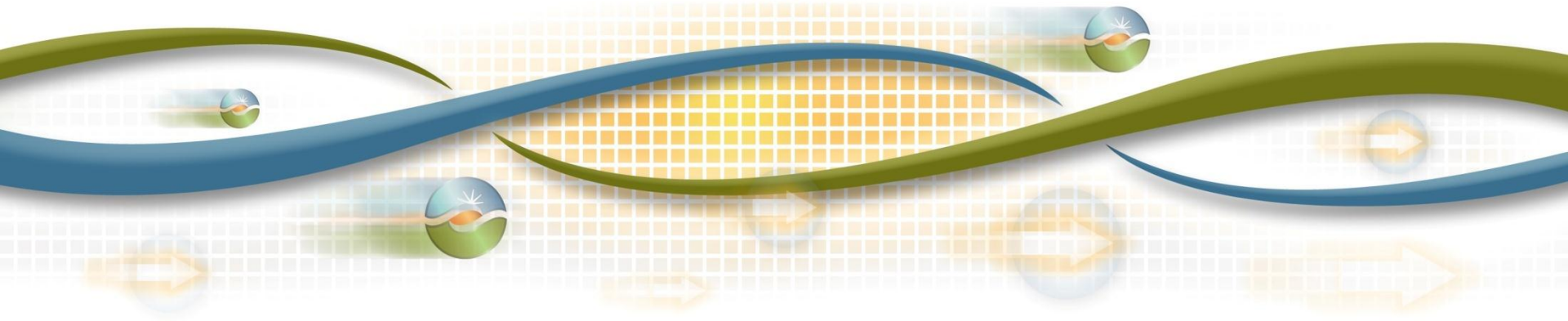




California ISO
Shaping a Renewed Future

Market Performance and Planning Forum

April 10, 2013



Objective: Enable dialogue on implementation planning and market performance issues

- Review key market performance topics
- Share updates to 2013-2014 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

10:00- 10:05	Introduction, Agenda	Mercy P. Helget
10:05 – 11:15	Market Performance and Quality Update	Guillermo Bautista Alderete, Nan Liu, Mark Rothleder
11:15 – 11:30	Policy Updates	Brad Cooper
11:30 – 12:00	Technical Updates	Khaled Abdul-Rahman, Li Zhou, George Angelidis
12:00 – 1:00	Lunch	
1:00 – 2:00	Full Network Model Expansion	Khaled Abdul-Rahman, Li Zhou, George Angelidis
2:00 – 2:15	Voice of the Customer	Tom Doughty
2:15 – 3:00	Release Plan Updates	Janet Morris
	FERC 764 Implementation Impact Assessment	June Xie

Note: Agenda is subject to change.

Market Performance and Quality Update

Market Quality and Renewable Integration

Mark Rothleder

Guillermo Bautista-Alderete

Nan Liu

1. Hot topics
2. Market Metrics
 - Price volatility and market convergence
 - RT energy/congestion imbalance offset
 - Convergence bidding
 - Exceptional dispatch
 - Bid cost recovery
 - MIP gap
 - Flex-ramp cost
3. Price Corrections

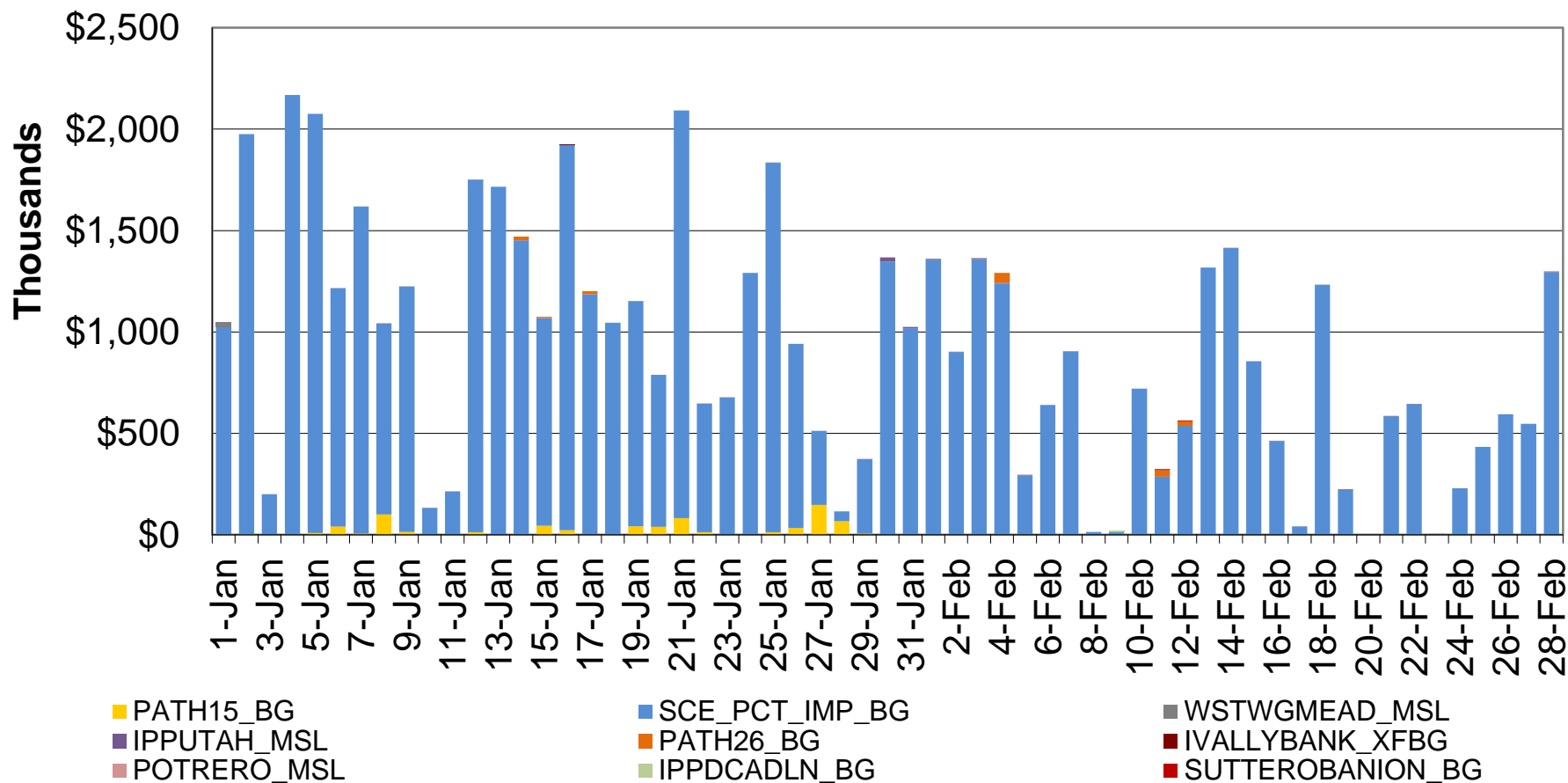
Hot Topics

- NP 15 MOC.
- SC_PCT_IMP_BG.
- Wind schedules vs. convergence supply bids awarded in IFM.
- Data transparency.

