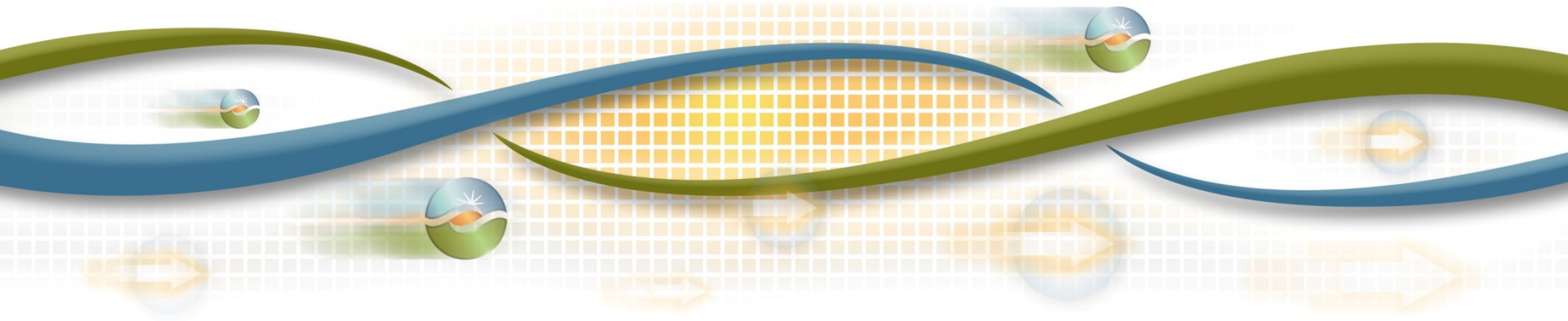


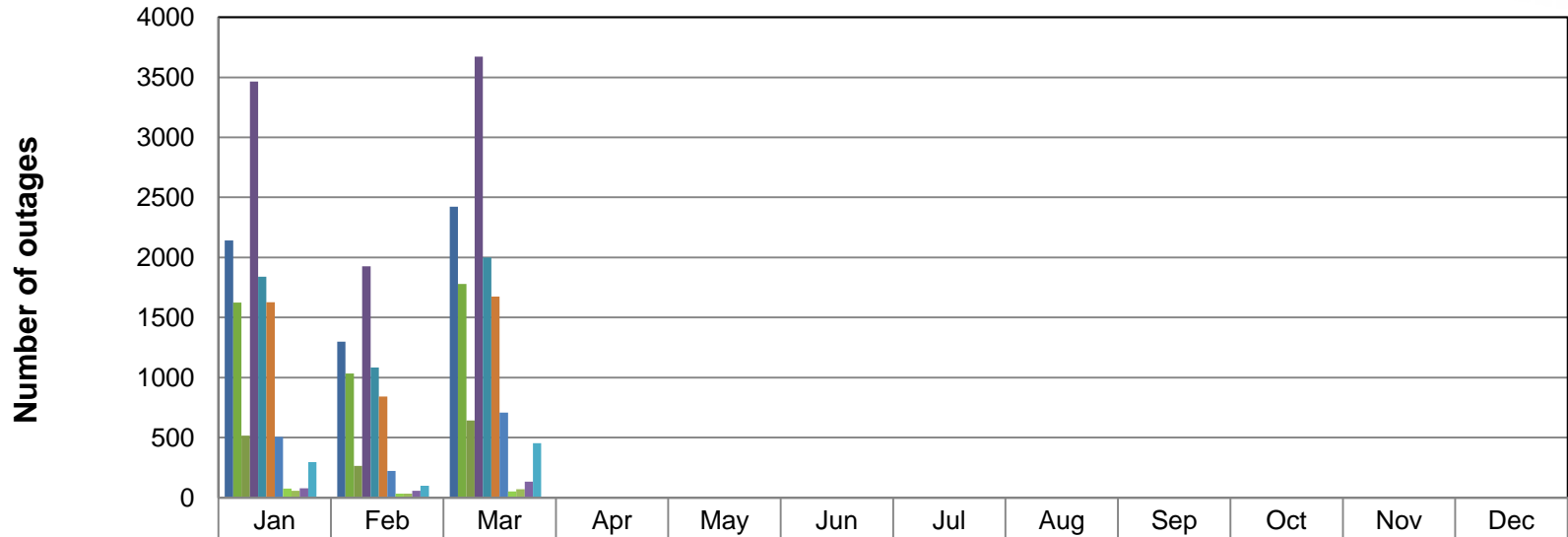
# Operations Highlights Report

Steve Berberich  
Vice President & Chief Operating Officer

ISO Board of Governors  
General Session  
May 18-19, 2011



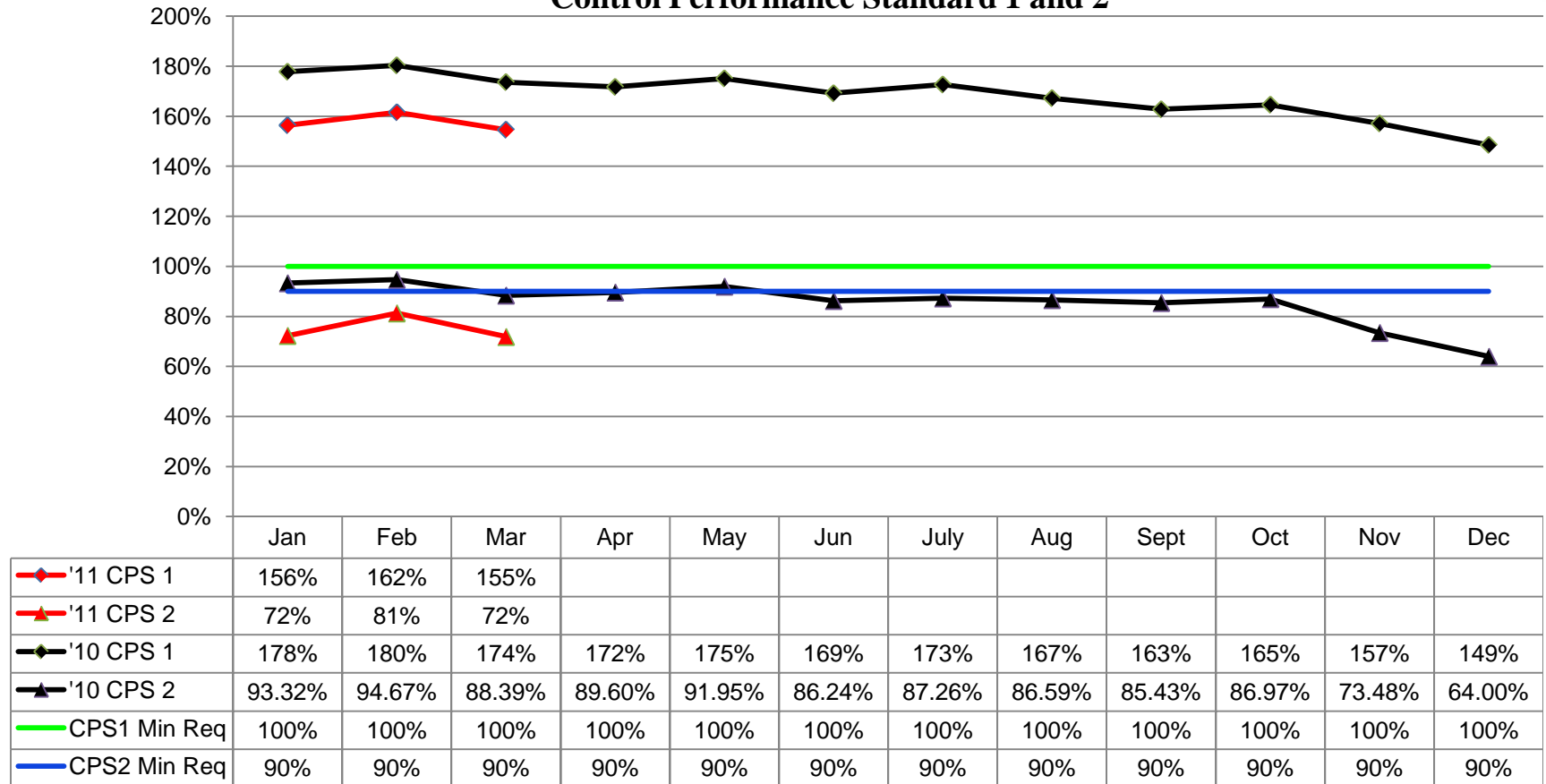
# Outage Summary 2011



■ Forced	2141	1298	2422									
■ Forced Generation	1624	1033	1779									
■ Forced Transmission	517	265	643									
■ Scheduled	3466	1926	3673									
■ Scheduled Generation	1839	1084	2000									
■ Scheduled Transmission	1627	842	1673									
■ Cancelled	506	222	707									
■ Cancelled Forced Generation	76	34	52									
■ Cancelled Forced Transmission	57	34	70									
■ Cancelled Planned Generation	78	56	133									
■ Cancelled Planned Transmission	295	98	452									
■ RMO	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

