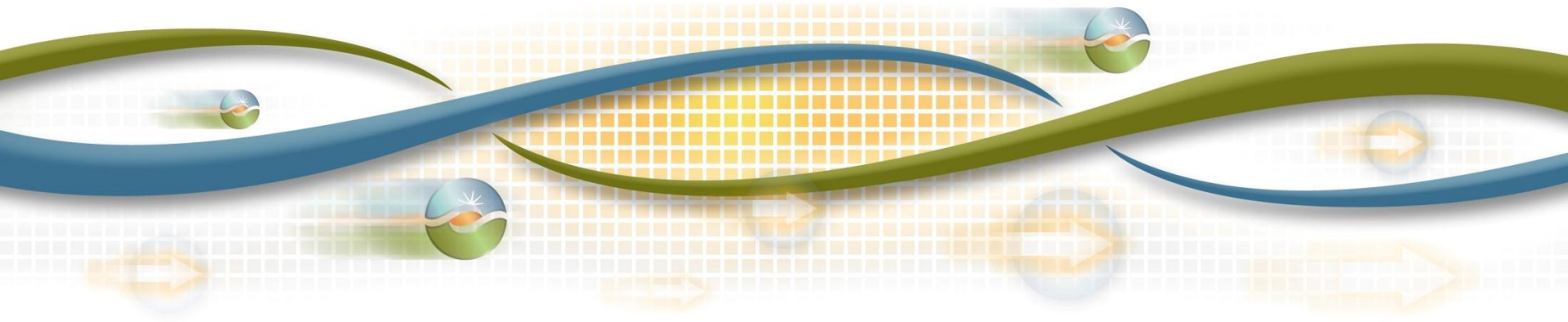


Market Performance and Planning Forum

May 23, 2012



Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2012-2013 release plans, resulting from stakeholders inputs
- Provide information on specific initiatives
 - to support Market Participants in budget and resource planning
- Focus on implementation planning; not on policy
- Clarify implementation timelines
- Discuss external impacts of implementation plans
- Launch joint implementation planning process

Agenda

TIME	TOPIC	LEAD
10:00 – 10:10	Introduction, Agenda	Mercy Parker Helget
10:10 – 11:00	Market Analysis	Shucheng Liu, Guillermo Bautista- Alderete, Nan Liu
11:00 – 11:30	Policy Update	Brad Cooper
11:30 – 12:00	2012-2013 Transmission Planning Cycle Update	Jeff Billinton
12:00 – 1:00	Lunch	
1:00 – 2:00	Technical Updates	Khaled Abdul-Rahman, Li Zhou
2:00 – 2:30	Release Updates	Janet Morris, June Xie

Market Performance and Quality Update

Market Analysis & Development

Shucheng Liu

Guillermo Bautista-Alderete

Nan Liu

1. Market Metrics

- Price volatility and market convergence
- RT energy imbalance offset
- Convergence bidding
- Exceptional dispatch trends
- Bid cost recovery
- MIP gap

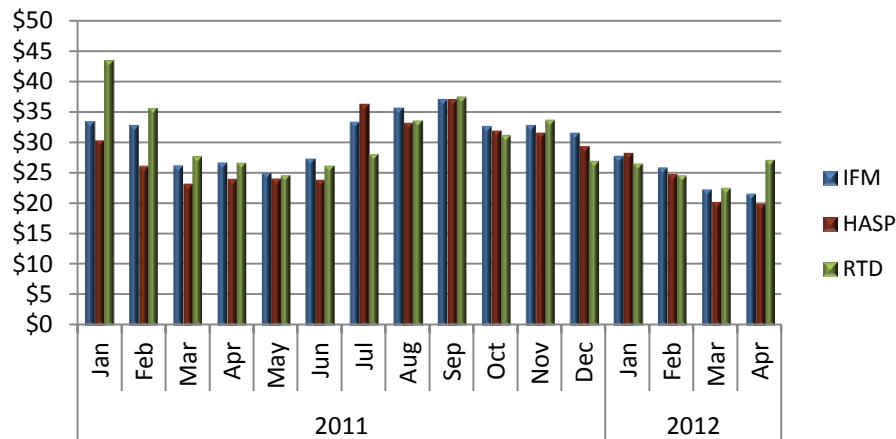
2. Price Corrections

3. Recent Market Events

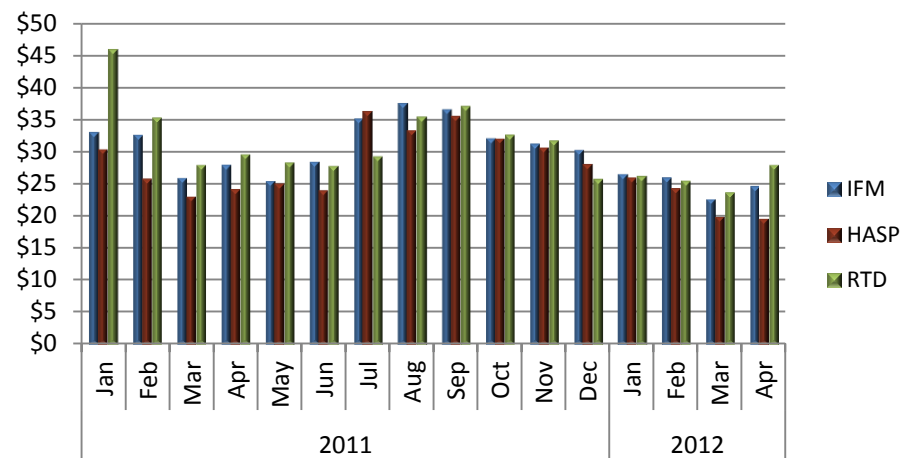
4. 2011 AS Scarcity Report

DLAP LMP Monthly Average: Increase price divergence observed in April

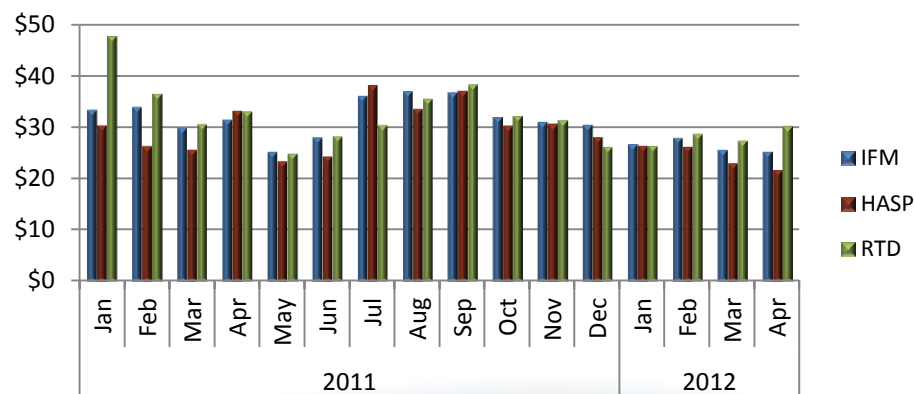
PG&E



SCE

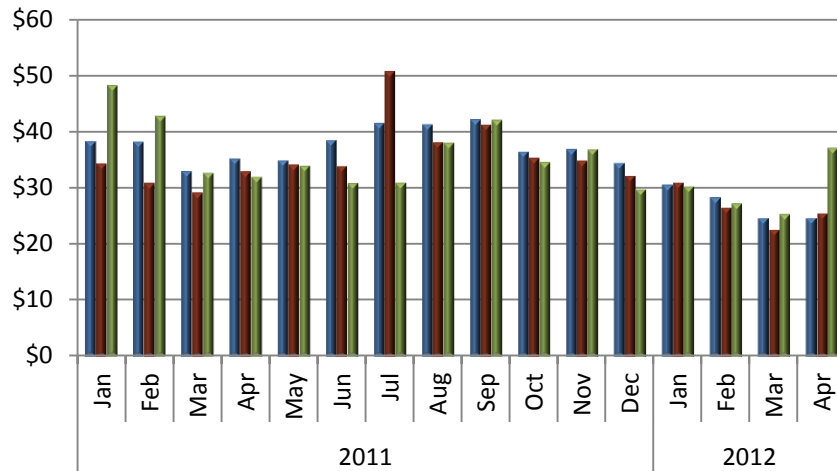


SDGE

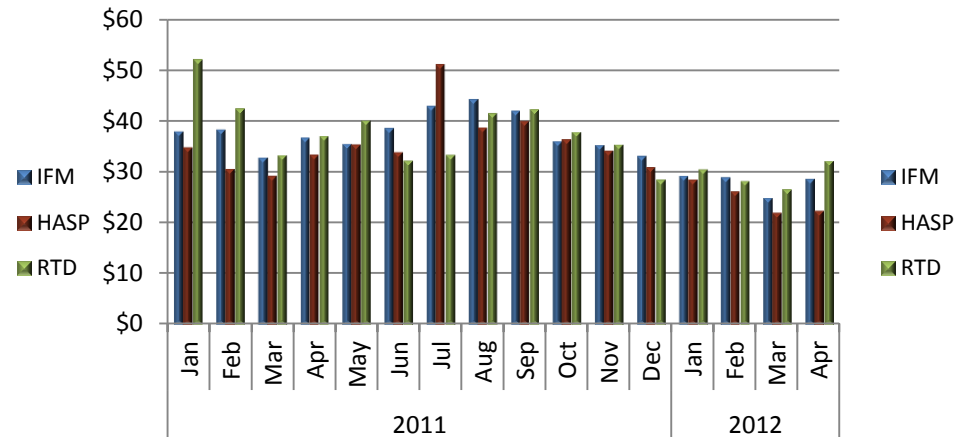


DLAP LMP Monthly Average (On Peak)