NP15 MOC:

- The NP 15 MOC provides sufficient online capability to ensure secure operating level can be established within 30 minutes after first N-1 contingency on Path 15 and COI during planned outages.
- Procuring reserve capacity (that is 10 minute products) does not provide for the right service and does not provide for efficient way to operate the system and establish pre-contingency flows.
- In lieu of the MOC constraint, exceptional dispatches may be required after the day-ahead market.
- In future proposed contingency modeling enhancement may be able to supplant the need for NP15 MOC constraint.

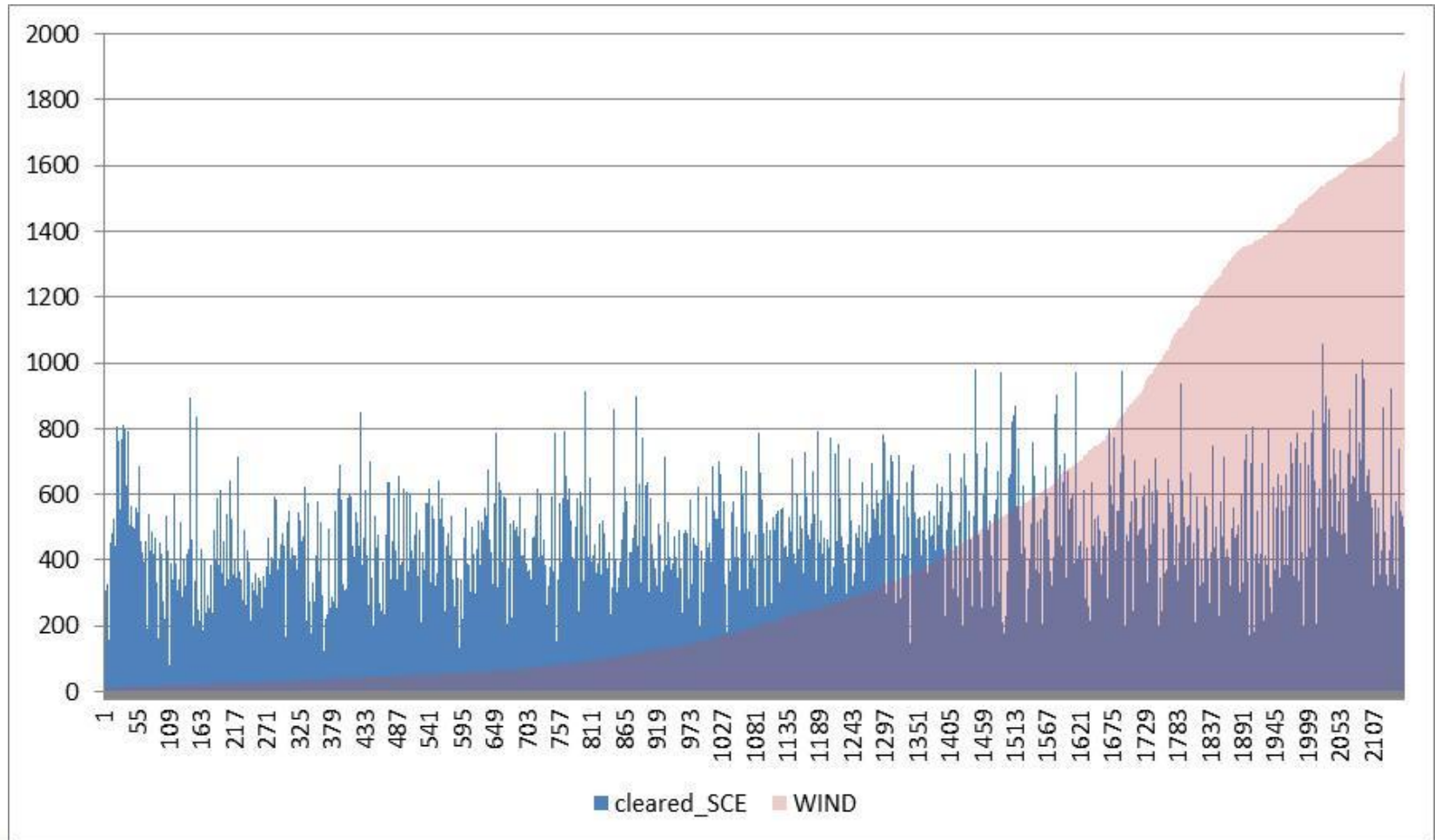
IFM congestion rents dominated by congestion on SCE_PCT_IMP_BG:



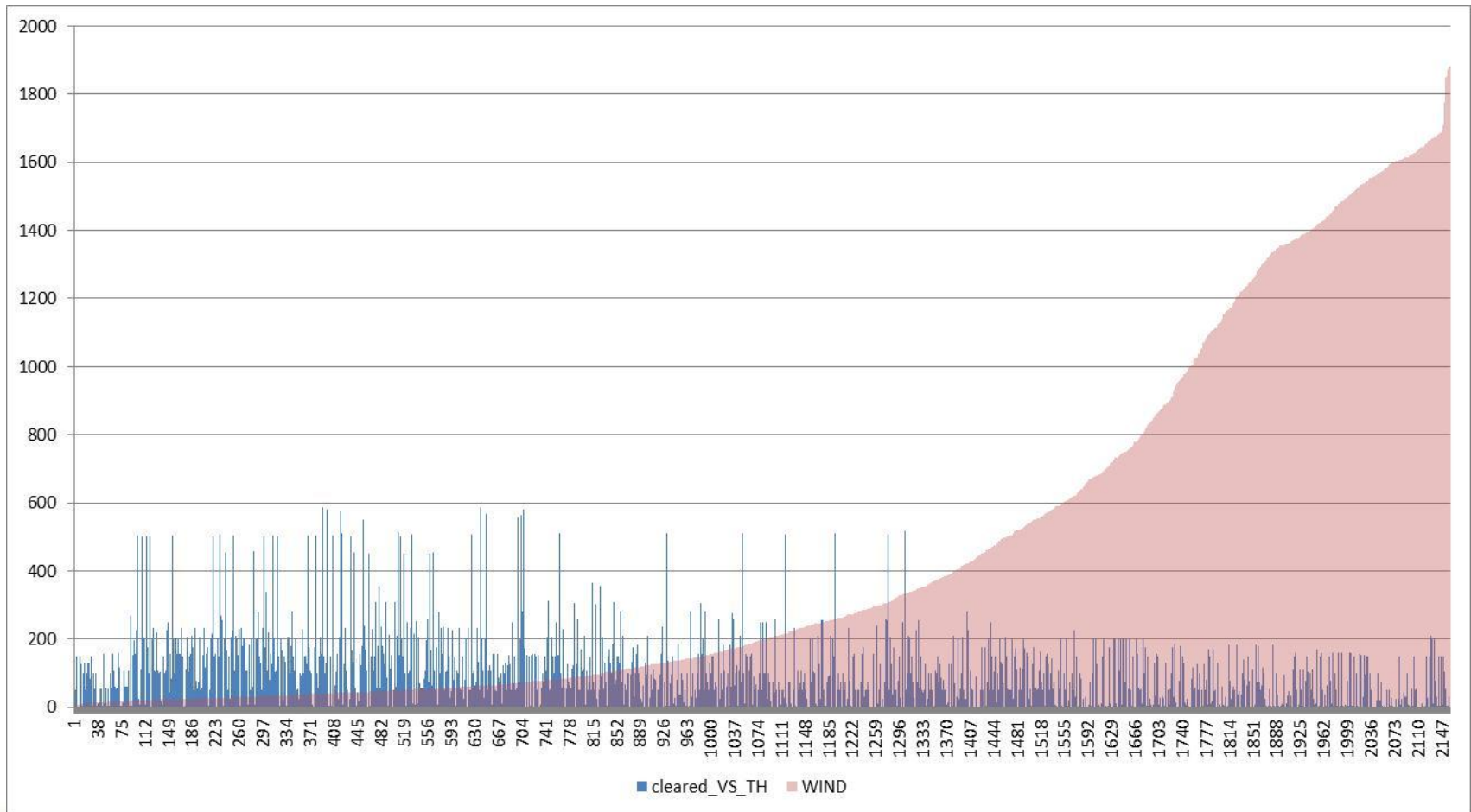
IFM SCE_PCT_IMP_BG congestion and virtual bids:

- The net virtual demand in SCE increase the import flow on the SCE_PCT_IMP_BG and can add to the congestion.
- Sensitivity analysis showed lower congestion (shadow prices) when net virtual demand is removed and high shadow prices when net virtual supply is removed.

Convergence bidding and DA wind schedules: SCE virtual supply vs. IFM wind schedules.



Convergence bidding and DA wind schedules: SP 15 trading hub virtual supply vs. IFM wind schedules.

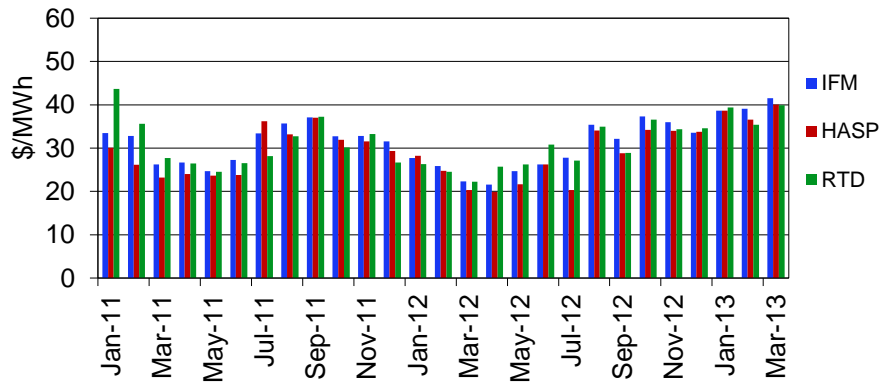


Market transparency:

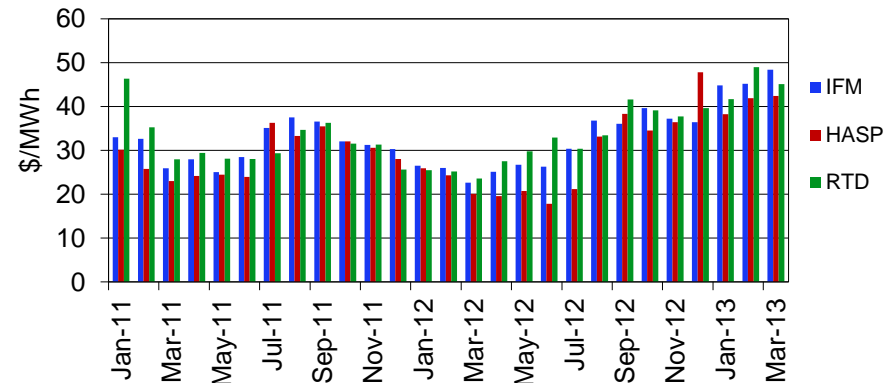
- Process has been in place to process and respond to data and information requests.
- ISO has received data/information requests and provided data transparency per established data release process.
- Process outline:
 - Participants submit data/information requests using CIDI or calling the help desk.
 - ISO reviews the requests based on approved data transparency policy and established guidelines.
 - ISO provides/denies requested data/information according to established criteria/guidelines
 - Additional stakeholder process may be required if requests are outside the approved tariff authority.

Higher DA monthly average DLAP LMP in March.

