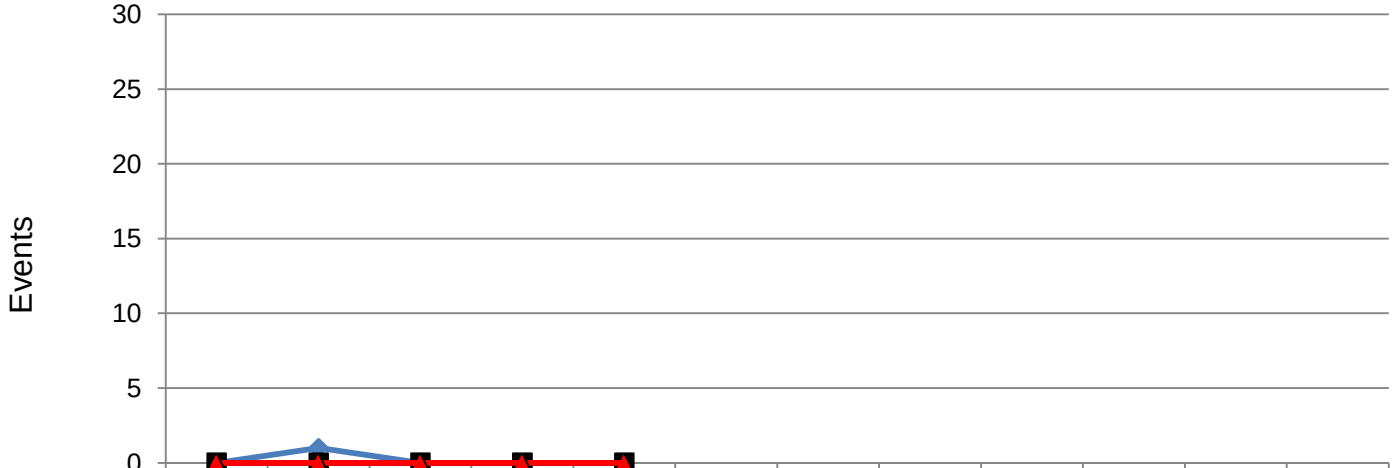
Control Performance Standard 1 and 2



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
'11 CPS 1	156%	162%	155%	147%	138%							
'11 CPS 2	72.32%	81.29%	71.90%	64.02%	61.38%							
'10 CPS 1	178%	180%	174%	172%	175%	169%	173%	167%	163%	165%	157%	149%
'10 CPS 2	93.32%	94.67%	88.39%	89.60%	91.95%	86.24%	87.26%	86.59%	85.43%	86.97%	73.48%	64.00%
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