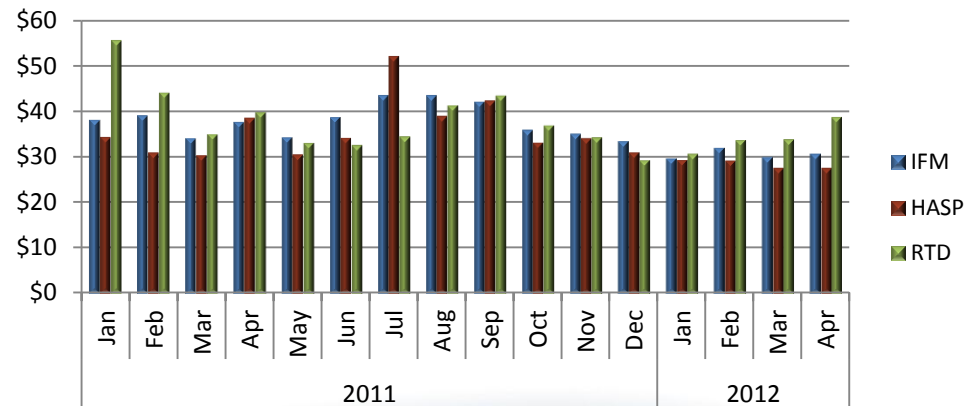
PG&E



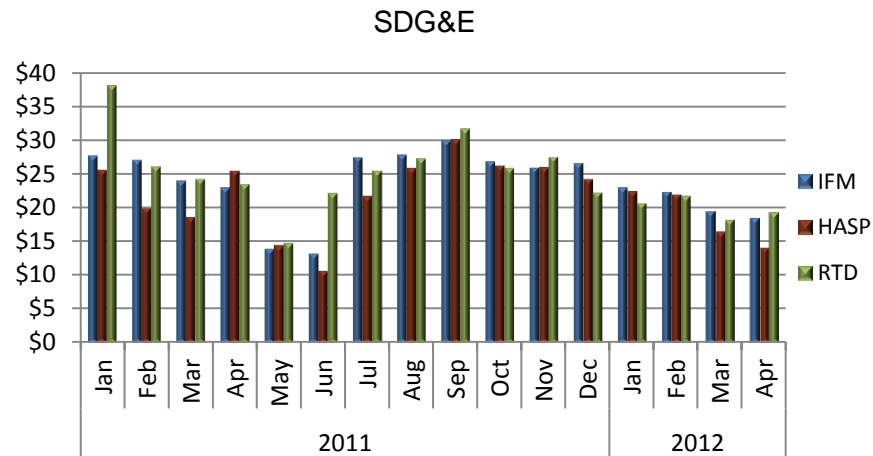
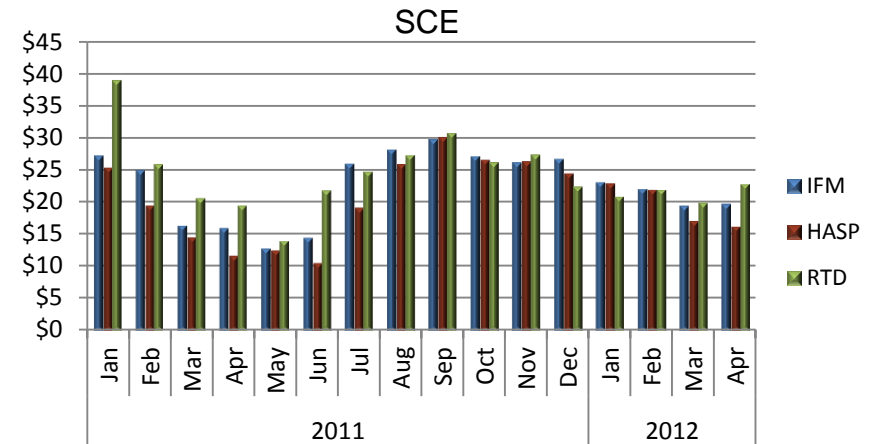
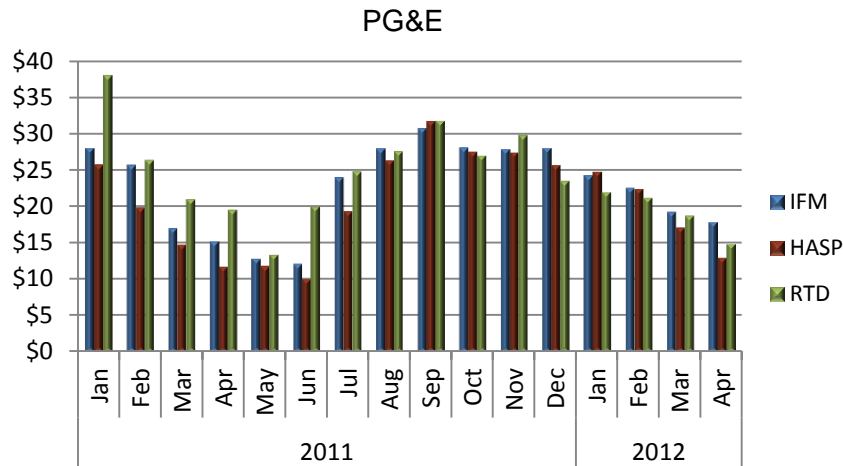
SCE



SDGE

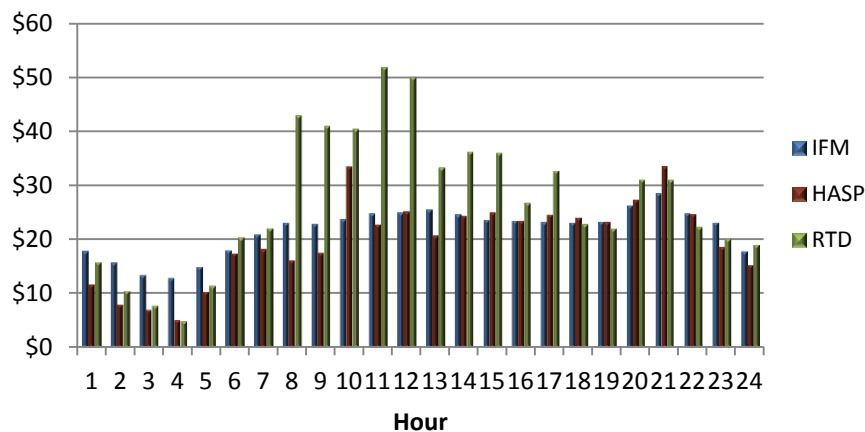


DLAP LMP Monthly Average (Off Peak)