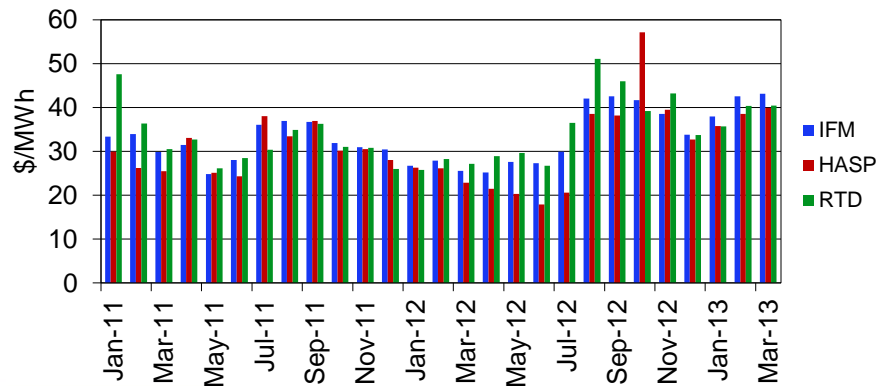
PG&E



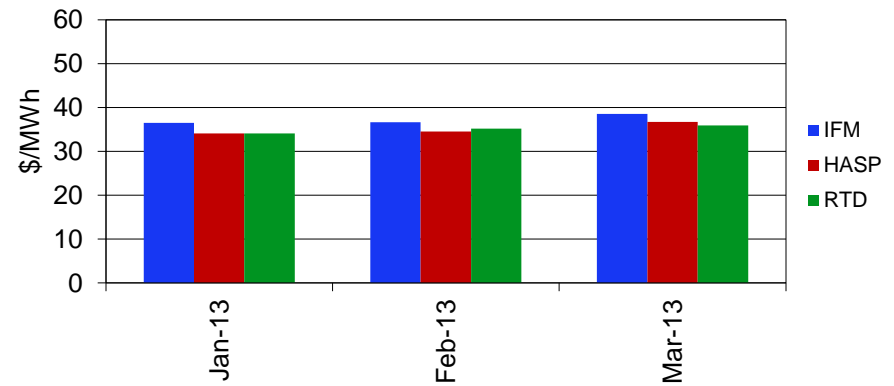
SCE



SDG&E

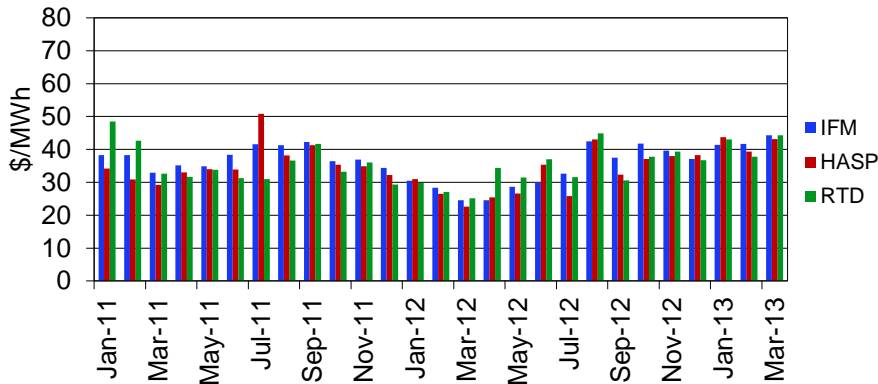


VEA

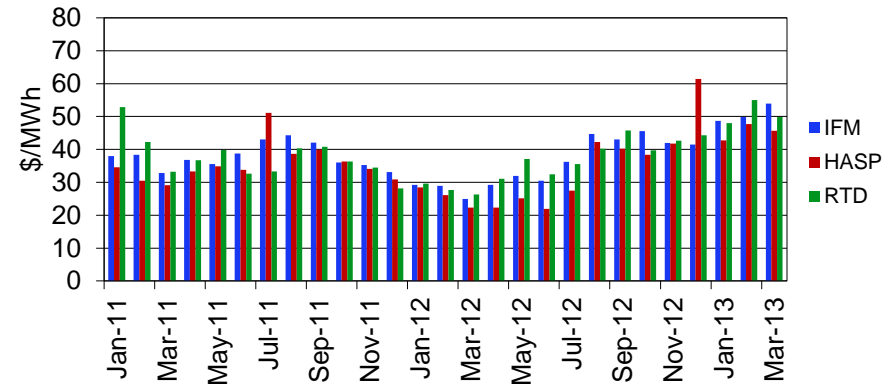


DLAP LMP Monthly Average (On Peak)