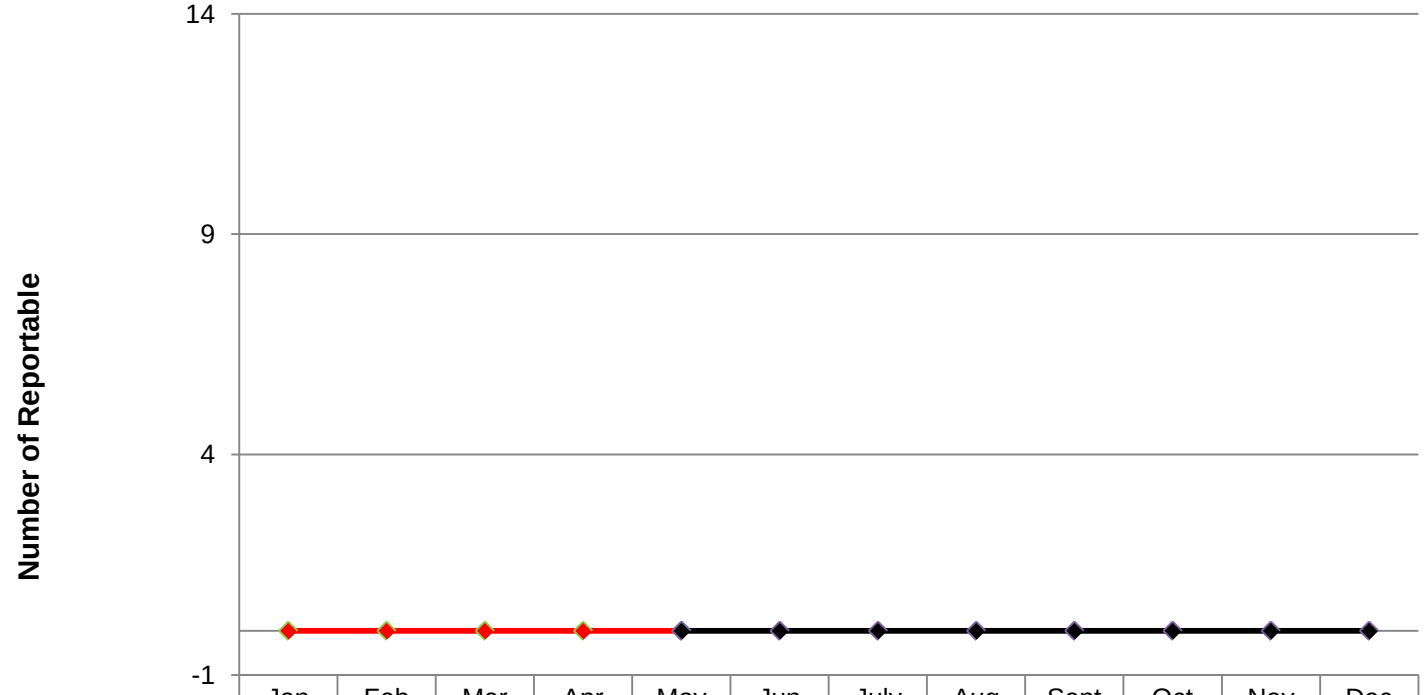
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
+/- 20 min	0	1	0	0	0							
+/- 25 min (WECC reporting threshold)	0	0	0	0	0							
+/- 30 min	0	0	0	0	0							

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