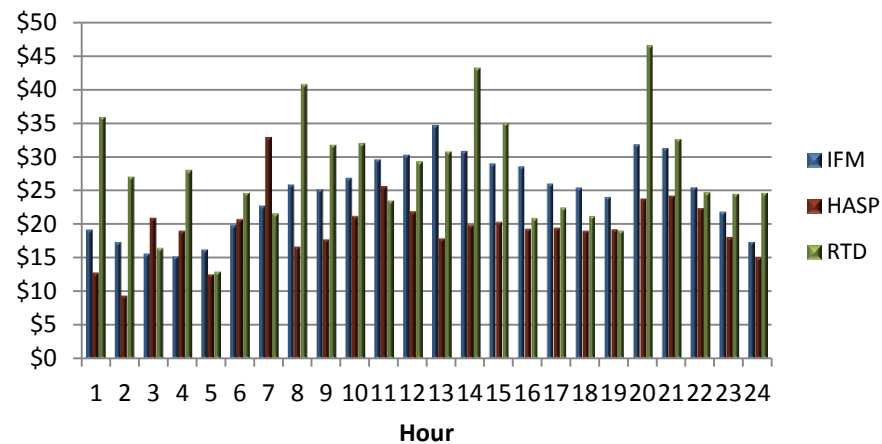


DLAP LMP Hourly Average in April

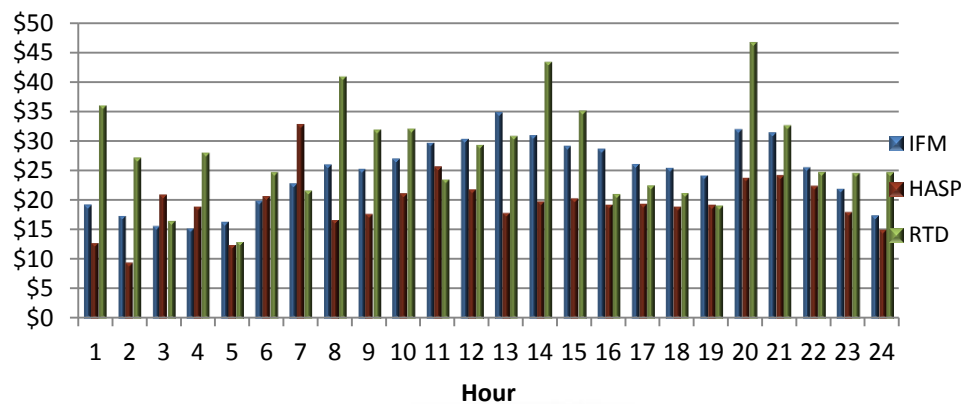
PG&E



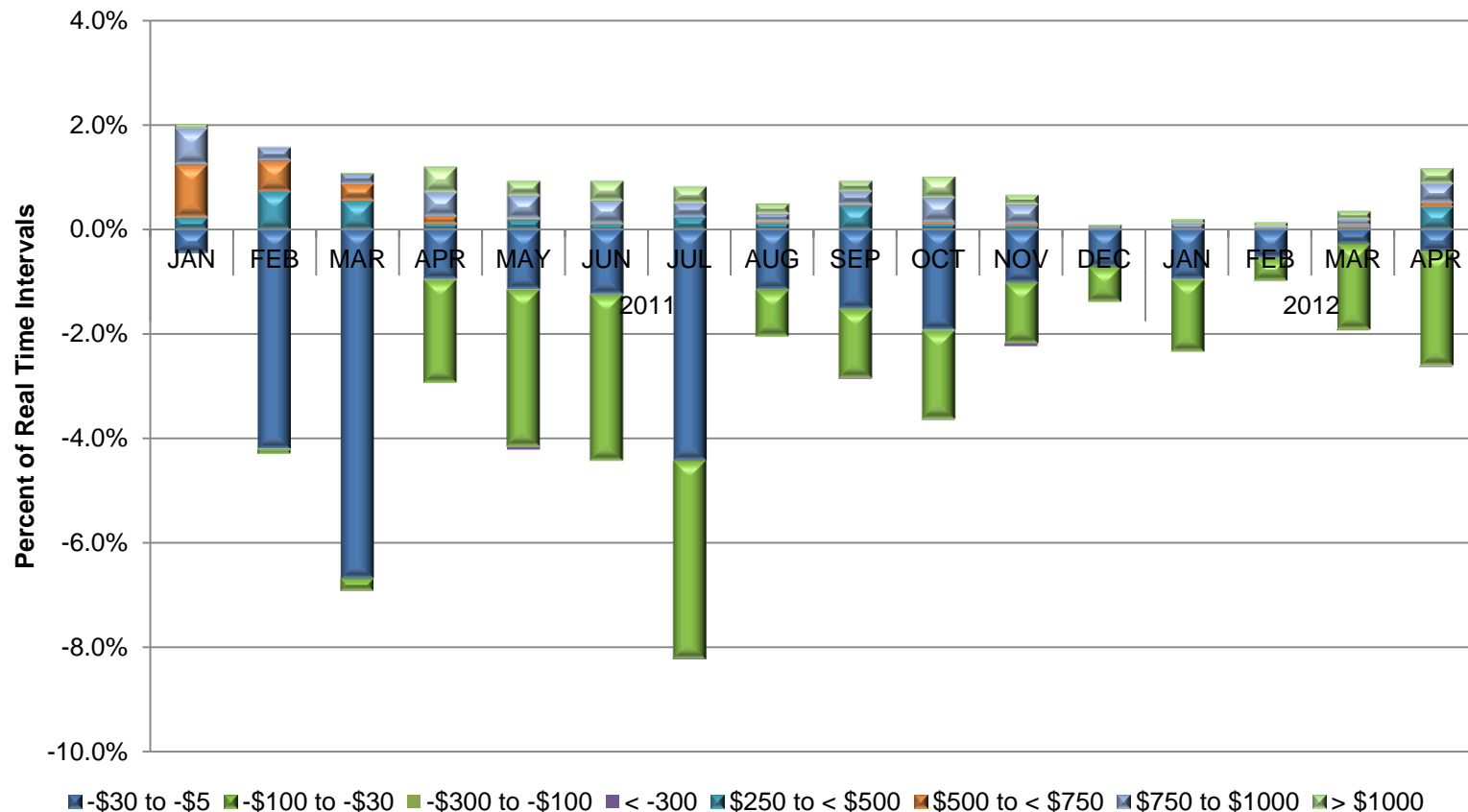
SCE



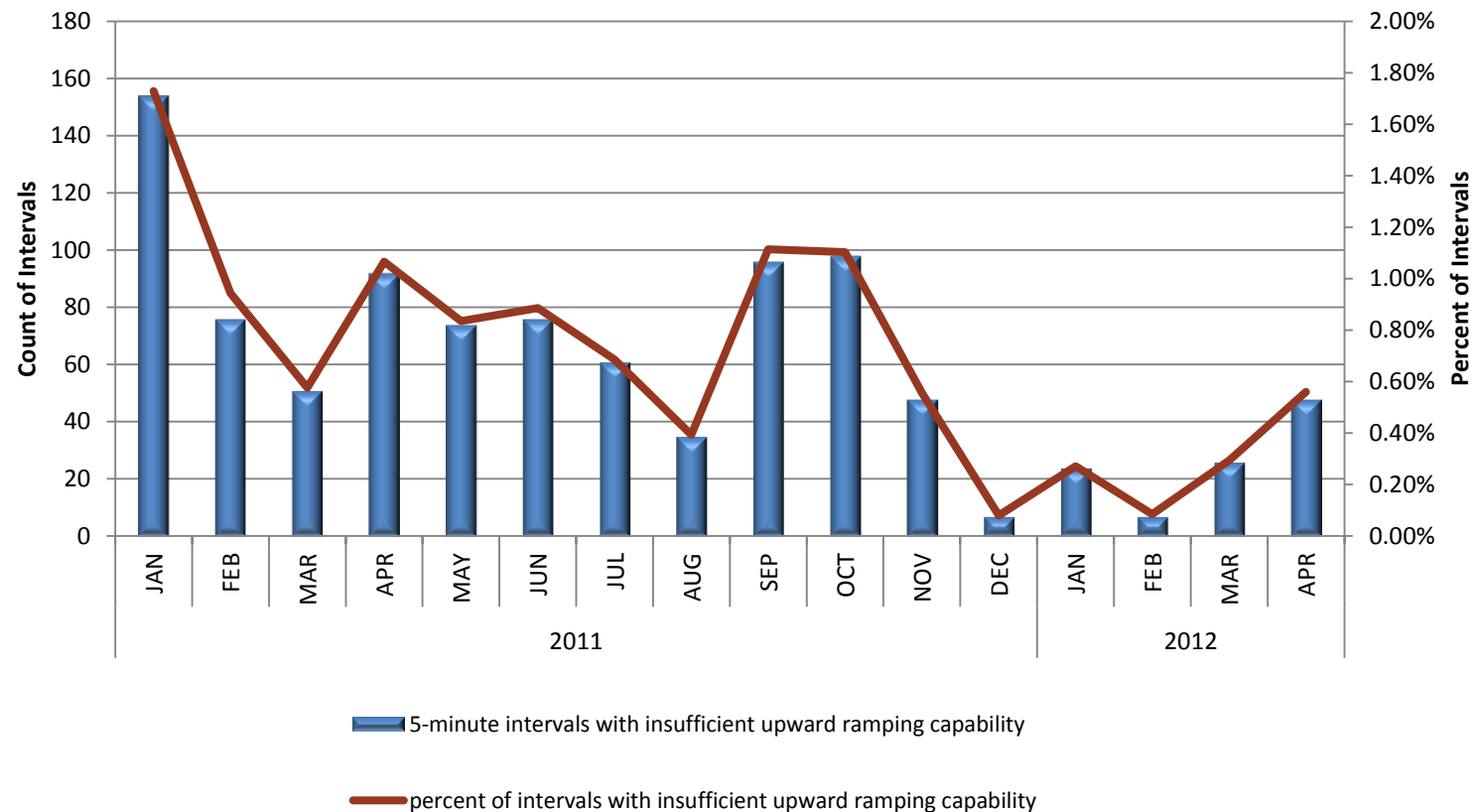
SDG&E



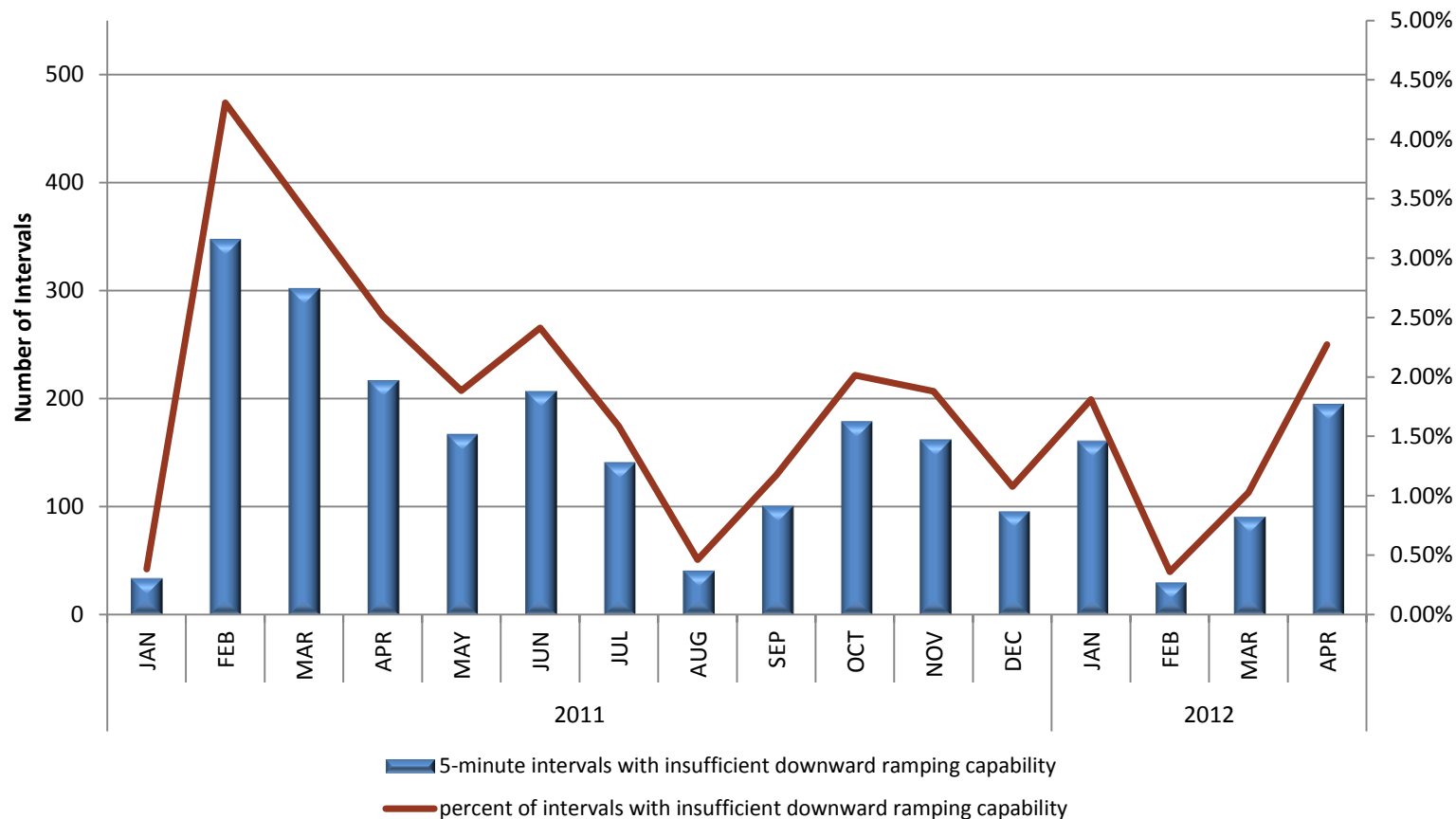
Monthly price distributions: price volatility increased in March/April 2012.



Monthly average of RTD intervals with insufficient up ramping capacity also increased in March/April.

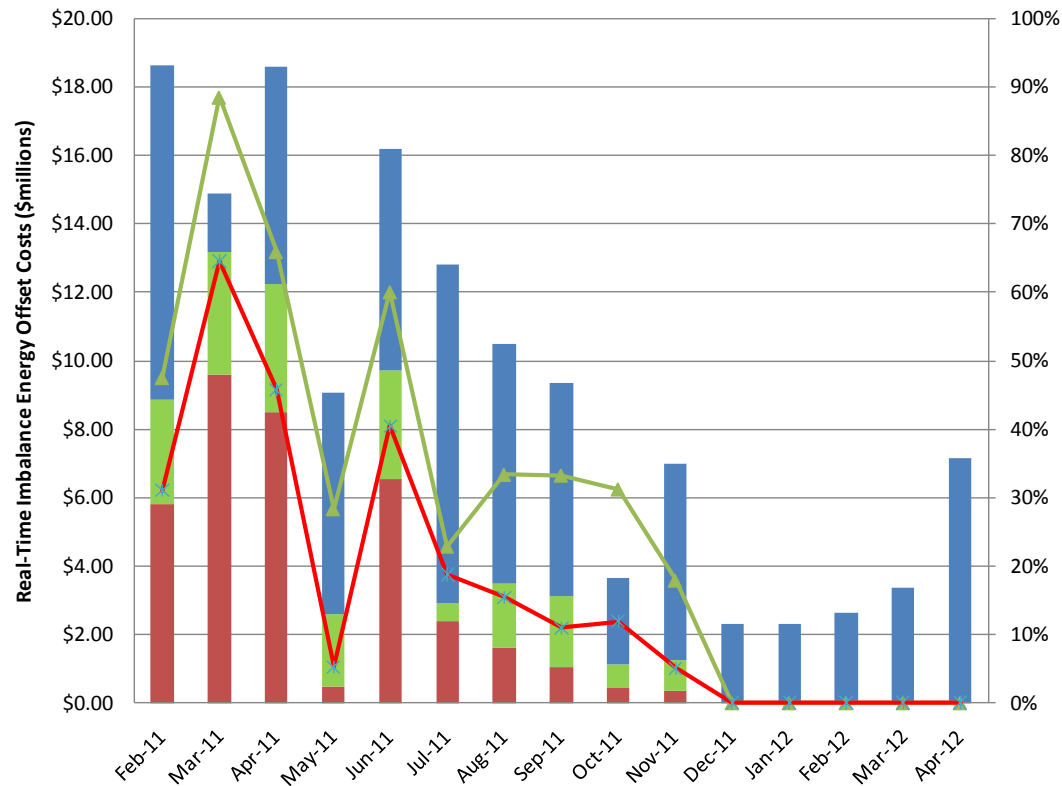


Monthly average of RTD Intervals with insufficient down ramping capacity increased too.



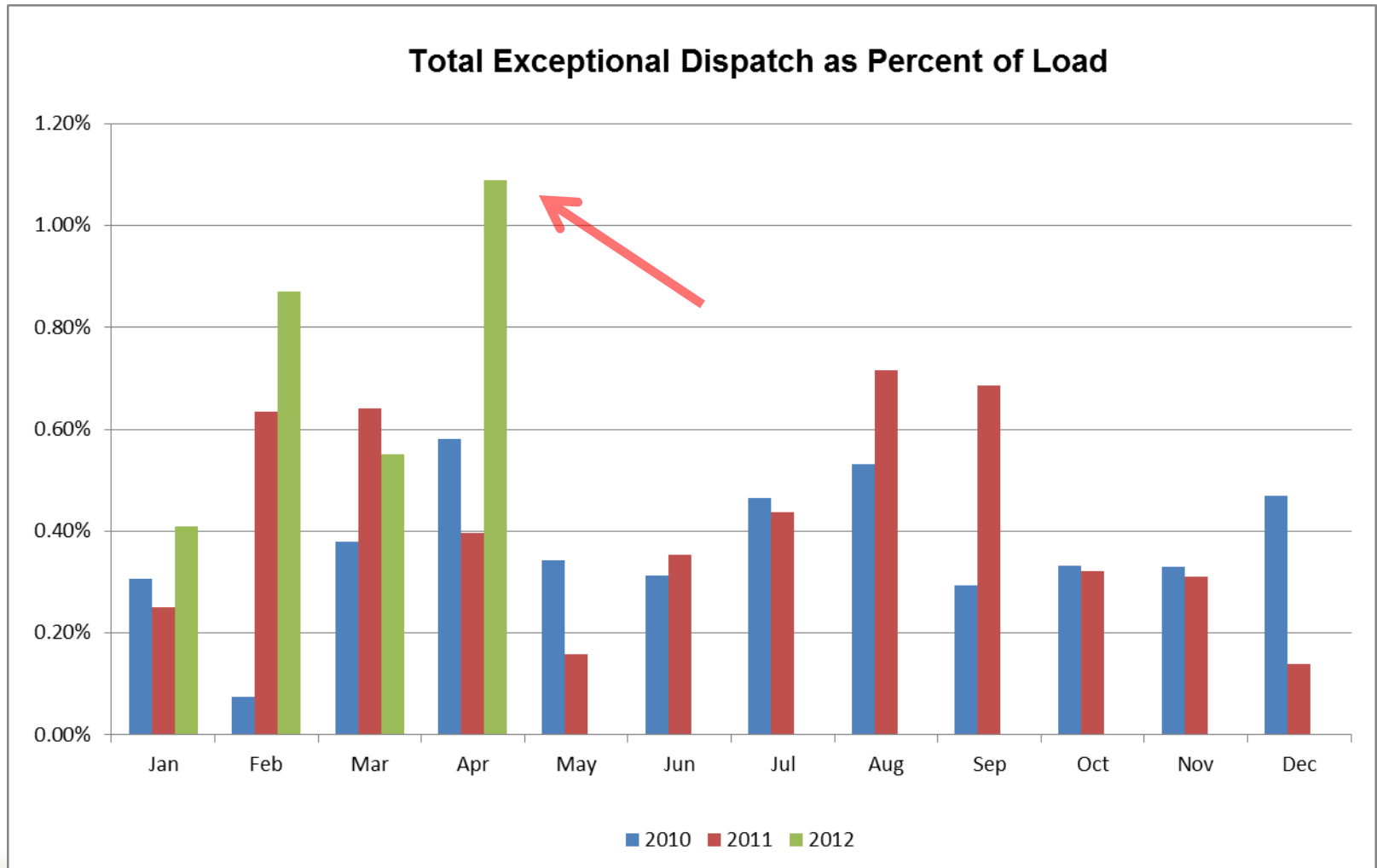
The real-time imbalance energy offset (RTIEO) moved up in March/April.