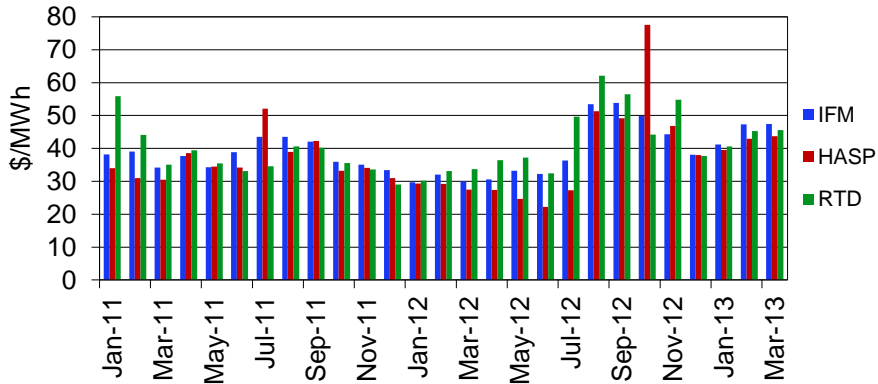
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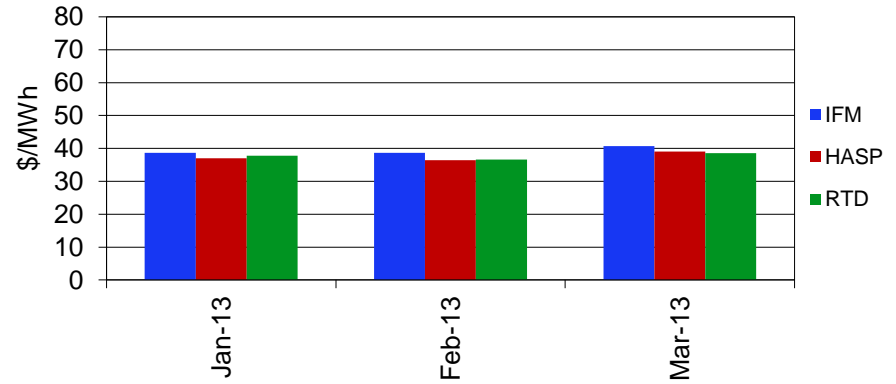
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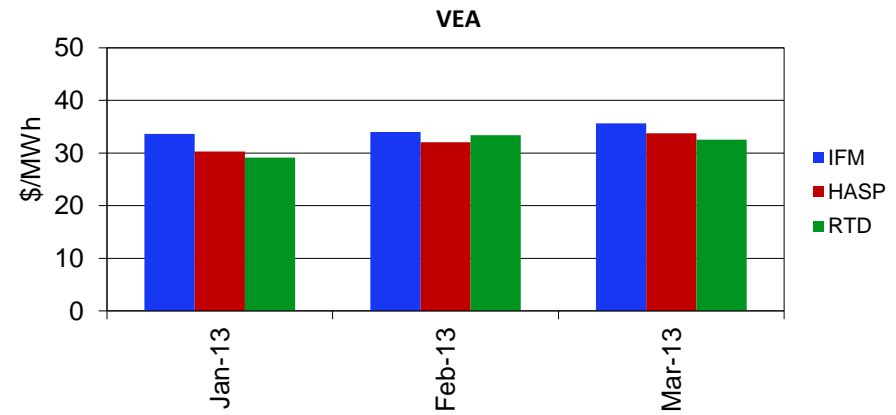
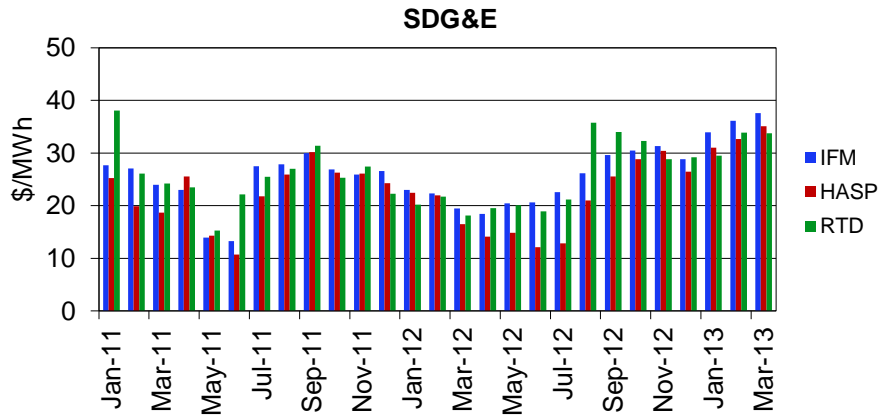
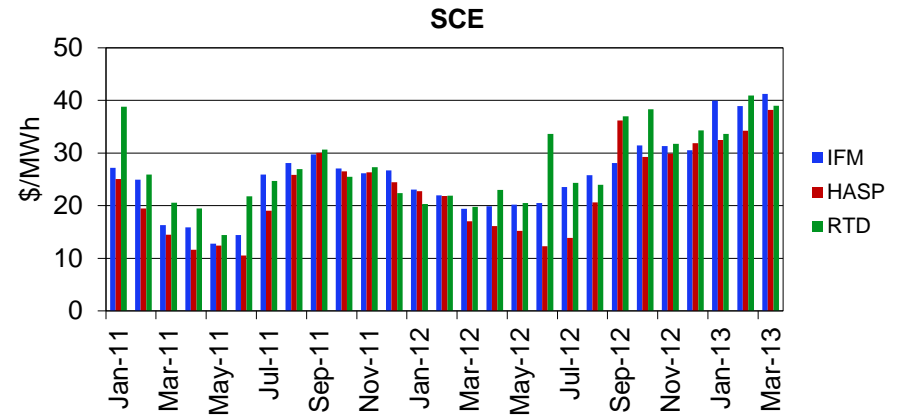
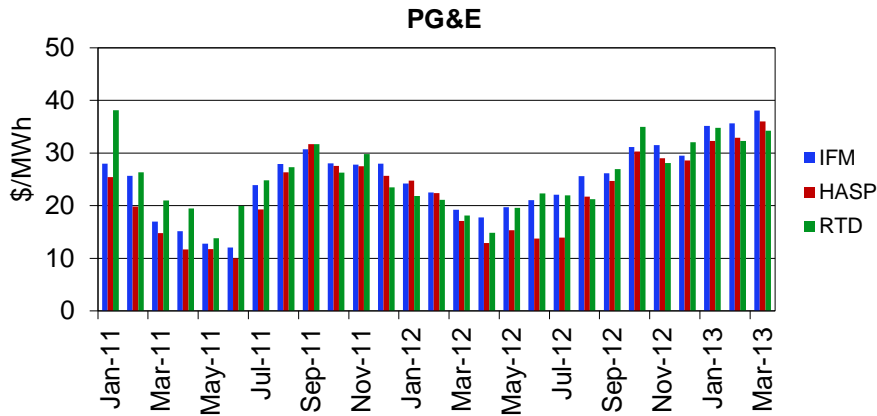
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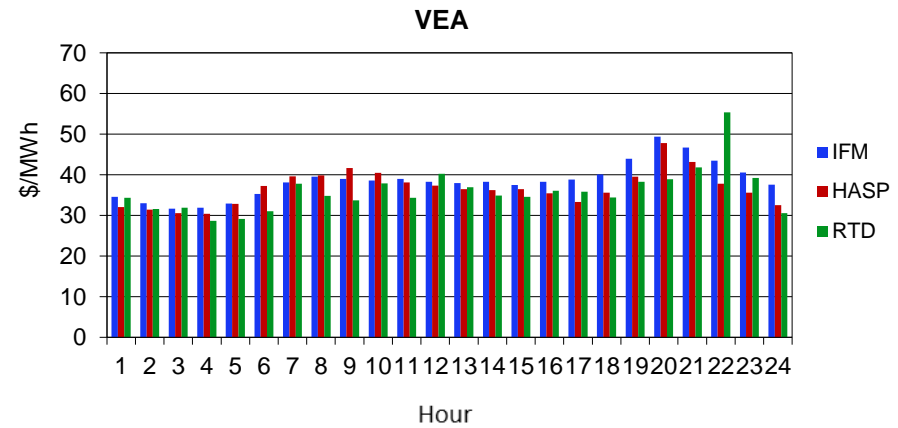
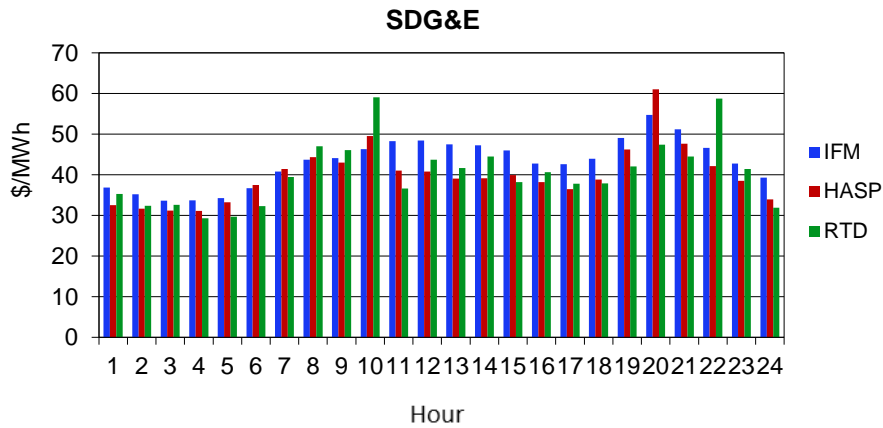
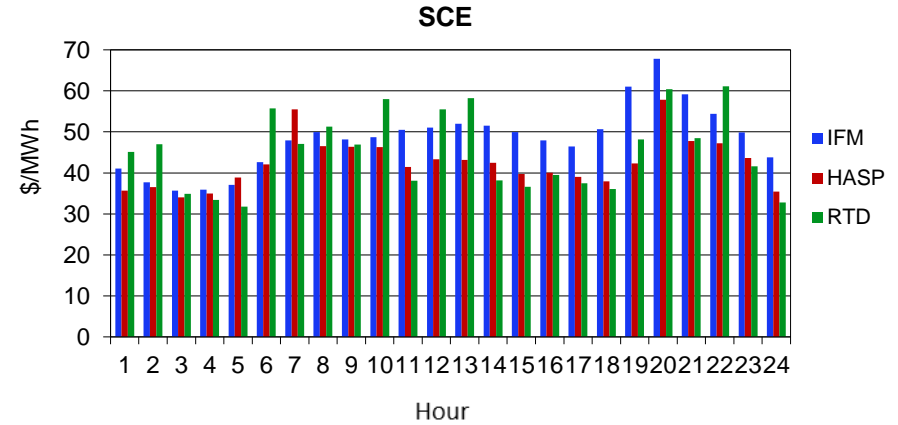
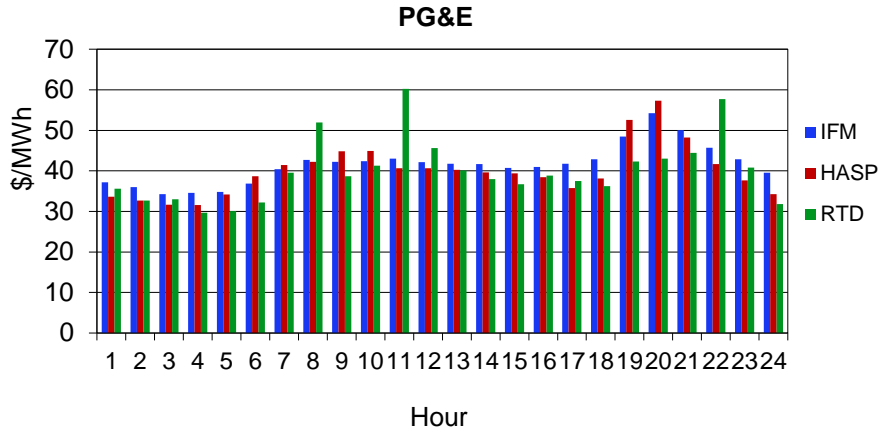
VEA