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.
RBC standard took effect on 3/1/2010 – the January and February control was monitored under CPS2.

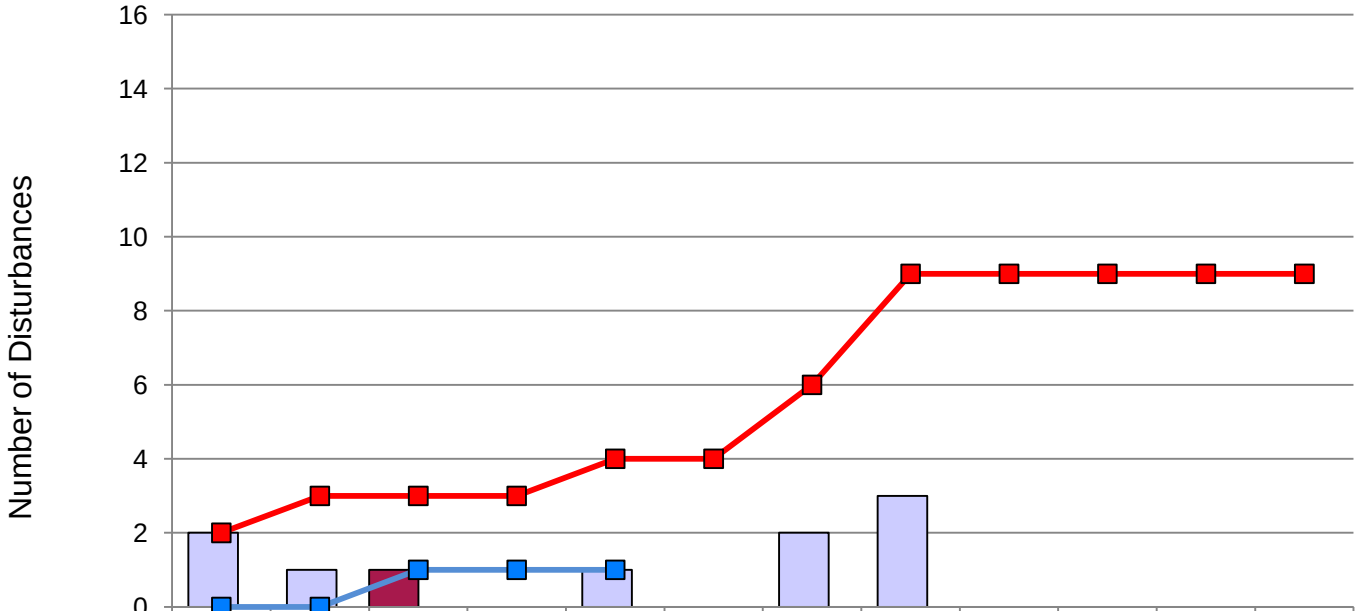
Operational Transfer Capability Reportable Events