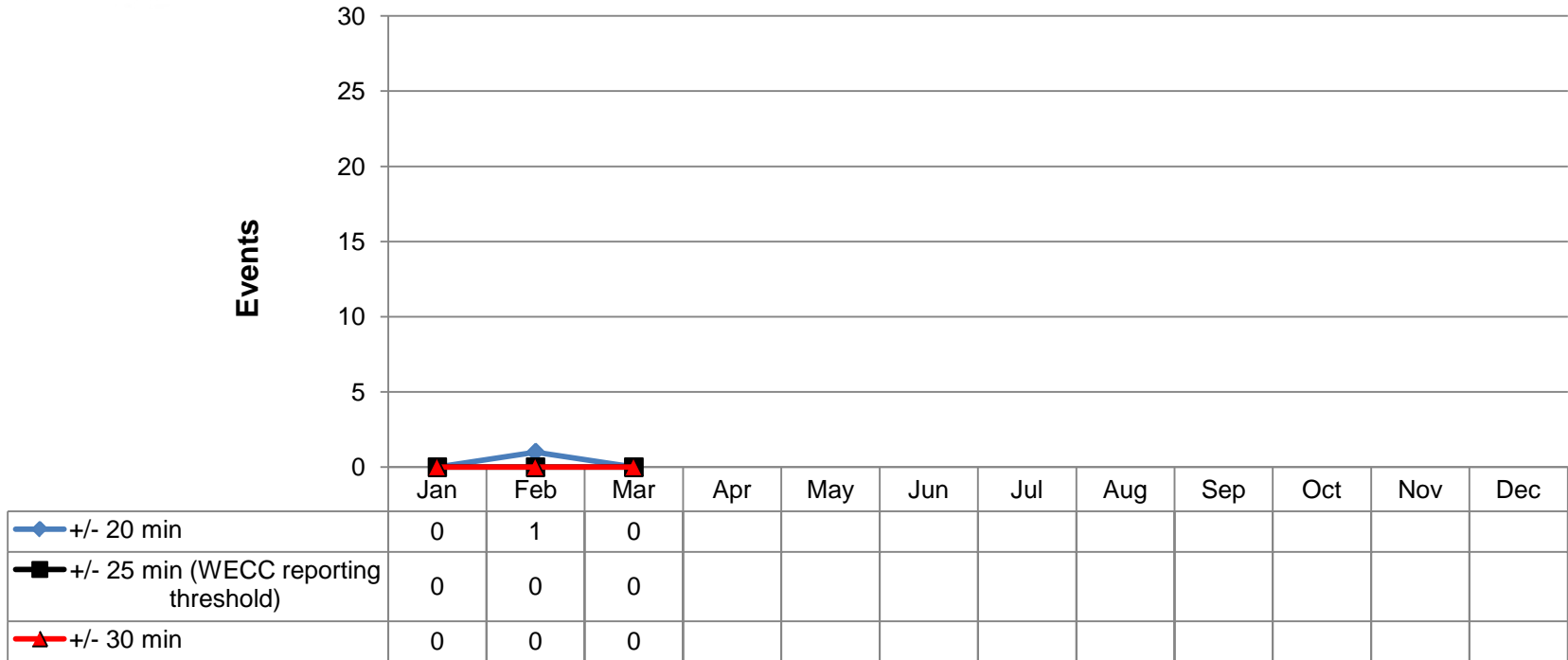


**CPS1** is a statistical measure of area control error (ACE) variability. It measures ACE in combination with the interconnection frequency. The CPS1 formula was developed on a conformance scale, therefore values over 100% are not only desired, but also expected.

**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. The CPS2 measure is impacted by the reliability based control field trial currently underway. The ISO has received a signed release of the CPS2 requirement from WECC to participate in the trial.

**Note:** Effective March 1, 2010: CPS2 compliance waived during ISO participation in the WECC Reliability Based Control proof-of-concept field trial.