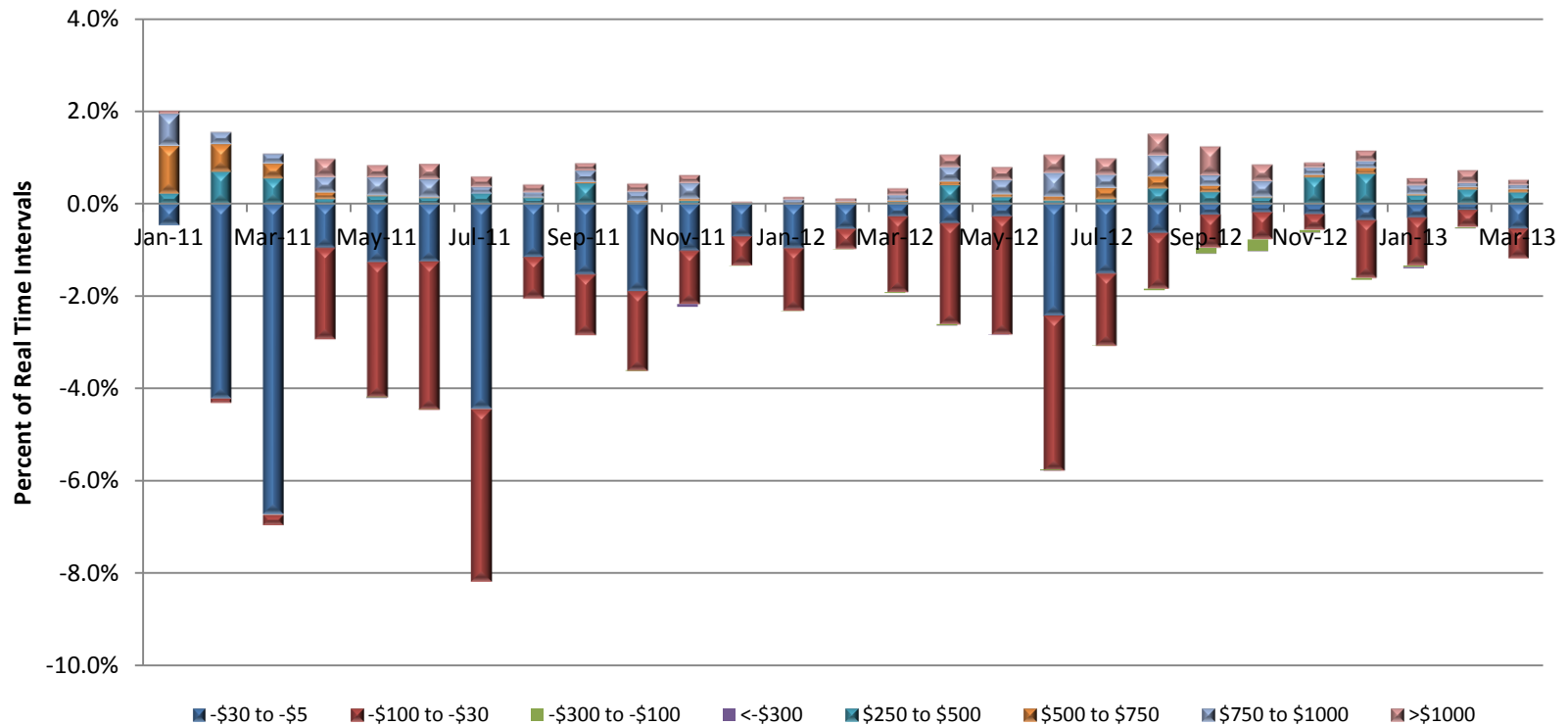
DLAP LMP Monthly Average (Off Peak)