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
'11 Reportable Events	0	0	0	0	0							
'10 Reportable Events	0	0	0	0	0	0	0	0	0	0	0	0
'11 YTD Reportable Events	0	0	0	0	0							
'10 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.

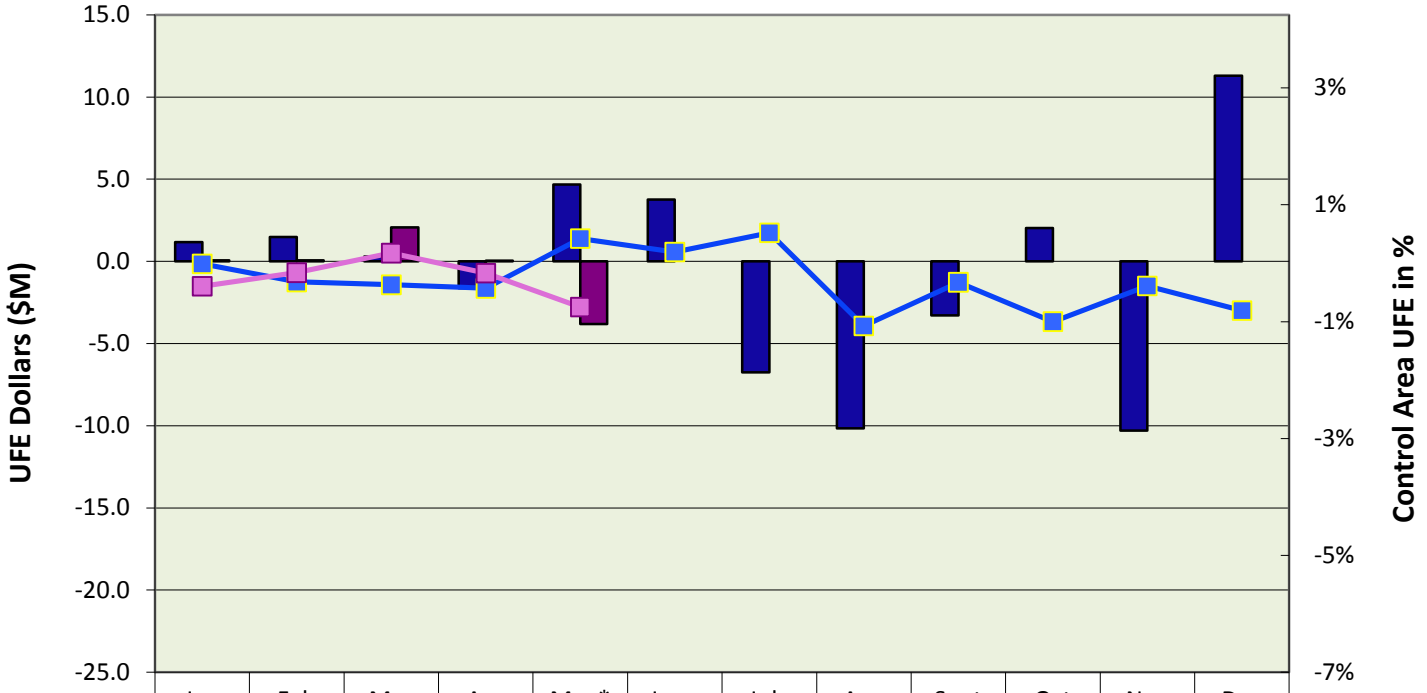
Frequency Disturbances Inside the ISO



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inside ISO '11	0	0	1	0	0							
Inside ISO '10	2	1	0	0	1	0	2	3	0	0	0	0
ISO DCS Violations '11	0	0	0	0	0							
ISO DCS Violations '10	0	0	0	0	0	0	0	0	0	0	0	0
11 YTD Disturbances Total	0	0	1	1	1							
10 YTD Disturbances Total	2	3	3	3	4	4	6	9	9	9	9	9

Frequency Disturbances are results of a sudden loss of load or generation.
ISO DCS Violations are those internal losses of generation greater than 35% of our most severe single contingency (currently 402.5 MW), where the ACE is not recovered within 15 minutes. Data provided is current through 5/31/11.

System Unaccounted for Energy (UFE)