## Reliability Based Control

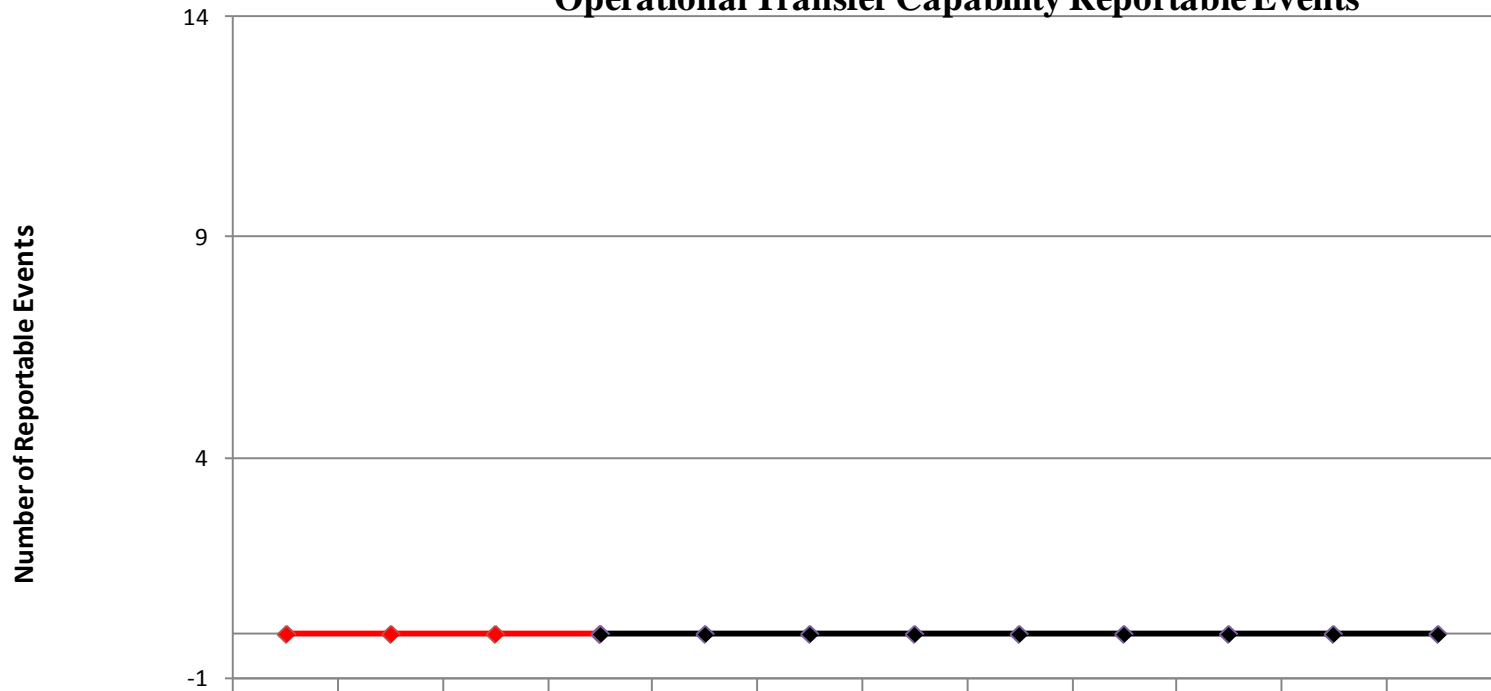


Reliability Based Control (RBC) is an Eastern and Western Field Trial that supports the interconnection frequency by requiring balancing areas to take action to limit the duration of operating outside a variable area control error bound that gets “tighter” as actual frequency deviates further from 60 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.

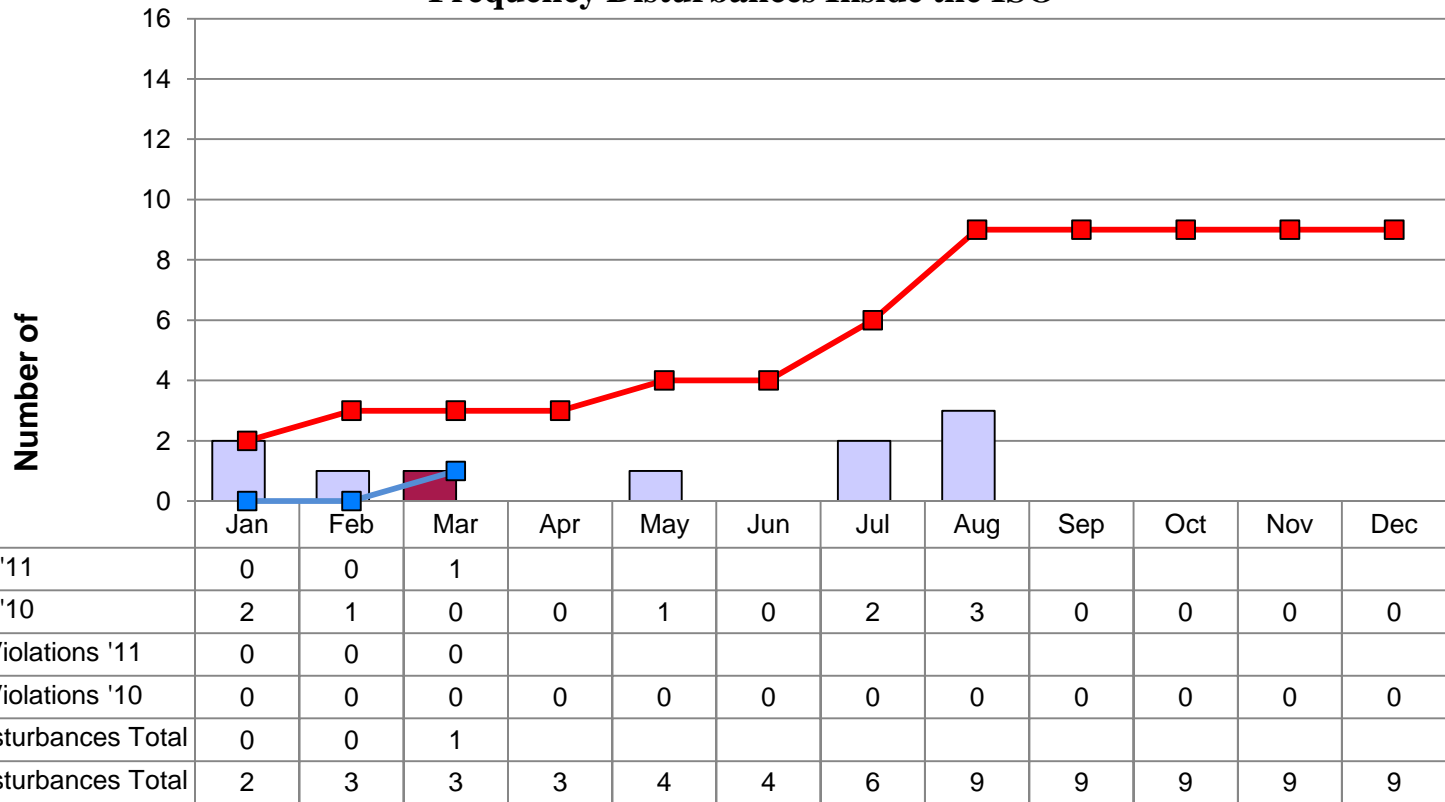
## Operational Transfer Capability Reportable Events



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
<span style="color: red;">■</span> '11 Reportable Events	0	0	0									
<span style="color: black;">■</span> '10 Reportable Events	0	0	0	0	0	0	0	0	0	0	0	0
<span style="color: red;">◆</span> '11 YTD Reportable Events	0	0	0	0								
<span style="color: black;">◆</span> '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