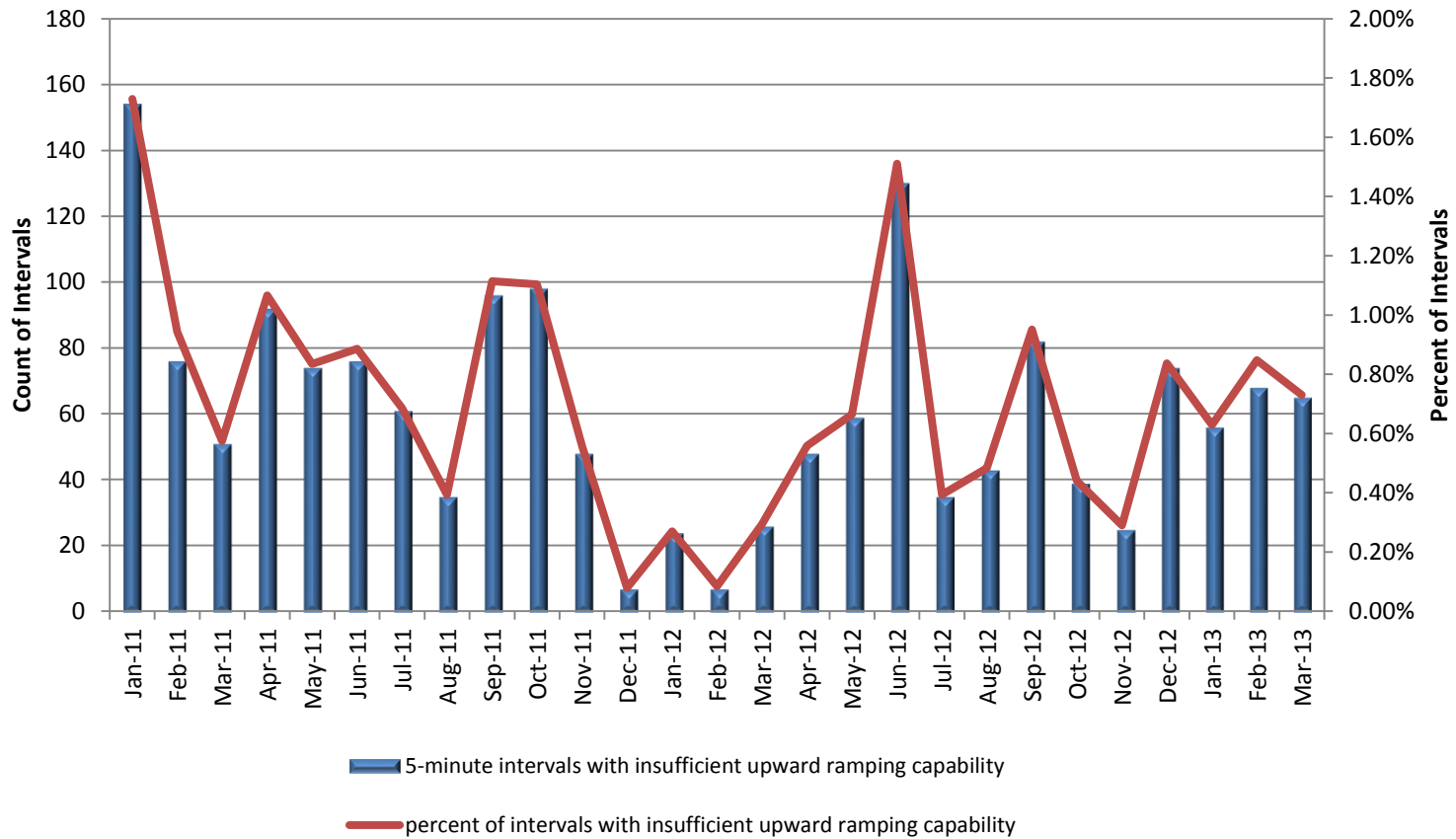
More volatile RT DLAP LMP on average in March.