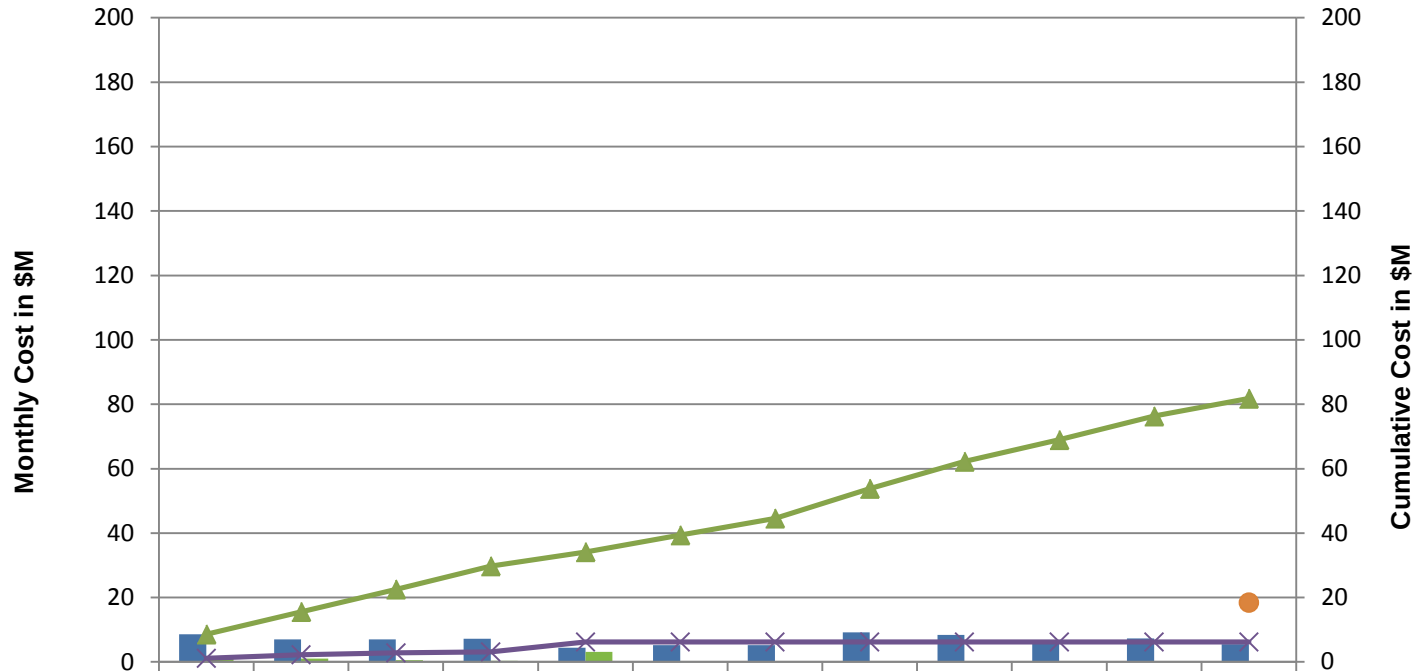


	Jan	Feb	Mar	Apr	May*	June	July	Aug	Sept	Oct	Nov	Dec
2010 UFE Dollars	1.2	1.5	0.3	-1.6	4.7	3.8	-6.8	-10.2	-3.3	2.0	-10.3	11.3
2011 UFE Dollars	0.06	0.07	2.07	0.05	-3.81							
2010 Control Area UFE %	-0.01%	-0.32%	-0.37%	-0.43%	0.42%	0.19%	0.52%	-1.08%	-0.33%	-1.00%	-0.39%	-0.81%
2011 Control Area UFE %	-0.39%	-0.16%	0.17%	-0.17%	-0.75%							

*Initial Amounts are estimated - there is a 31 business day time lag before actual UFE data becomes available.