**Real-Time Imbalance Offset
Total Monthly Impact from Offsetting Convergence Bids**

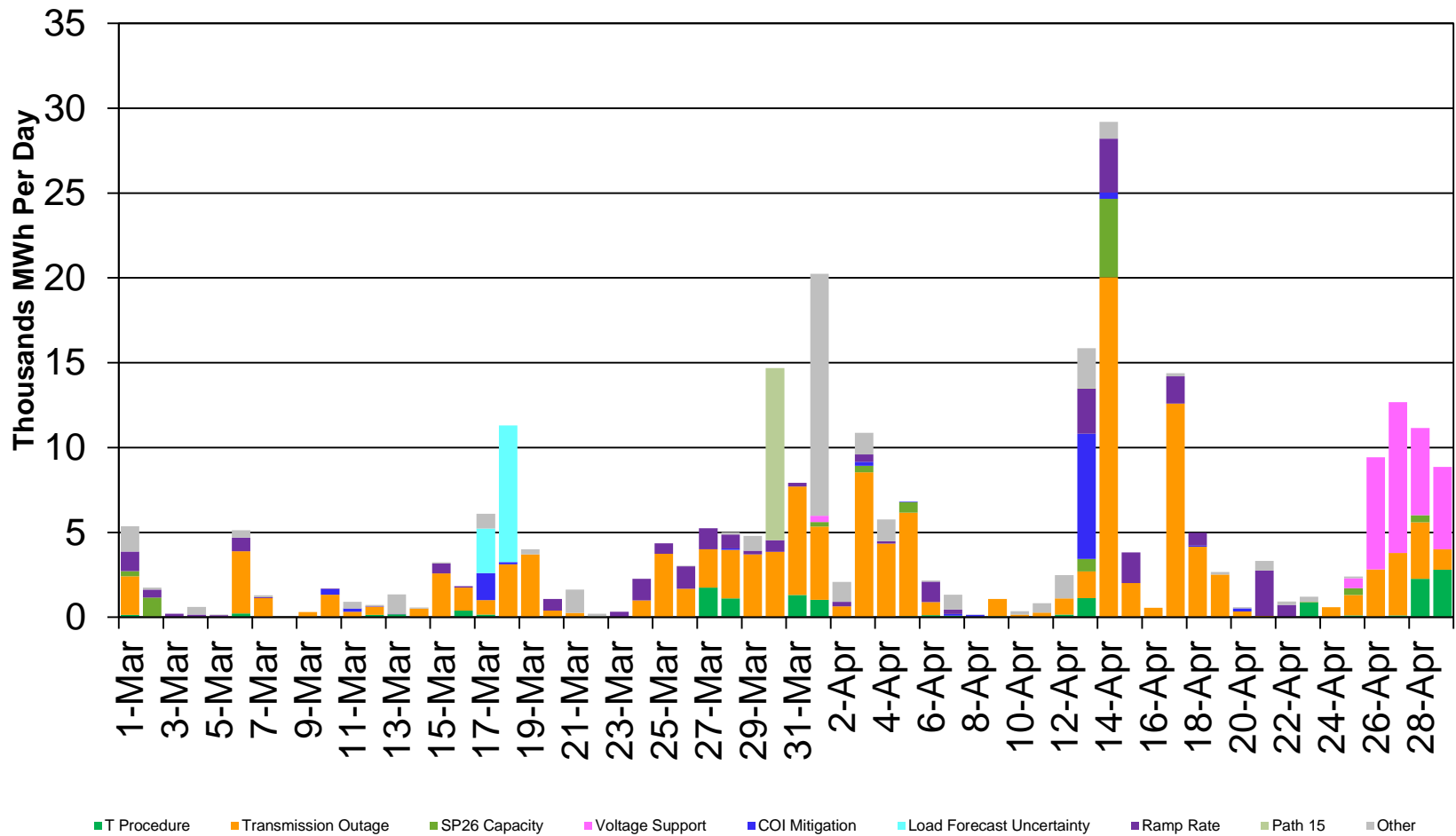


	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12
Contributions from Other than Offsetting Convergence Bids	\$9.8	\$1.7	\$6.3	\$6.5	\$6.5	\$9.9	\$7.0	\$6.2	\$2.5	\$5.7	\$2.3	\$2.3	\$2.6	\$3.4	\$7.1
Contribution from Offsetting Convergence Bids across SCs	\$3.1	\$3.6	\$3.8	\$2.1	\$3.2	\$0.5	\$1.9	\$2.1	\$0.7	\$0.9	\$-	\$-	\$-	\$-	\$-
Contribution from Balanced convergence bids within SC	\$5.8	\$9.6	\$8.5	\$0.5	\$6.5	\$2.4	\$1.6	\$1.0	\$0.4	\$0.4	\$-	\$-	\$-	\$-	\$-
Percentage of total due to offsetting Convergence Bids	48%	89%	66%	28%	60%	23%	33%	33%	31%	18%	0%	0%	0%	0%	0%

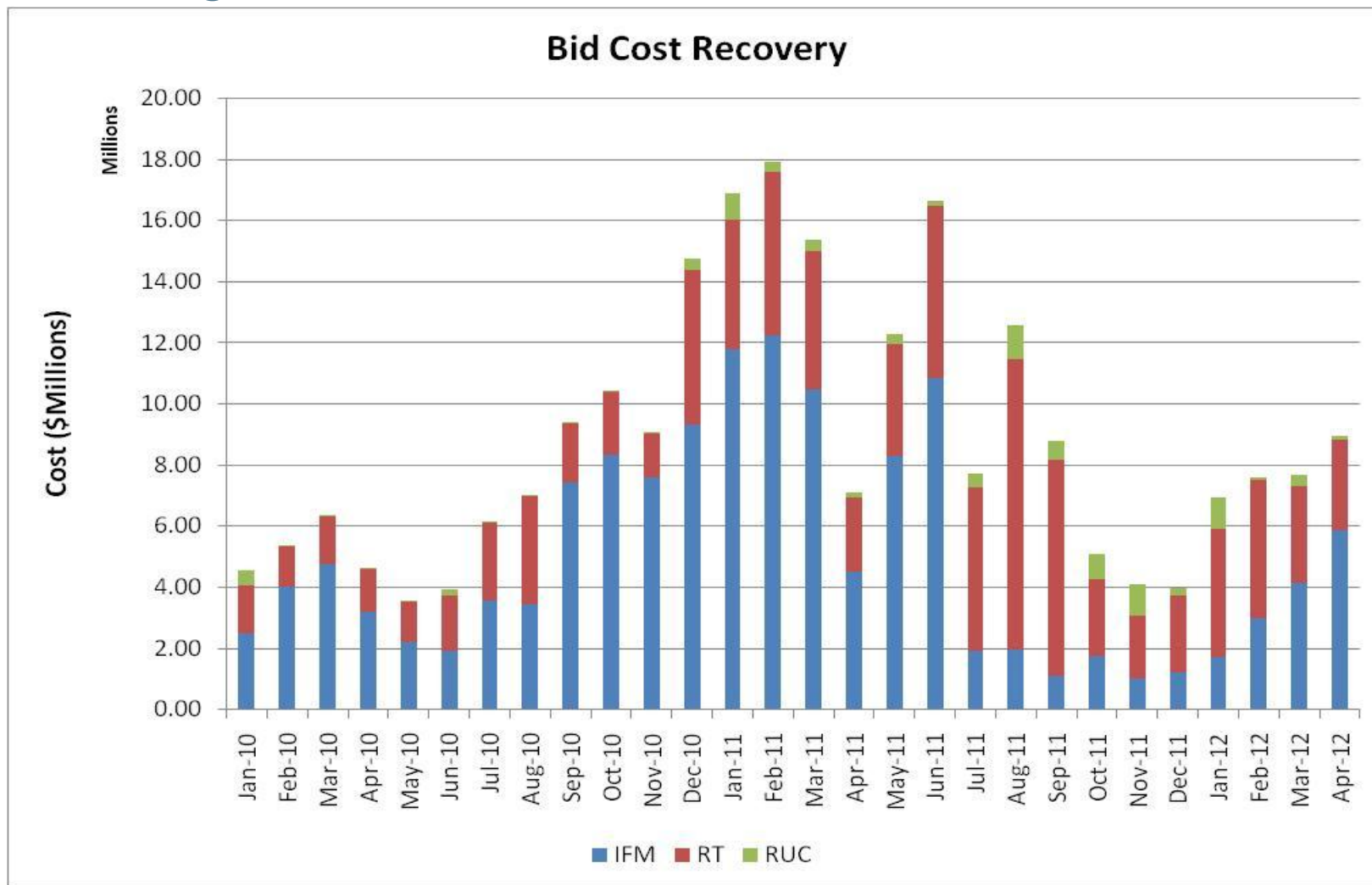
Exceptional dispatch volume was abnormally high at approximately 1.1% in April vs. 0.5% historically.



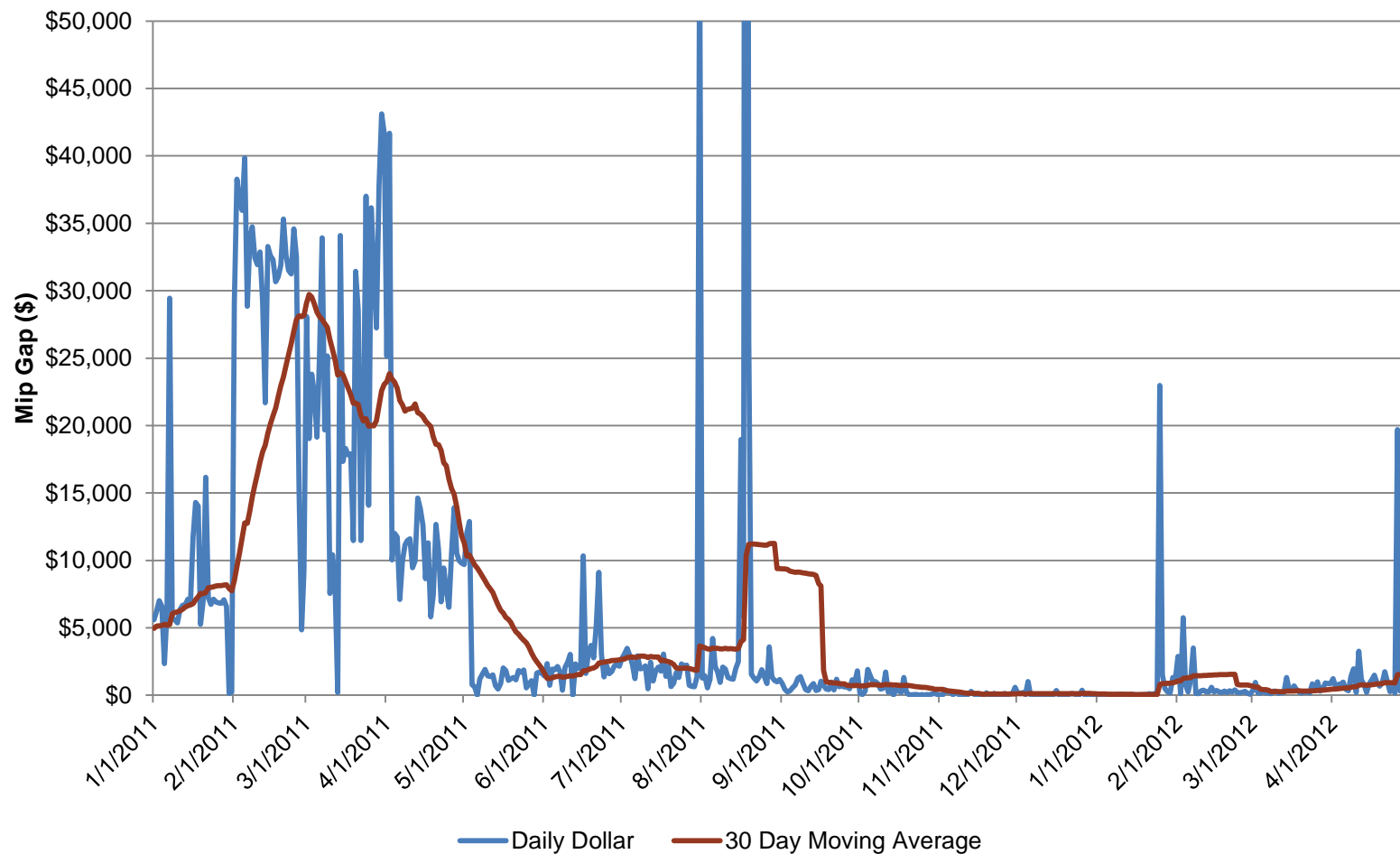
Daily exceptional dispatches in MWh – by reason