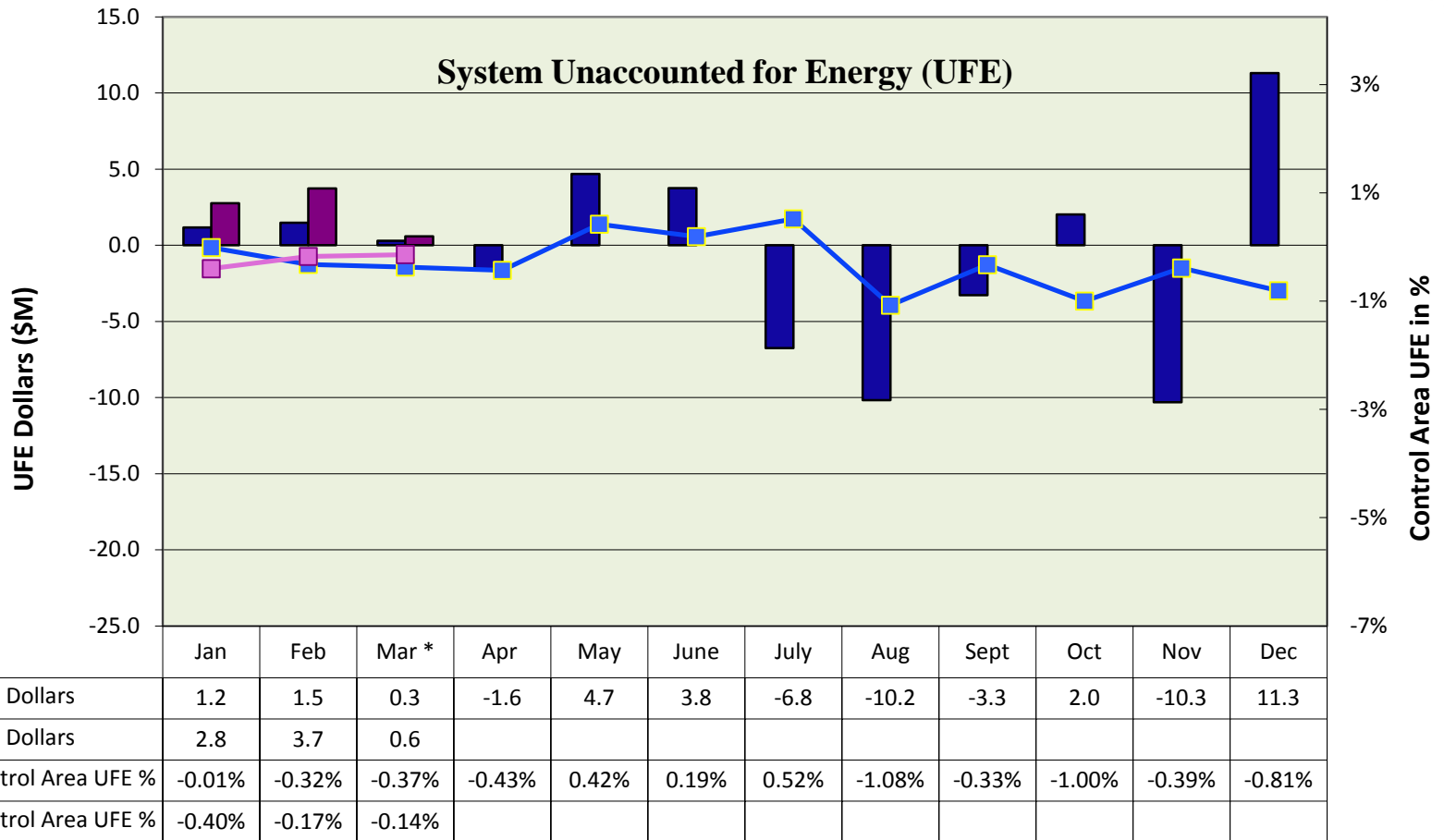


**NOTE:** This graph now depicts data for "Disturbances inside the ISO" for both '10 and '11 for appropriate comparison.

**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 3/31/11.

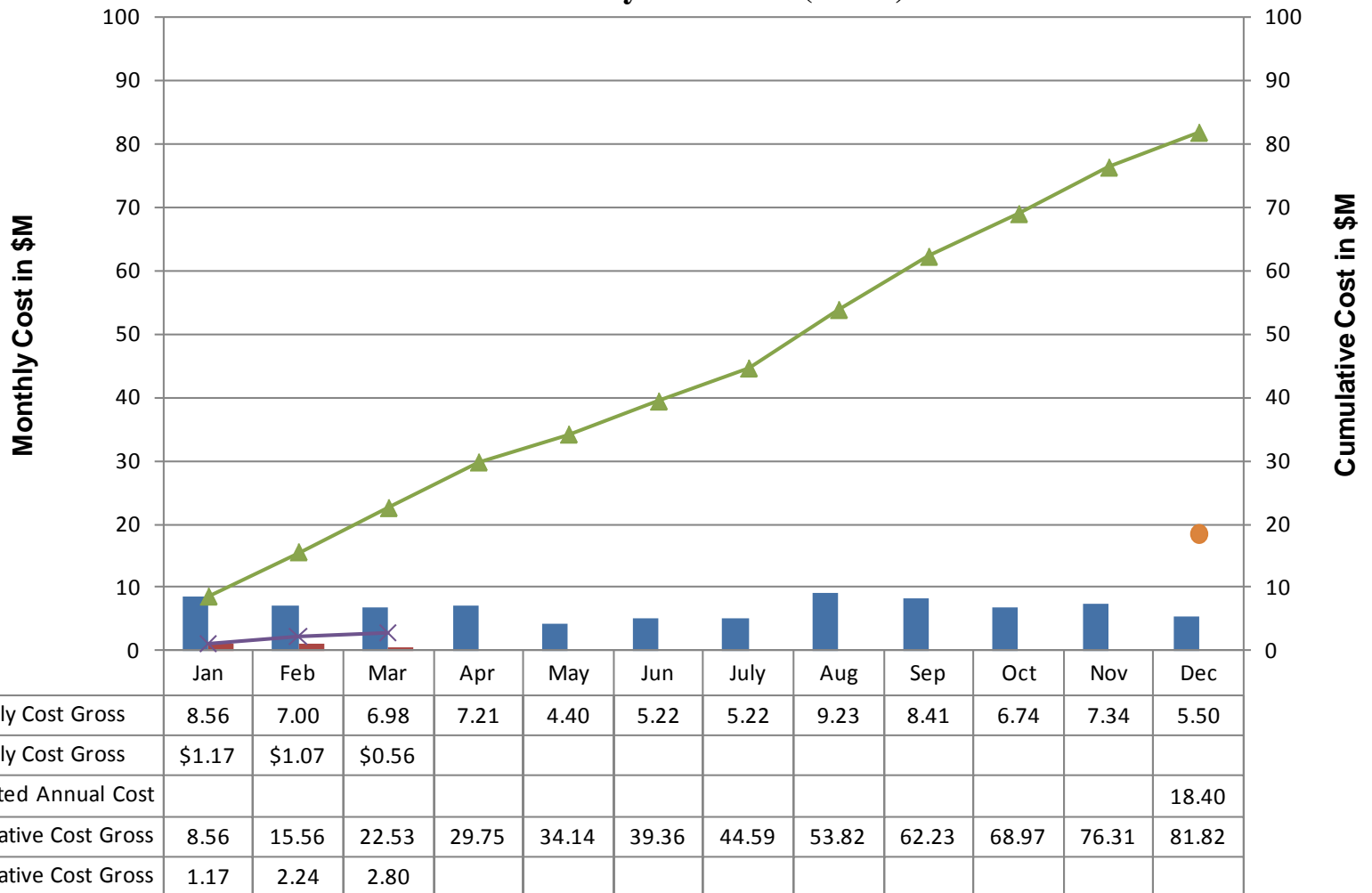
**Note:** The DCS event in March was due to the a large resource relaying off line while operating at full load. Frequency deviated from 60.025Hz to 59.887Hz. Governors immediately responded and frequency recovered to pre-disturbance levels in 11 minutes. The ISO successfully recovered within the NERC Standards requirements.