High <u>Initial</u> UFE numbers is mostly due to the timing of payment acceleration where we calculate statements at five business days after the trade date and scheduling coordinators (SC) must submit meter data prior to the calculation. General meter data can be polled on time however, load meter data has to be estimated by either the SC or the ISO. The ISO estimates metered load on the load schedule plus 3%. This can contribute to higher UFE numbers on the initial and will adjust down when we receive actual meter values which will be reflected in the 38 business day recalculation numbers.

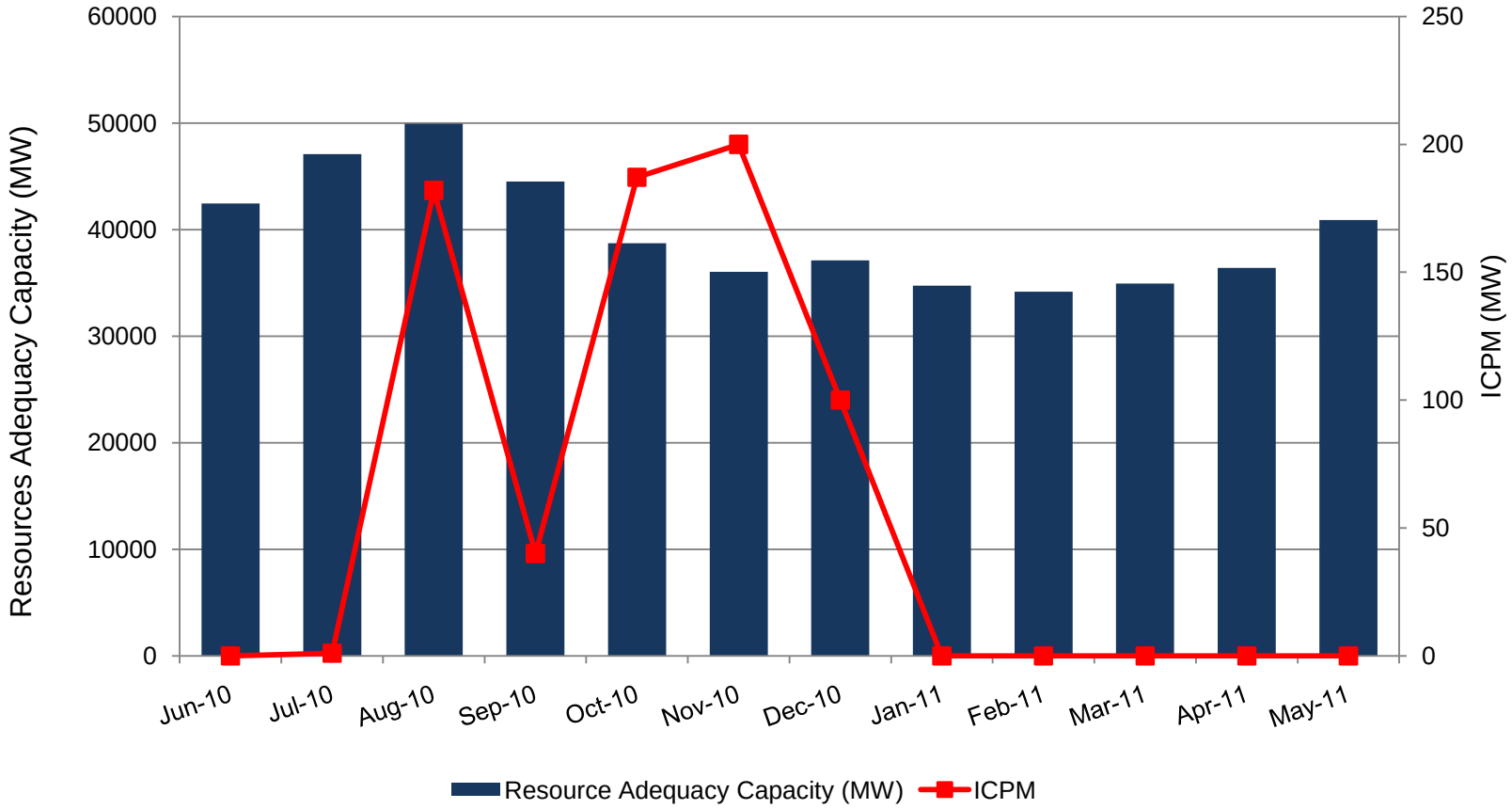
Reliability Must Run (RMR)