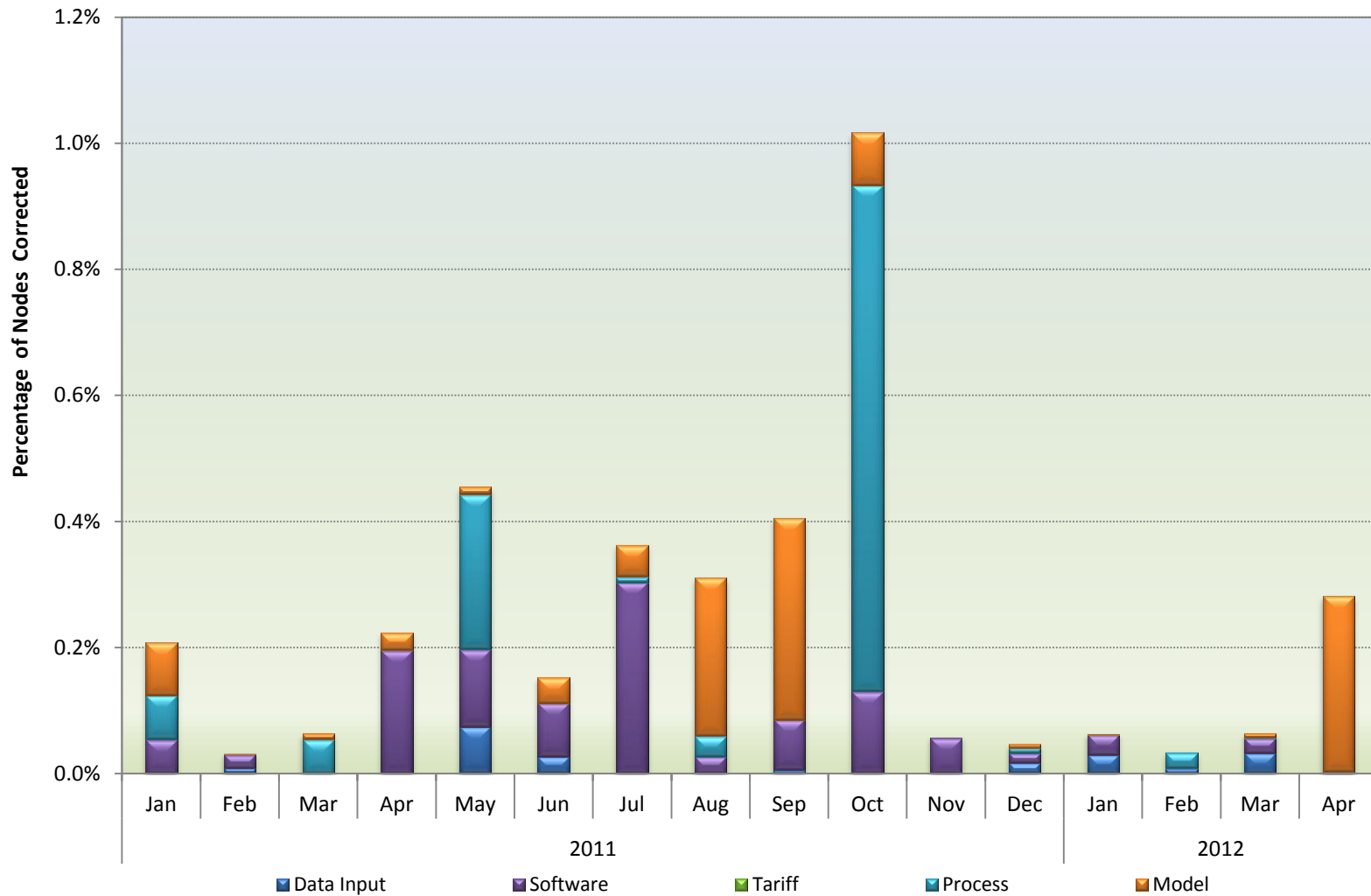
DA Bid cost recovery (BCR) costs trended up. ISO is reviewing sources of increase.



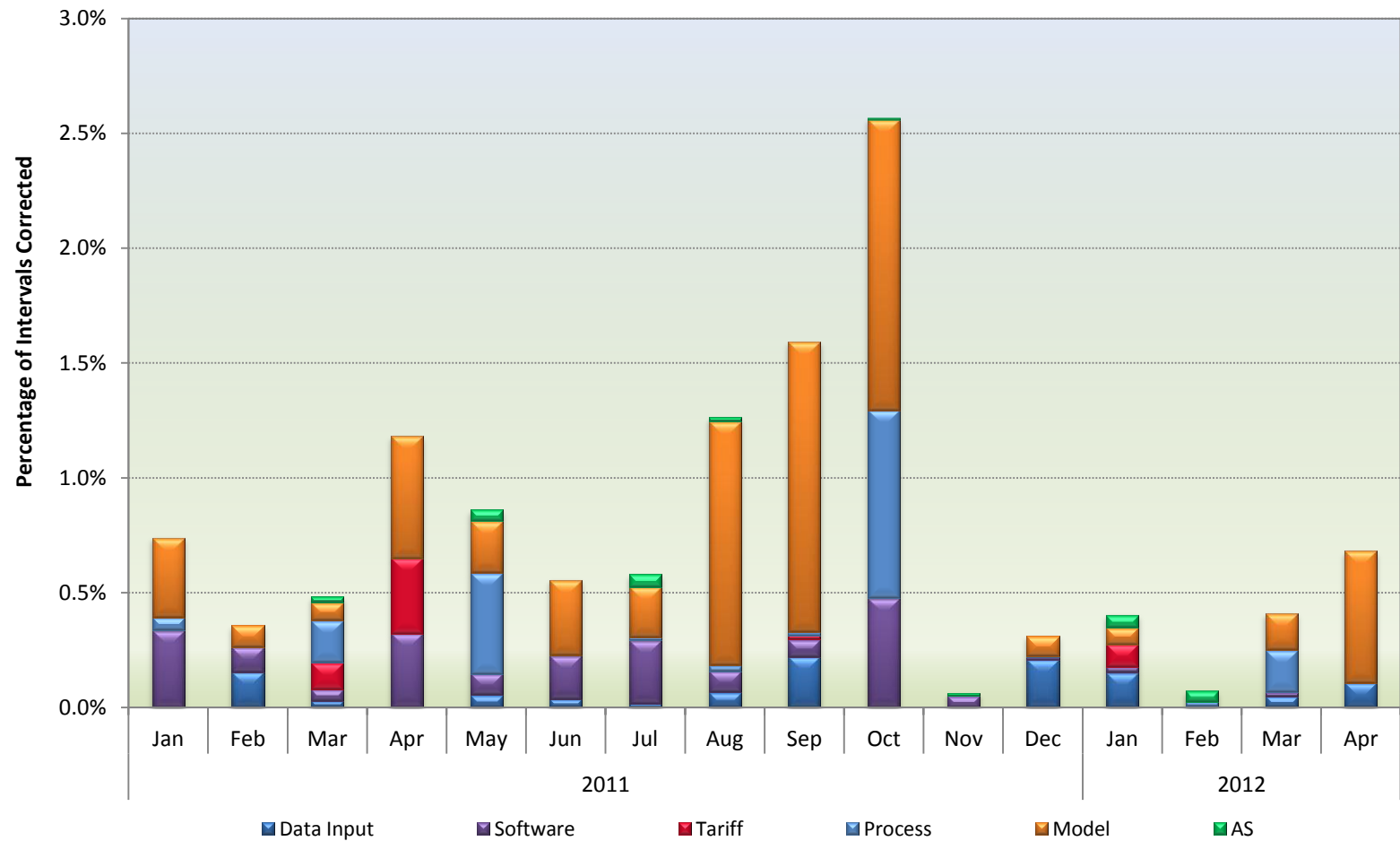
Good MIP Gap performance in March/April.



Price correction events increased in April.



Price correction events increased in April.



Price/Dispatch Consistency

- The ISO market has observed price/dispatch inconsistencies.
- This may affect both physical and convergence bids, in both DAM and HASP.
- There are market features that lead to such outcomes.
- Market participants have expressed their concerns.
- This may create uncertainty in the market.
- The ISO is moving forward with a stakeholders initiative to address price/dispatch inconsistencies.
- An Issues Paper will be provided in the first half of June.

Recent system/market events

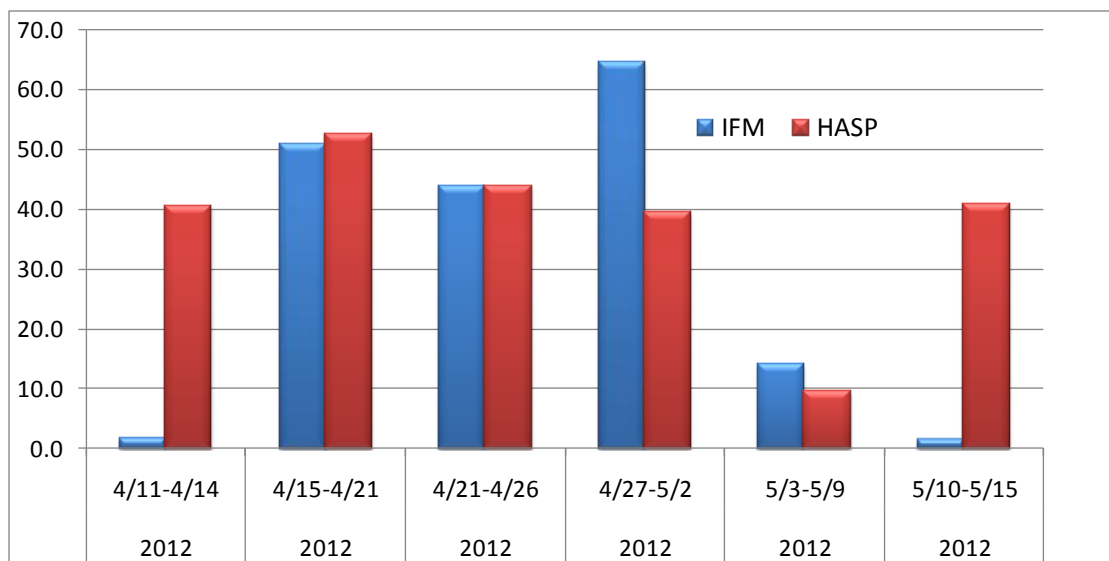
SONGS outages continue to impact grid/market operations:

- Have taken steps to use market mechanisms to model constraints needed for reliability, local nomograms and Minimum online capacity (MOC).
- Exceptional dispatches volume increased in March and April.