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

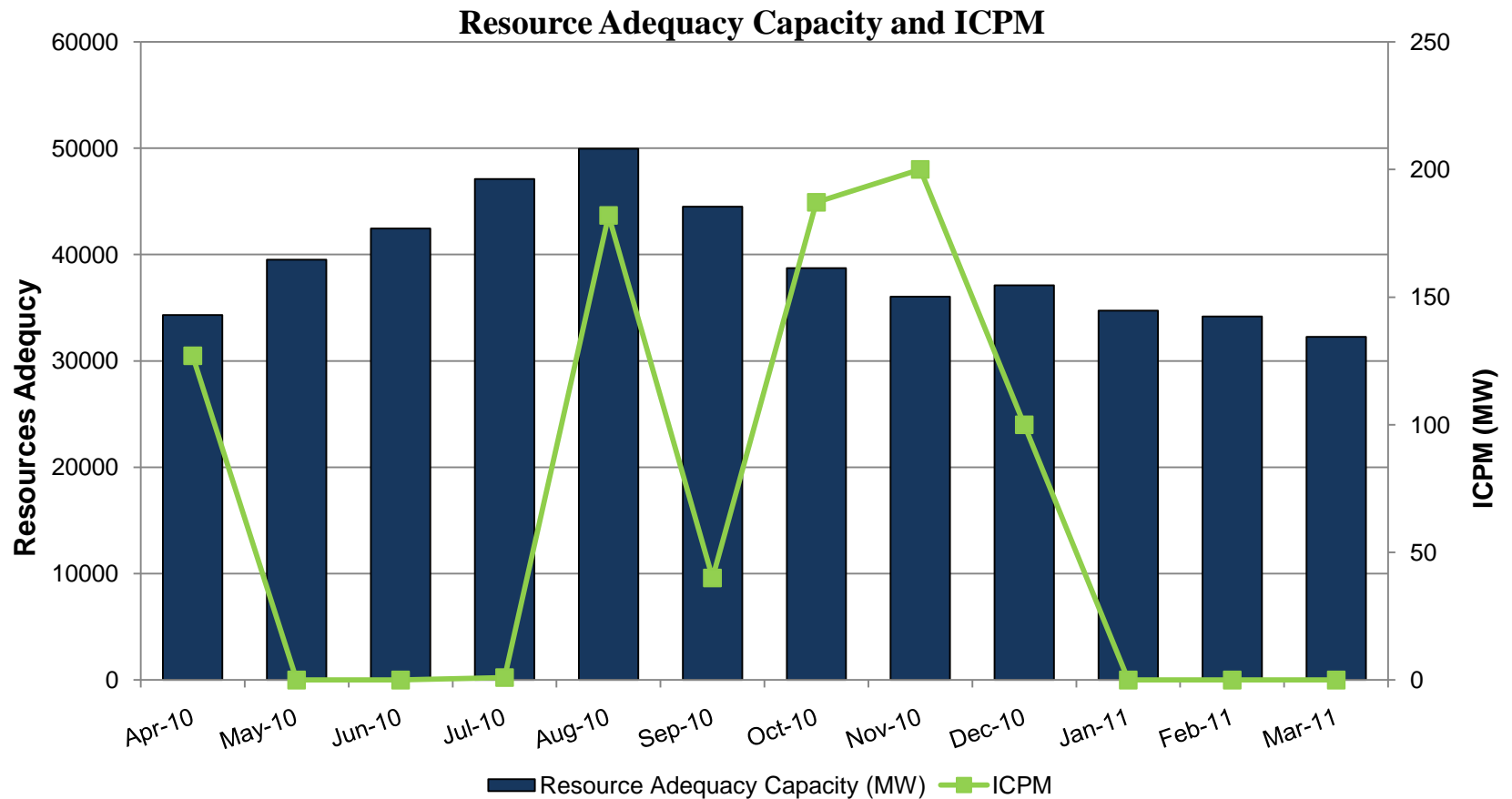
**High Initial UFE numbers is mostly due to the timing of payment acceleration** where we calculate statements at five business days after the trade date and scheduling coordinators (SC) must submit meter data prior to the calculation. General meter data can be polled on time however, load meter data 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)