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
2010 Monthly Cost Gross	8.56	7.00	6.98	7.21	4.40	5.22	5.22	9.23	8.41	6.74	7.34	5.50
2011 Monthly Cost Gross	$1.17	$1.07	$0.56	$0.32	$3.10							
2011 Estimated Annual Cost												18.40
2010 Cumulative Cost Gross	8.56	15.56	22.53	29.75	34.14	39.36	44.59	53.82	62.23	68.97	76.31	81.82
2011 Cumulative Cost Gross	1.17	2.24	2.80	3.12	6.22	6.22	6.22	6.22	6.22	6.22	6.22	6.22

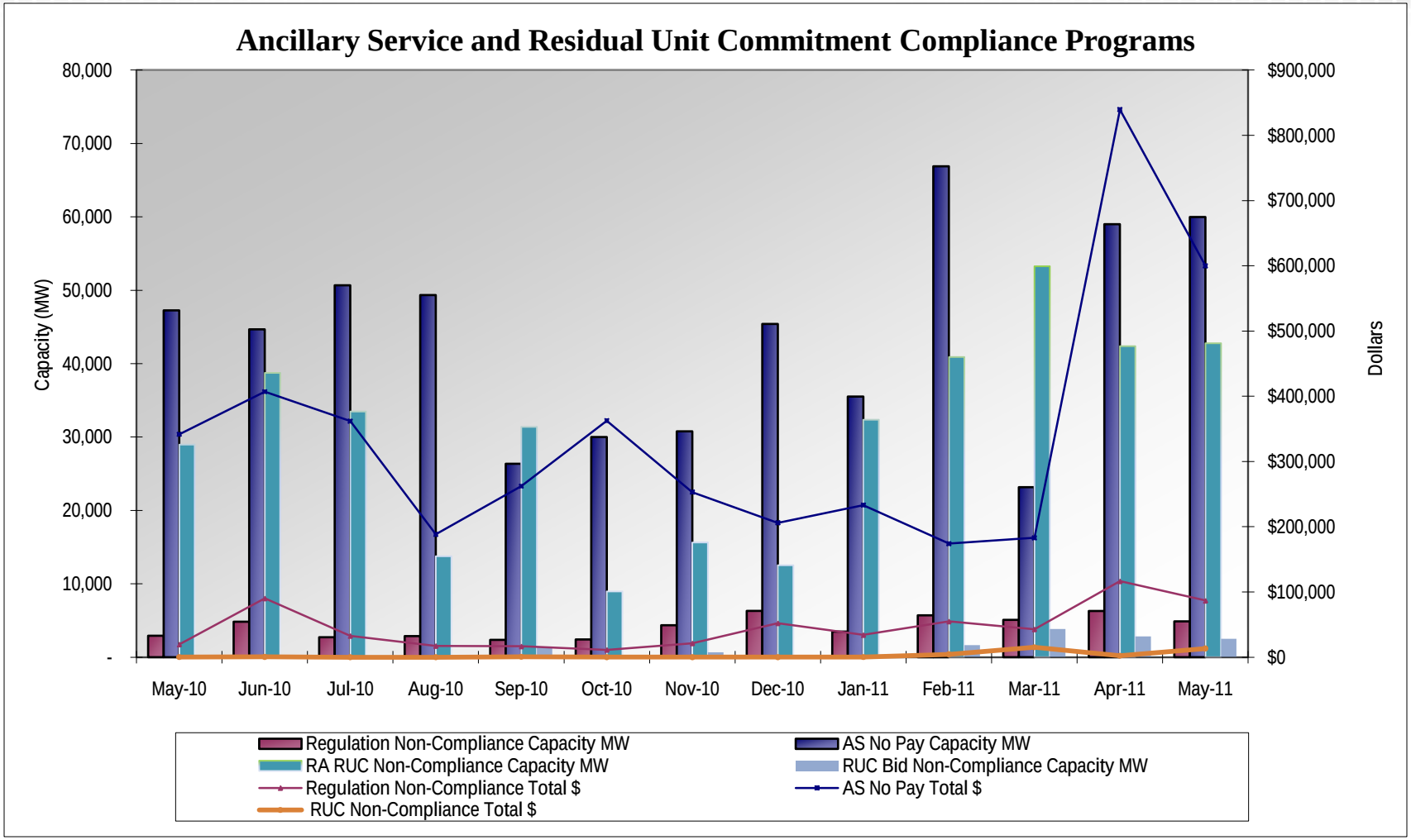
RMR decreased in January 2011 to two facilities and in March 2011 to one facility; down from four facilities in 2010.
Note: There is a 120 day lag time before final RMR data becomes available.