Summer operations:

- SDG&E import limit (SOL) increased to 2900 MW after 230 kV Barre-Lewis upgrade and 500 kV Sunrise Powerlink.
- Plan to dispatch internal generation to prepare for largest generation contingency following SWPL outage for added reliability. Effective import limit 2450 MW modeled in the market.

Recent system/market events (Cont.)



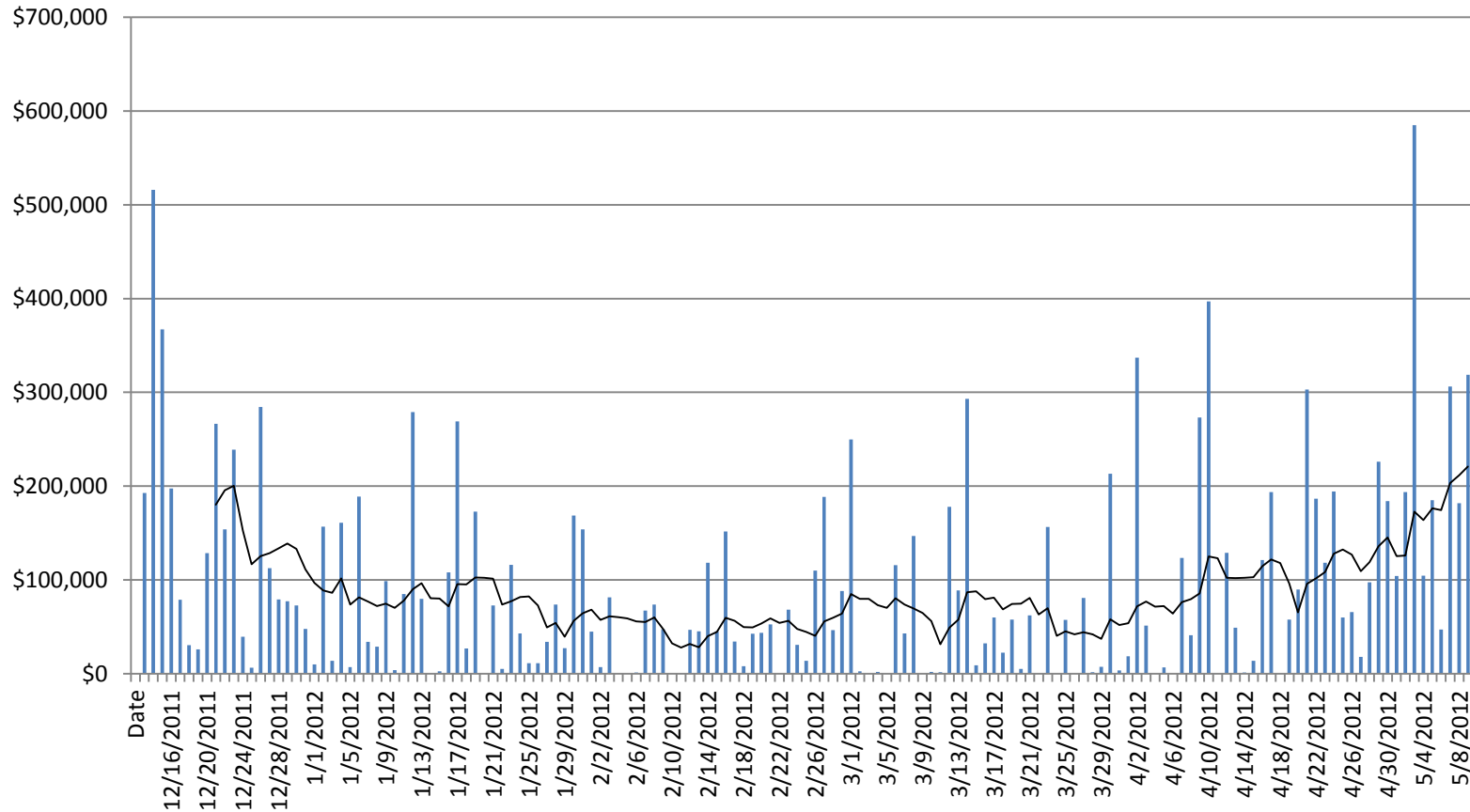
Average number of units (including MSG configurations) subject to local market power mitigation per hour

Top 3 constraints that triggered mitigation

	4/11-4/14	SLIC 1883001_SDGE_OC_NG		
	4/15-4/21	SLIC 1883001_SDGE_OC_NG	SCE_PCT_IMP_BG	34112_EXCHEQUR_34116_LE GRAND
IFM	4/21-4/26	SLIC 1883001_SDGE_OC_NG	34112_EXCHEQUR_34116_LE GRAND_BR	32990_MARTINEZ_33016_ALHAMTP2_BR
	4/27-5/2	34112_EXCHEQUR_34116_LE GRAND_BR	SLIC 1883001_SDGE_OC_NG	SDGE_CFEIMP_BG
	5/3-5/9	34112_EXCHEQUR_34116_LE GRAND_BR	SLIC 1883001_SDGE_OC_NG	SDGE_CFEIMP_BG
	5/10-5/15	32990_MARTINEZ_33016_ALHAMTP2_BR	32754_OLEUM_32778_MRTNZJCT_BR	SLIC 1883001_SDGE_OC_NG
	4/11-4/14	PATH26_N-S	LBN_S-N	32314_SMRTSVLE_32316_YUBAGOLD
	4/15-4/21	SCE_PCT_IMP_BG	IVALLYBANK_XFBG	32990_MARTINEZ_33016_ALHAMTP2
HASP	4/21-4/26	7820_TL 230S_OVERLOAD_NG	SLIC 1883001_SDGE_OC_NG	32990_MARTINEZ_33016_ALHAMTP2_BR
	4/27-5/2	SLIC 1883001_SDGE_OC_NG	SCE_PCT_IMP_BG	7680 Sylmar_1_NG
	5/3-5/9	SCE_PCT_IMP_BG	7680 Sylmar_1_NG	SDGE_CFEIMP_BG
	5/10-5/15	SCE_PCT_IMP_BG	SLIC 1883001_SDGE_OC_NG	PATH15_N-S

Flexi-ramp constraint cost jumped in April and early May.

Daily Flexi-Ramp Costs



2011 Ancillary Service Scarcity Event Report

There were 24 ancillary service scarcity events occurred in 2011.

Frequency of 2011 Scarcity Events by Market and Sub-region

Month	Market	Sub-region			Sum
		CAISO	SP26	SP26_EXP	
4	RTUC		1		1
5	RTUC		1	2	3
6	RTUC			8	8
7	HASP	9			9
11	RTUC		3		3
Sum		9	5	10	24

- All in ancillary service sub-regions
- All in real-time markets (9 in HASP and 15 in RTUC)
- Incremental procurement cost \$53,226

The 2011 ancillary service scarcity events were caused by:

- Inconsistent ramp rates used to award ancillary services
- Forbidden operating region
- Multi-stage generating resource
- De-rate and outage of generation resources
- Manual load forecast adjustment
- Insufficient real-time ancillary service bids
- Inability to swap through buy-back of ancillary services

Existing resources were sufficient in 2011 to meet energy demand and ancillary service requirements.

- There was no system-wide scarcity event
- All scarcity events (except the ones in HASP) were cured within an hour
- Scarcity pricing mechanism is functioning properly
- Further improvements in market design and system operation are needed

Policy Update

Brad Cooper, Manager
Market Design and Regulatory Policy

Market initiatives going to the Board for approval in July, Sep 2012

Initiative	Board Presentation
Flexible Ramping Product	July
RA Replacement Requirement	July
2012 CRR Tariff Clean Up	July
Ancillary Services Buy Back	July
Exempting Inter-SC Trades from CFTC	July
Intertie Pricing and Settlement	July
BCR Mitigation Meas. (RIMPR 1)	Sep
Flex Capacity Procurement Phase 1 (Risk of Retirement)	Sep
FERC Order 1000	Sep
Generator Project Downsizing	Sep

Market design initiatives coming soon (slide 1 of 2)

- PIRP Decremental Bidding
 - Targeted to start June 2012
- Cost-Allocation Guiding Principles - Phase 2: Apply Principles Across Market Design
 - Targeted to start August 2012
- Reliability Demand Response Product – Order 745 Compliance Modifications
 - Targeted to start August 2012

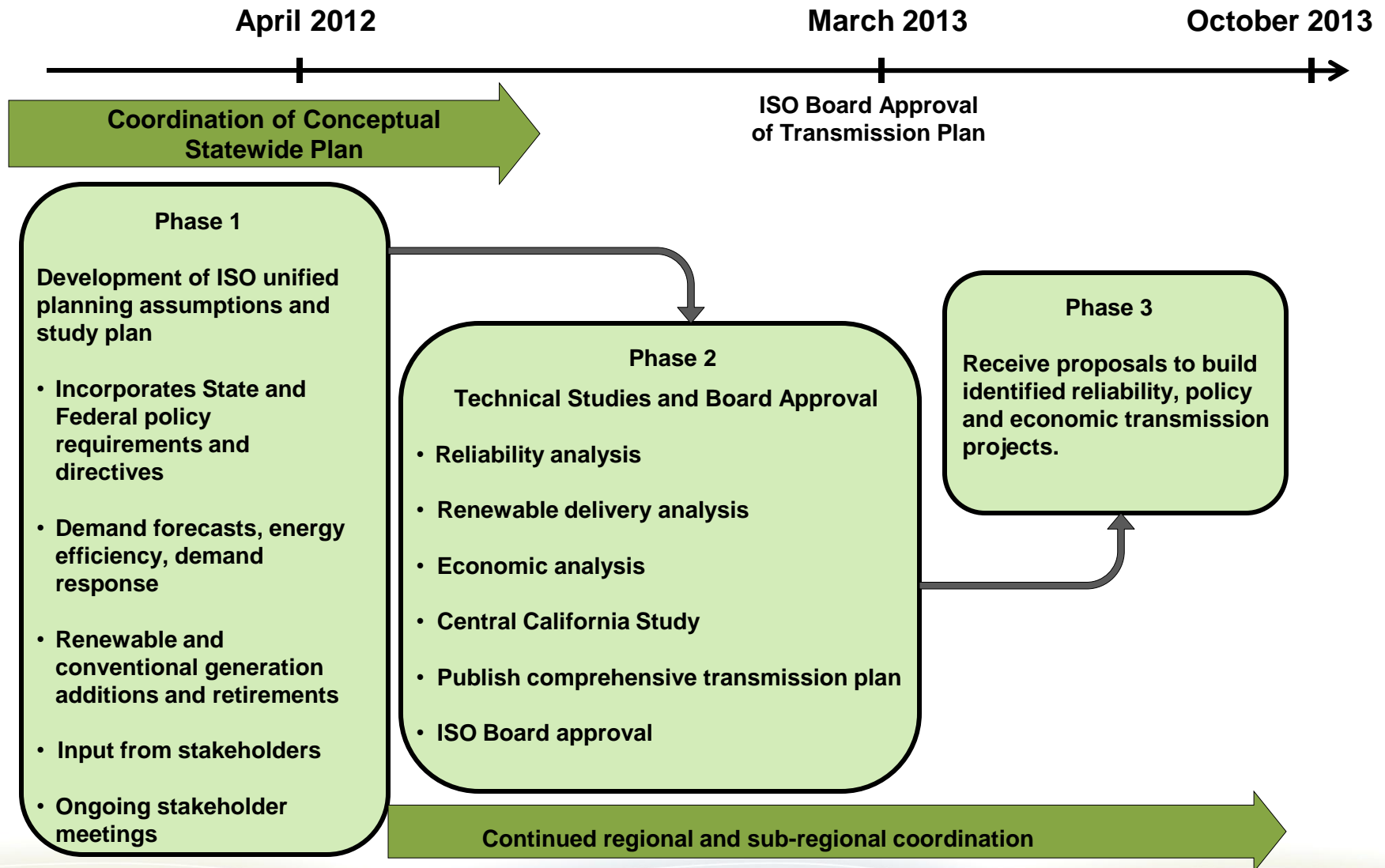
Market design initiatives coming soon (slide 2 of 2)

- Flexible Capacity Requirements/Procurement - Phase II
 - Targeted to start Sep 2012
- Standard Capacity Product Phase III
 - FERC order to apply SCP to all RA resources
 - Phase III will evaluate SCP for DR
 - Targeted to start Sep 2012
- Marginal Loss Surplus Allocation
 - Targeted to start Sep 2012

Transmission Planning Update

Jeff Billinton, Manager
Regional Transmission - North

2012/2013 Transmission Planning Cycle



2012/2013 Transmission Planning Cycle Update

- Study Plan
 - Stakeholder session February 28, 2012
 - Finalized with responses to comments March 30, 2012
- Addendum to Study Plan for Central California study
 - Draft of study plan presented April 26, 2012
 - Target to finalize addendum and responses to comments on May 24, 2012

Central California Study Objective



- Central California transmission system integral part of the bulk electric system to facilitate power transfers throughout ISO-controlled grid.
 - In addition to supply to overall Fresno area.
- System performance needs to be assessed under variety of scenarios to:
 - Ensure reliability requirements met;
 - Facilitate policy objectives; and
 - Assess economic opportunities.