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.

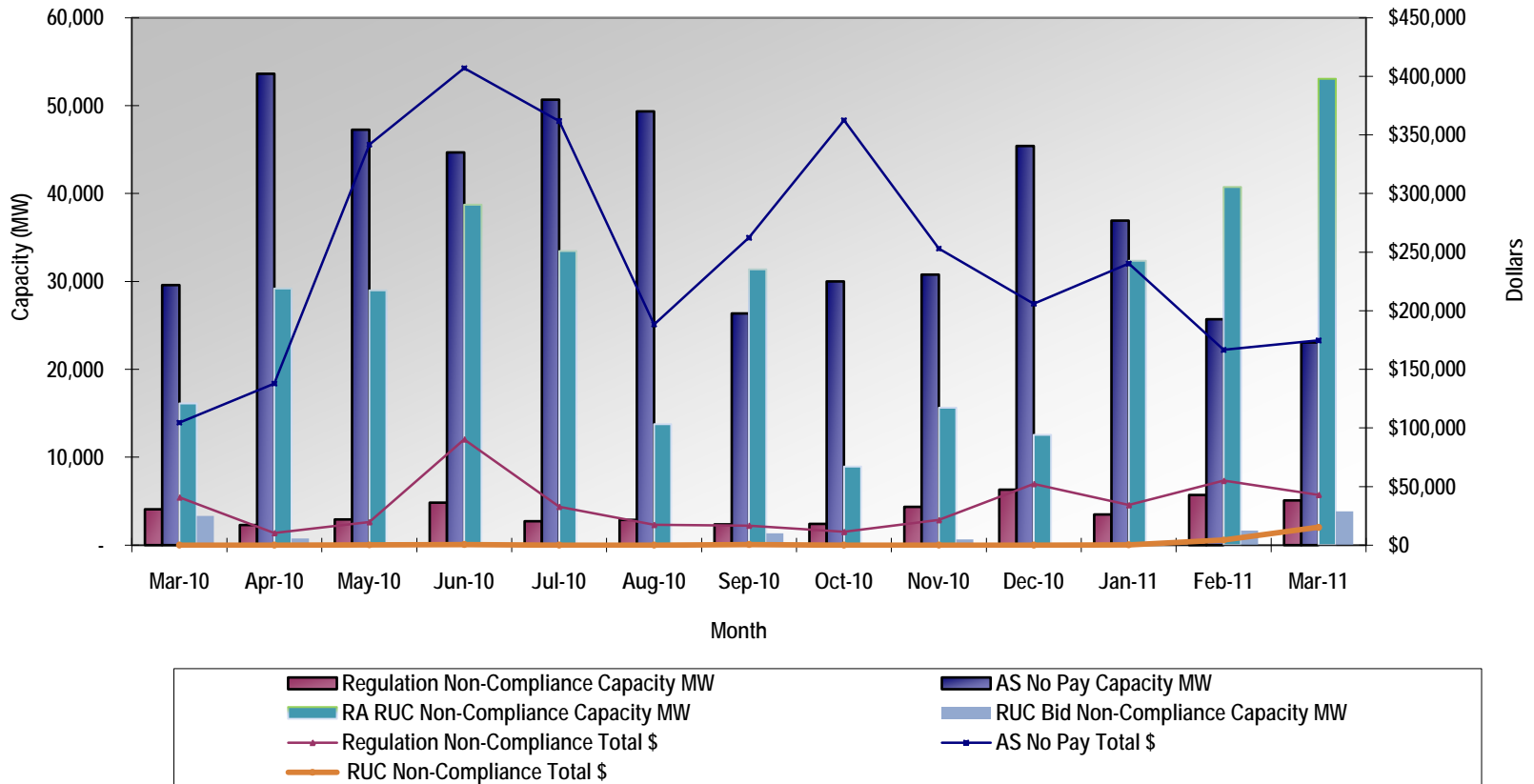




#### Resource Adequacy Volume and ICPM Procurement

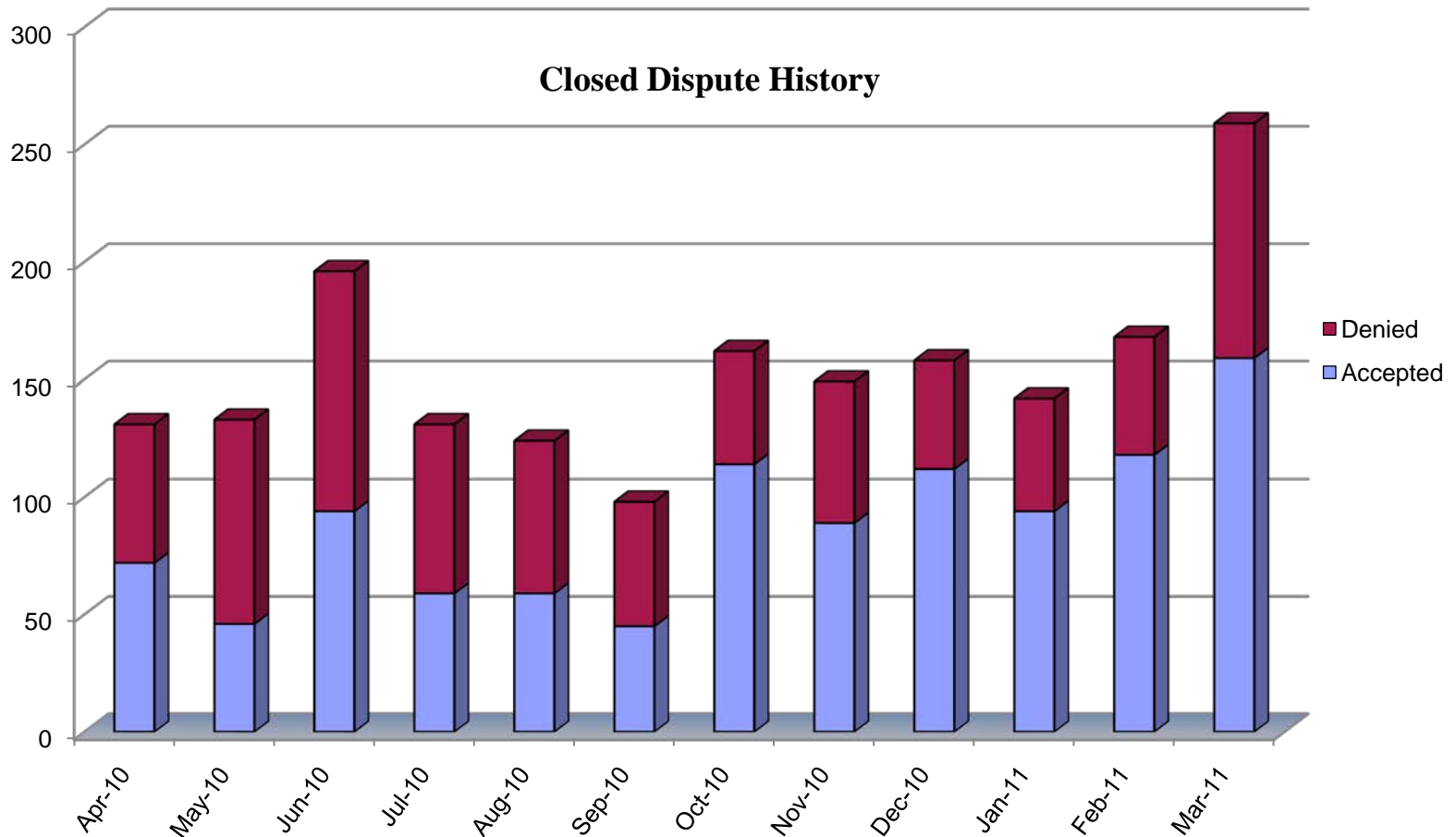
The total amount of resource adequacy capacity from generators and system resources, provided to meet local and system requirements as demonstrated in submitted supply plans, was 34,170.25 MW in February 2011 and 32,263.85 MW in March 2011. The ISO procured no interim capacity procurement mechanism capacity during February and March 2011. The ICPM market notices and monthly reports are located at: <http://www.caiso.com/237a/237ac93c2a6c0.html>

## 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.

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



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 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:

- 10 Consecutive Minutes – Identify any period that exceeded BAAL high or BAAL low for 10 consecutive clock minutes.
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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 (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.