Resource Adequacy Capacity and Interim Capacity Procurement Mechanism



Resource Adequacy Volume and ICPM Procurement

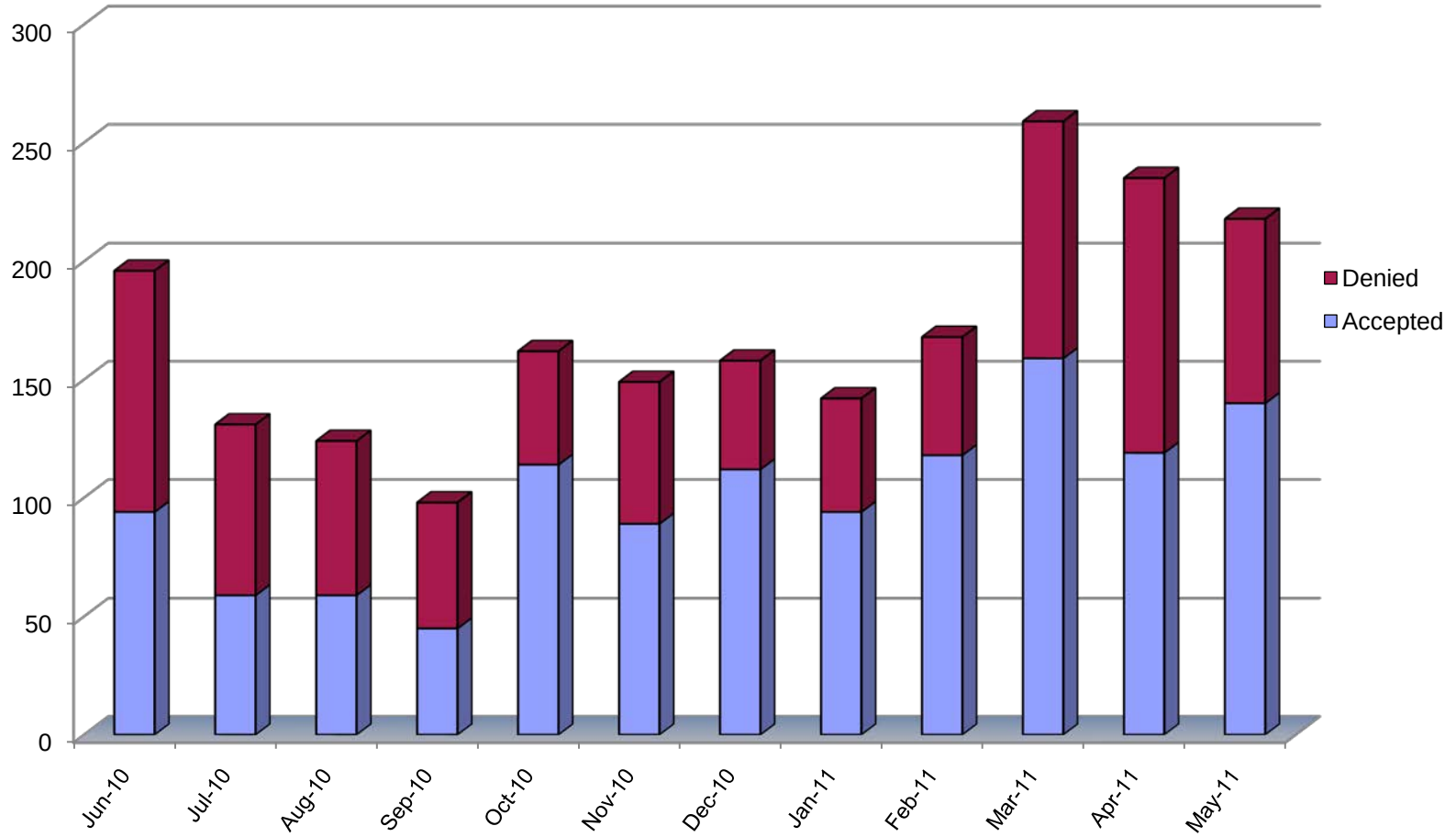
The total amount of resource adequacy capacity from generators and system resources, provided to meet local and system requirements as demonstrated in submitted supply plans, was 36397 MW in April and 40906 MW in May, 2011. The ISO procured no interim capacity procurement mechanism capacity during April and May, 2011. The ICPM market notices and monthly reports are located at: http://www.caiso.com/237a/237ac93c2a6c0.html



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.

Note: RA RUC Non-Compliance Capacity MW – In March, there was an increase in both categories of RUC No Pay for RA resources and undispatchable RUC, due to outage/derate. In addition there was an increase in undelivered RA RUC capacity.

Closed Dispute History



The increase in disputes closed and approved seen recently can be attributed to the beginning of T+18M settlement statement publishing as well as the deployment of multi-stage generation (MSG) functionality. Beginning in October 2010, closure of valid disputes relating to the launch of the new market in 2009 accounts for roughly 30% of the approved numbers. However, beginning in February 2011, the deployment of MSG and its associated issues have been the single largest source of valid disputes. The increase in denied disputes for March 2011 relates to education efforts towards ISO market run issues as well as settlement calculation clarifications.

Definitions:

The following are definitions of the items and/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 bound 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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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 (20 minutes) and thermally rated (30 minutes) paths.

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 35% 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 1,120 MW, 35% of which is the 392 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.