2012/2013 Transmission Planning Cycle Update (continued)

- Renewable Generation Portfolios from CPUC and CEC
 - Held stakeholder session on April 2, 2012
 - Stakeholder comments received April 16, 2012
 - Received revised portfolios from CPUC and CEC on May 16 and posted on ISO website May 18, 2012
 - ISO will use base scenario and sensitivities as provided by CPUC and CEC with following:
 - Addition of further 200 to 250 MW in Valley Electric area to reflect difference in permitting
 - Sensitivity case modeling high out of state import scenario, for information purpose only

2012/2013 Transmission Planning Cycle Update (continued)

- Special Protection System (SPS) Review
 - The ISO will be reviewing performance, operation and design of the existing SPS on the system to determine if needs to modified, removed or replaced due to:
 - planned transmission developments
 - changes in transmission utilization
 - As a part of developing the corrective action plans to address the reliability performance issue identified in the studies, the ISO will assess if new SPS are appropriate and will bring forward projects as needed if we see concerns that warrant it.

2012/2013 Transmission Planning Cycle Update (continued)

- Schedule
 - Post Reliability study results – August 15, 2012
 - Request Window open August 15 – October 15, 2012
 - Stakeholder session – September 26-27, 2012
 - Reliability study results
 - Stakeholder session – December 11-12, 2012
 - Policy and Economic study results
 - Post draft Transmission Plan – January 2013
 - Present draft plan to stakeholders and comments period – February 2013
 - Present to ISO Board for Approval – March 2013

Technical Updates

Khaled Abdul-Rahman, Director

Li Zhou, Senior Advisor

Power Systems Technology Development

Spring 2012 Market Simulation – REM

- EMS/AGC 50% Rule
 - EMS/AGC has a rule to maintain the SOC at 50% of the energy limit if system condition is normal and it is not impacting the grid reliability;
 - The 50% Rule was NOT on as part of Spring market simulation.
 - The 50% Rule will be ON in Fall 2012 market simulation.

Spring 2012 Market Simulation – REM ...*continue*

- ISO plans the following changes for NGR AS No Pay
 - Eliminate the No Pay evaluation based on PI SOC;
 - No Pay on Day-Ahead AS forced buy-back including reason due to insufficient SOC (if the general day-ahead AS buy back policy initiative passes);
 - All other AS No Pay rules shall remain applicable to NGR resources.

Spring 2012 Market Simulation – REM ...*continue*

- SIBR Rules for NGR (REM and non REM) posted on 05/21/12;
- External Business Requirement posted on 05/18/12;
- BPM for NGR expected energy algorithm will be posted by the end of May 2012;
- Technical explanations for the SIBR rules and expected energy algorithm will be given in July MAPP meeting.

Fall 2012 Release – Real-Time MPM

- Pre-HASP mitigation
- RTPD can mitigate units on 15-minute base
 - RTPD mitigated bids posted in CMRI;
 - RTPD mitigated bids will be used in RTD for dispatch in applicable 5-minute intervals;
 - RTPD mitigated bids will be used in expected energy allocation for applicable intervals and thus for BCR.

MSG Group Constraint (MSG Dec Market Sim)

- Model Minimum Up Time (MUT) and Down Time (MDT) on a group of configurations
 - A group of configurations can contain a sub-group of configurations;
 - Configuration level MUT and MDT stays. For example, a unit can have MUT(2X1, 2X1 Duct) as 6 hours And MUT(2X1 Duct) as 30 minutes;

MSG Group Constraint (MSG Dec Market Sim)

...continue

- With two groups A and B, assuming that configurations in group B is a subset of configurations in group A
 - $MUT(A) \geq MUT(B)$; $MDT(A) \leq MDT(B)$.
- For any group A
 - $MUT(Plant) \geq MUT(A)$; $MDT(Plant) \leq MDT(A)$.
- If registered values fail those rules, ISO will contact the market participant for justification.

Release Plan Updates

Janet Morris, Director

June Xie, Lead Business Analyst

Program Office

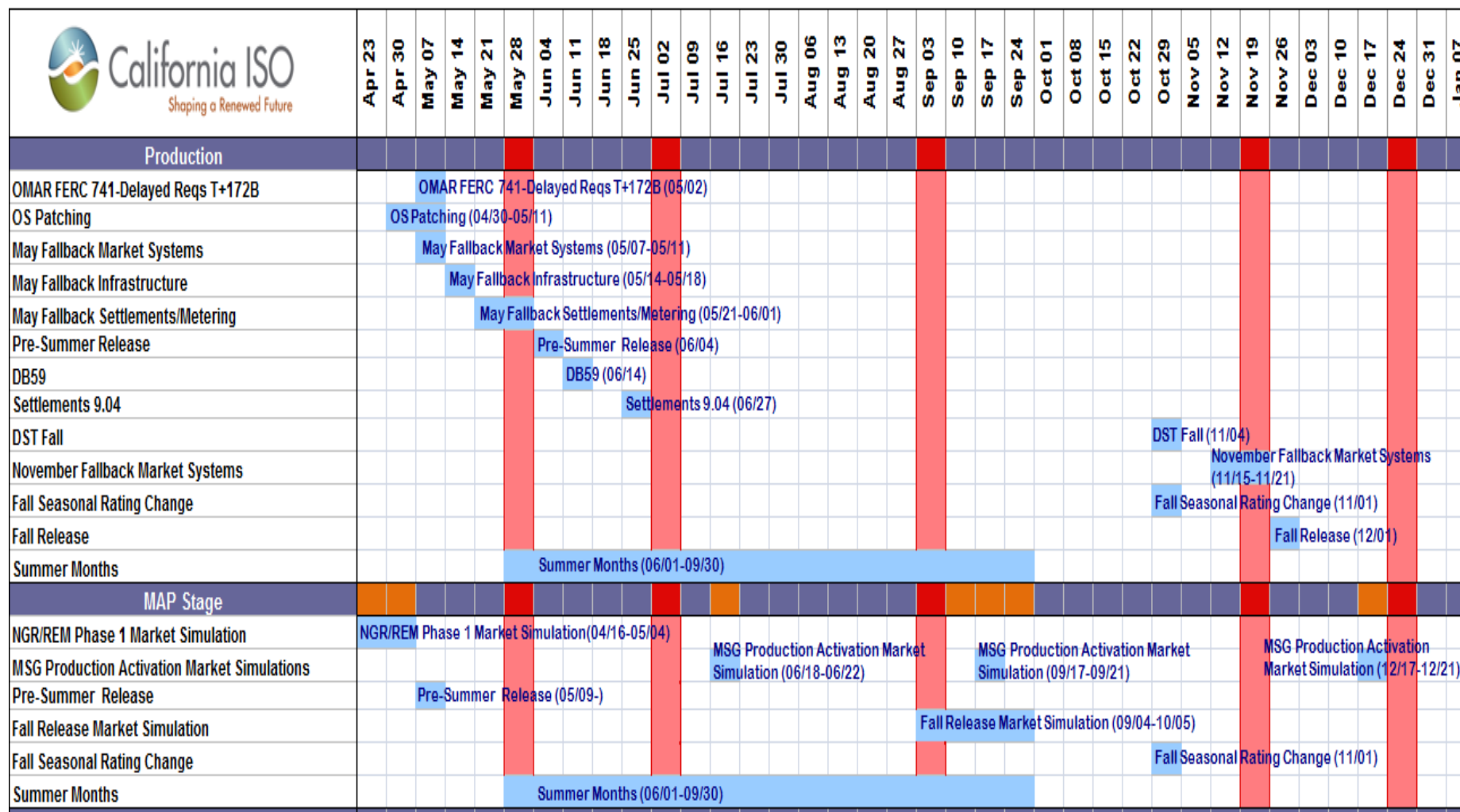
Release Plan – 2012

- **Pre Summer 2012**
 - Settlements quarterly release
- **Fall 2012**
 - Non-Generator Resources / Regulation Energy Management - Phase 2
 - LMPM Enhancements Phase 2
 - Data Release Phase 3
 - 72 Hour RUC
 - Transmission Reliability Margin
 - Commitment Costs Refinements - Greenhouse Gas Regulation only
 - FERC 745 Net Benefits Test
 - Contingency Dispatch Upgrade
 - Replacement Requirement for Scheduled Generation Outages
 - Regulatory Must Take Generation
 - IRR enhancement
- **TBD**
 - MSG Enhancements Phase 3 (market simulation to occur in December 2012)

Release Plan – 2013

- **Spring 2013**
 - Dynamic Transfers
 - FERC Order 755 – Pay for Performance
 - Mandatory MSG
 - Post Emergency Filing BCR changes
- **Fall 2013**
 - RIMPR-Phase 1
 - Circular Scheduling
 - Commitment Cost Refinements (remaining scope)
 - Flexible Ramping Product
- **Subject to further release planning:**
 - Enhanced Operating Reserve Management
 - Enterprise Model Management System
 - Outage Management System
 - BRS to be posted for review by end of May 2012
 - Reliability Demand Response Product
 - Need a Policy Stakeholder process and then present the recommendation to the Board
 - Subset of Hours

2012 Release Plan



Fall 2012 Release – NGR Phase 2: Non-Rem

Milestone	Date
Application Software Changes	SIBR: NGR as a generation resource DAM/RTM: Model NGR with an negative to positive power injection Settlements - Settle the NGR energy and AS similar as generator; Master File: Define NGR resource characteristics and REM flag SLIC: Support NGR register outage or de-rate ramp rates OASIS: Include NGR for publishing T+90 bids, EMS: Model NGR with supply range of negative to positive
BPM Changes	Manage Full Network Model Market Operations Market Instruments Outage Management Settlements & Billing Compliance Monitoring
Business Process Changes	May 31, 2012 - Expected Energy Calculations
External Business Requirements Update	May 21, 2012
Configuration Guides	July 31, 2012
Technical specifications	July 23, 2012
Market Simulation registration	July 27, 2012
Updated BPM	Sep 2012
Market Simulation	Sep 4 – 21, 2012
Production Activation	Dec 1, 2012

Fall 2012 – LMPM Enhancements (Phase 2)

Milestone	Date
Application Software Changes	Day Ahead and Real-Time Market: MPM for 15 min. RT, DCPA for HASP and 15 min. RT OASIS: Display LMPM-related components for nomogram & intertie shadow prices, and competitive paths for real-time CMRI : Display real-time mitigated bid curve
BPM Changes	Market Operations Market Instruments
Business Process Changes	Manage Market Setup & Execution Manage Day Ahead Market Real Time Market & Grid Manage Real Time Market- After Close of Market Manage Real Time Operations- Generation Dispatch
Board Approval	July 14, 2011 
External Business Requirements	May 2012 (update for phase 2 requirements)
OASIS/ CMRI Technical Specifications	July 27, 2012
Updated BPMs	August 17, 2012
Market Simulation	September 10 - 21, 2012
Tariff Filing / Approved	Filing in June, FERC Approval TBD
Production Activation	Trade Date December 11, 2012



Fall 2012 – Data Release (Phase 3)

Milestone	Date
Application Software Changes	CMRI: Release of Day – Ahead Load Distribution Factors Release of Shift Factors, Transmission Limits, & Nomogram Constraint Limits and Enforcements for Day-Ahead and Real-Time OASIS: Release of Aggregated Generation Outages, Wind and Solar Forecasts, & CRR Public Bids
BPM Changes	Market Operations; Market Instruments
Business Process Changes	None
Board Approval	May 17, 2011 
External Business Requirements	March 19, 2012 
NDAs	6/1/2012 – posted, 8/1/2012 - due for Market Simulation
OASIS/ CMRI Technical Specifications	July 20, 2012
Updated BPMs	August 13, 2012
Market Simulation	September 4 – 14, 2012
Tariff Filing / Approved	Filing TBD
Production Activation	Trade Date December 11, 2012


Fall 2012 – 72 Hour RUC

Milestone	Date
Application Software Changes	CMRI : Existing reports will publish extra long start unit binding startup instructions / initial condition
BPM Changes	Market Operations Market Instruments
Business Process Changes	Not Applicable
External Business Requirements	September 23, 2010 and September 1, 2011 (BPM synch revision) 
Technical Specifications	Not Applicable
Updated BPMs	October 28, 2011 
Market Simulation Plan to include Implementation Plan	July 30, 2012
Market Simulation	September 10-14
Production Activation	Trade Date December 1, 2012

Fall 2012 – Transmission Reliability Margin


Milestone	Date
Application Software Changes	OASIS – CBM line item replaced, three TRM component line items added.
BPM Changes	Market Instruments, Market Operations, Full Network Model (TBD), Reliability Requirements (TBD), Congestion Revenue Rights (TBD)
Business Process Changes	Manage Real-Time Interchange Scheduling
Board Approval	March 22, 2012 
External Business Requirements	April 9, 2012 
Technical Specifications	July 31, 2012
Updated BPMs	July 31, 2012
Market Simulation	September 11, 2012- September 17, 2012
Tariff Filing / Approved	June 2012 / September 2012
Production Activation	Trade Date December 1, 2012

Fall 2012 – Commitment Cost Refinements (Green House Gas Emissions Costs)



Milestone	Date
Application Software Changes	<p>SIBR: SIBR must consume calculations performed by POTOMAC for proxy bid use.</p> <p>Master File: Registration of units that did not emit more than 25,000 mtCO2 in the previous year (to be exempt from greenhouse gas allowance costs in its calculation of variable costs). System must also store the greenhouse gas allowance price and make it available to downstream systems for consumption.</p>
BPM Changes	Market Operations
Business Process Changes	<ul style="list-style-type: none"> • Manage Day Ahead Market • Manage Reliability Requirements
Board Approval	May 16, 2012 
External Business Requirements	June 2012
Market Simulation	Fall 2012
Technical Specifications	TBD
Tariff Filing	July 2012
Production Activation	Trade Date January 1, 2013

Fall 2012 Release - FERC Order 745

DR Compensation in Wholesale Electricity Markets

Milestone	Date
Application Software Changes	Demand Response System (DRS): Changes needed to support the settlement of DRs in compliance with the FERC order 745 Settlements <ul style="list-style-type: none"> Automation of the calculation of the Monthly Demand Response DR Net Benefits test (NBT) Threshold Prices. Change Settlement Charge Codes (RT Energy Pre-Calc, CC6806, CC6475, CC6477) to comply with guidance issued in FERC order 745
BPM Changes	Market Operations, Settlement Configuration Guides, Definitions and Acronyms
External Business Requirement Specification	May 2, 2012 
Technical Specifications	Not Applicable
Configuration Guides	Aug 27, 2012 – CC6806, CC6475, CC6477, RT Energy Pre-Calculation
Market Simulation	Sep 25-26, 2012
Production Deployment	Nov 5, 2012
Production Activation	Trade Date December 1, 2012 Retroactive settlement dating back to effective trade date Dec 15, 2011

Fall 2012 – Contingency Dispatch Upgrade

Milestone	Date
Application Software Changes	<p>RTM: Prioritize Operating reserves dispatch over energy-only during Disturbance Control Standard (DCS) event</p> <p>ADS:</p> <ul style="list-style-type: none"> Always broadcast the Dispatch when it is coming from Real-Time Contingency Dispatch (RTCD). Three new Yes/No flags to Indicate <ul style="list-style-type: none"> RTCD was a Disturbance Dispatch (Prioritized Operating Reserves over energy-only bids) Incrementing the Northern Ties was skipped Incrementing Southern Ties was skipped
BPM Changes	Market Operations
Business Process Changes	Manage Real-Time Contingency Dispatch
Board Approval	May 16, 2012 
External Business Requirements	May 8, 2012 
Updated BPMs	RTCD-6/15/12, RTDD-8/17/12
Tariff Filing / Approved	Filing July 2012 requesting FERC approval by Oct 2012
ADS Technical Specifications	July 23, 2012
Market Simulation	September 17 – September 21, 2012
Production Activation	December 11, 2012

Fall 2012 – Replacement Requirements for Scheduled Generation Outages

Milestone	Date
Application Software Changes	RAAM: Unit substitution has to be expanded for Planned Outages.
BPM Changes	Outage Management; Reliability Requirements
Business Process Changes	Manage Generation Outages: Annual Monthly RA Process (new) RA Outage Management Process (new)
Board Approval	July 12, 2012
External Business Requirements	June 29, 2012
Technical Specifications	TBD
Market Simulation	Fall 2012
Tariff Filing	TBD
Production Activation	Trade Date January 1, 2013


Fall 2012 – Regulatory Must Take Generation

Milestone	Description/Date
Application Software Changes	Master File: Allow SCs of Combined Heat and Power (CHP) resources to submit on-peak and off-peak RMTmax values via Resource Data Template (RDT). RMTMax values must be within Pmin and Pmax. SIBR: Add validation rules to enforce on-peak and off-peak RMTmax capacities
BPM Changes	Market Operations and Market Instruments
Business Process Changes	Potential new business process to <ul style="list-style-type: none"> • Manage 180-day exemption between contract expiration and ISO tariff compliance (metering) • Manage contracts and approval of a CHP resource for RMT
External Business Requirements	April 30, 2012 
Board Approval	May 16, 2012 
Technical Specifications	July 23, 2012
Market Simulation	September 11, 2012- September 17, 2012
Production Activation	Trade date December 11, 2012


Fall 2012 – IRR (ISO Reliability Requirements) Annual

Milestone	Date
Application Software Changes	IRR: Modifications to enable annual automated cross validation and loading of supply and RA plans
BPM Changes	Reliability Requirements
Business Process Changes	No business process impacts
Board Approval	Not Applicable
IRR Users Guide	August 20, 2012
Market Simulation	September 18 - 20
Technical Specifications	TBD
Tariff Filing	Not Applicable
Production Activation	Trade Date Oct,1 2012

TBD – MSG Enhancements (Phase 3)

Milestone	Date
Application Software Changes	<p>Master File: System must be extended to allow the registration of minimum up time (MUT) or minimum down time (MDT) on a group of MSG configurations. Registrations would be submitted to the ISO via a separate registration form.</p> <p>DAM/RTM: System must be able to recognize the MUT and MDT constraints on a group of configurations (as registered in the Master File) during the optimization.</p>
BPM Changes	Market Instruments, Market Operations
Business Process Changes	Not Applicable
Board Approval	Not Applicable
External Business Requirements	May 7, 2012 
Technical Specifications	Not applicable
Market Simulation	December 17-21, 2012
Tariff Filing	Not Applicable
Production Activation	TBD

Spring 2013 – Dynamic Transfers


Milestone	Description/Date
Application Software Changes	<p>SIBR: Pass the 5-min-2-hour rolling forward forecast to Real-Time Market; Include bidding capability and relevant validation rules for the TRC</p> <p>ALFS : Create the ISO forecast for the intermittent DT</p> <p>CAS: e-tag DS/PTG that mapped to multi-ITGs</p> <p>CMRI : Report Transmission Reservation (TRC)</p> <p>DAM/RTM: Include TRC, incorporate forecast value, model multi-tie services , model primary/alternative tie under open tie</p> <p>Master File: Define TRC, multi-tie group</p> <p>OASIS: Show aggregated TRC</p> <p>Settlements: Settle TRC as shadow price of Intertie constraint in market Exclude congestion cost in RTD for the resources that have TRC.</p>
BPM Changes	Market Operations; Market Instruments; Settlements & Billing; Definitions & Acronyms
Business Process Changes	Maintain Master File, Day Ahead Process, Real Time Process, Manage Billing and Settlements, Manage Interchange Scheduling
External Business Requirements	May 31, 2012
Technical Specifications	TBD
Board Approval	May 19, 2011 
Market Simulation	Spring 2013
Production Activation	Spring 2013 Release

Spring 2013 – FERC Order 755

Milestone	Description/Date
Application Software Changes	ADS : provide DA regulation up/down mileage awards CMRI : provide DA and RT regulation up/down mileage price and awards DAM/RTM : include mileage bids and requirements into the optimization and generate mileage price and awards Master File : regulation certification based on 10 min ramping capability OASIS : provide DA regulation up/down mileage price, system mileage multipliers, system mileage requirement, actual system mileage, historical mileage bids, historical resource mileage multipliers Settlements : calculate mileage payment, mileage cost allocation and GMC for mileage bids SIBR : receive and validate regulation up/down mileage bid SLIC : Allow for regulation outage status to be submitted
BPM Changes	Market Operations Settlements & Billing Market Instruments Definitions & Acronyms
Business Process Changes	Maintain Master File, Day Ahead Process Manage Billing and Settlements, Manage Analysis Dispute and Resolution, Market Performance (MAD),Market Performance (DMM) Manage AS Certification and Testing
Board Approval	March 23, 2012
External Business Requirements	May 25, 2012
Technical Specifications	TBD
Compliance Filing	April 2012
Product Activation	Spring 2013 Release



Spring 2013 – Post Emergency Filing BCR changes

Milestone	Date
Application Software Changes	<p>Master File: Additional MSG Configurations need to be completed by Spring Release 2013.</p> <p>Reporting: A Breakdown of BCR Components will be added to the Monthly Market Report.</p> <p>SAMC: Requires a tune-up on formulas to determine the ON criteria for resources, and the eligibility for Bid Cost Recovery.</p>
BPM Changes	Market Instruments; Market Operations; Settlements & Billing
Business Process Changes	N/A
Board Approval	Feb 16, 2012 
External Business Requirements	N/A
Technical Specifications	N/A
Market Simulation	TBD
Tariff Filing	TBD
Production Activation	Spring 2013 Release

Fall 2013 – Flexible Ramping Product

Milestone	Description/Date
Application Software Changes	<p>ADS: Send Flexible Ramping Up/Down Awards to Market Participants.</p> <p>CMRI : Report Flex Ramp Up/Down Awards to Market Participants.</p> <p>DAM/RTM: Co-optimize Energy Ancillary Services and Flexible Ramping up/down. This optimization is subject to Flexible Ramping requirements and existing constraints.</p> <p>OASIS: Show aggregated Flexible Ramping capacity awards, requirements and marginal prices.</p> <p>Settlements: Settle Flexible Ramping payment at marginal price in Day Ahead and Real Time markets Add no pay and cost allocation for Flexible Ramping.</p> <p>SIBR: Include Flexible Ramping bidding capability and relevant validation rules of bid cap, self provision.</p>
BPM Changes	Market Operations; Market Instruments; Settlements & Billing; Definitions & Acronyms.
Business Process Changes	Maintain Day Ahead Process, Real Time Process, Manage Billing and Settlements
External Business Requirements	TBD
Technical Specifications	TBD
Board Approval	TBD
Market Simulation	TBD
Production Activation	Fall 2013 Release - tentative