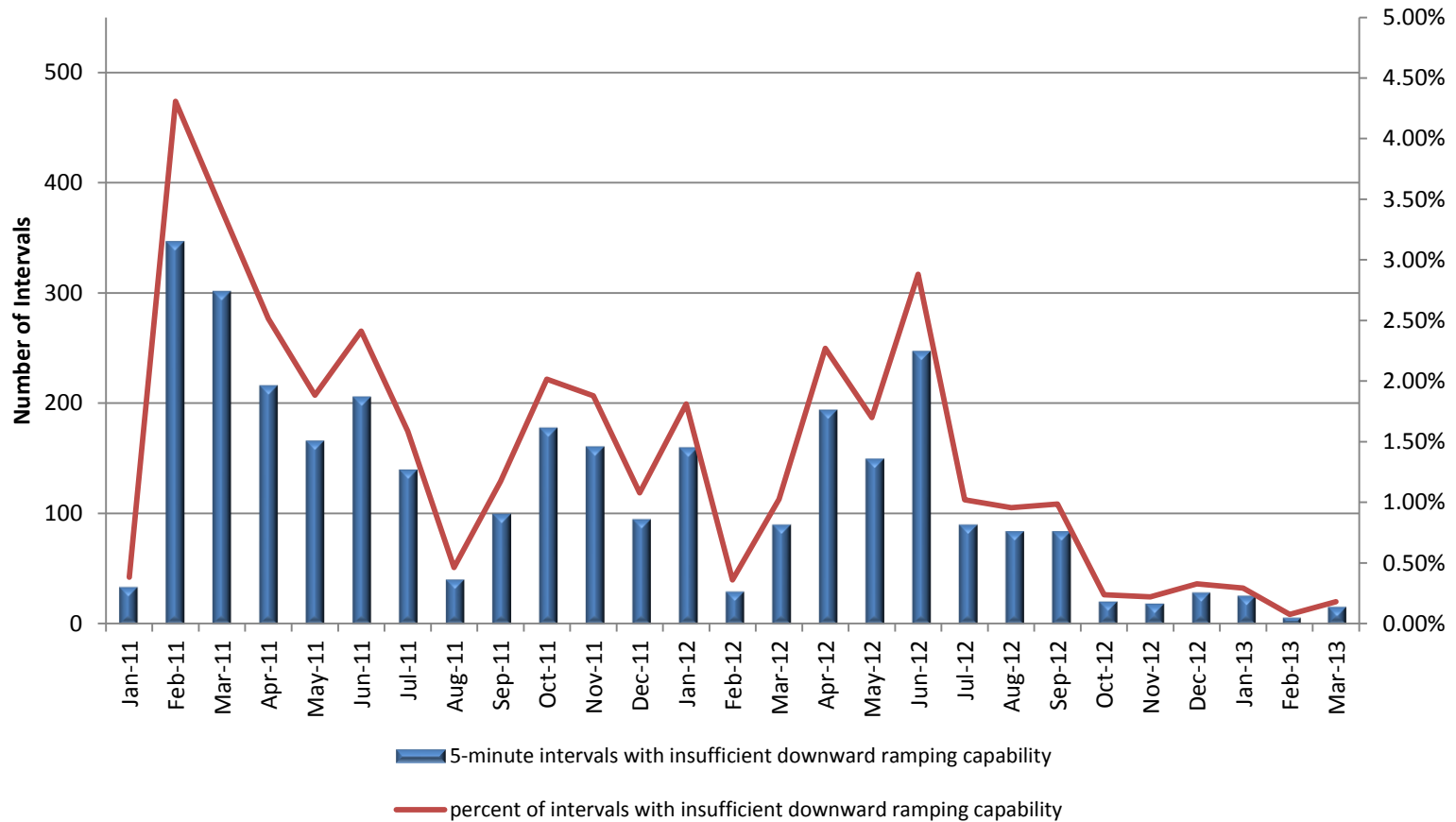
Monthly price distributions: Price volatility reduced in the positive and increased in the negative direction in March.



Monthly average of RTD intervals with insufficient up ramping capacity decreased in March compared with February.

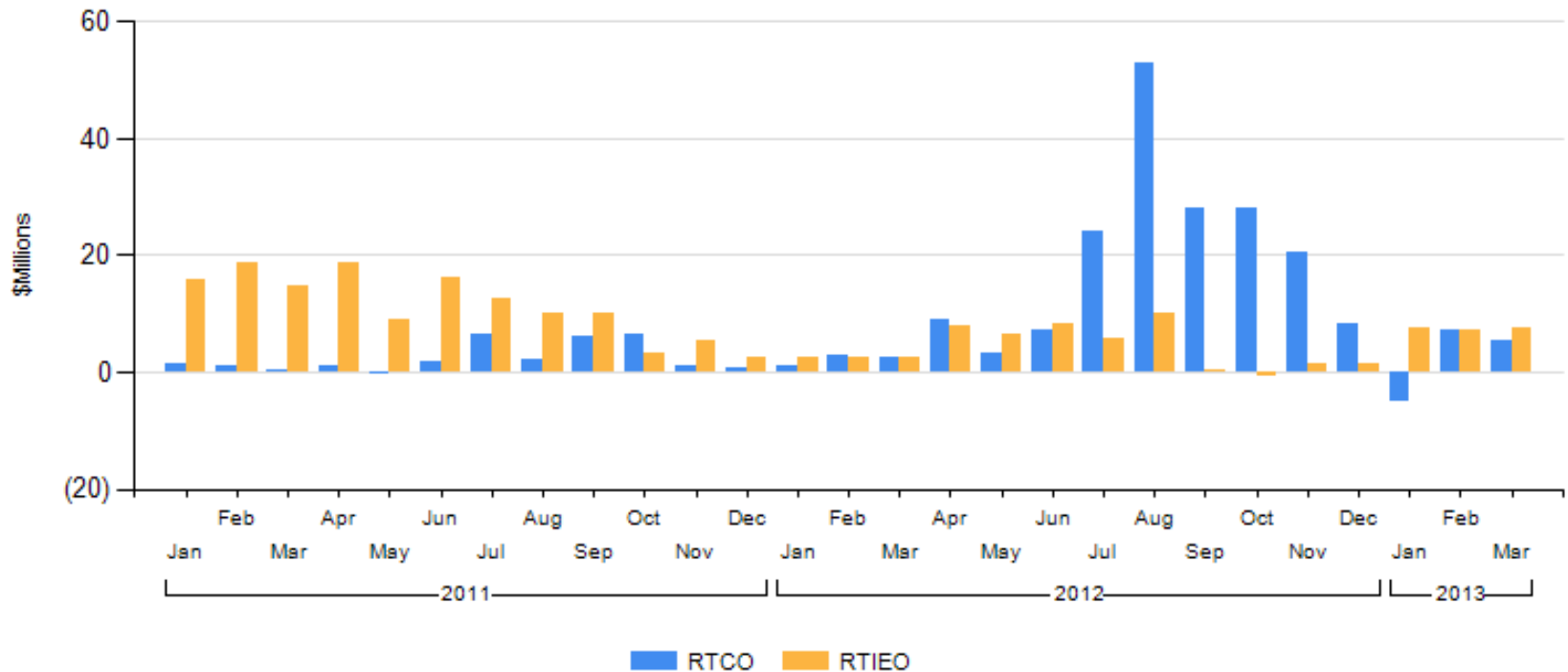


Monthly average of RTD Intervals with insufficient down ramping capacity continued to stay at low level.

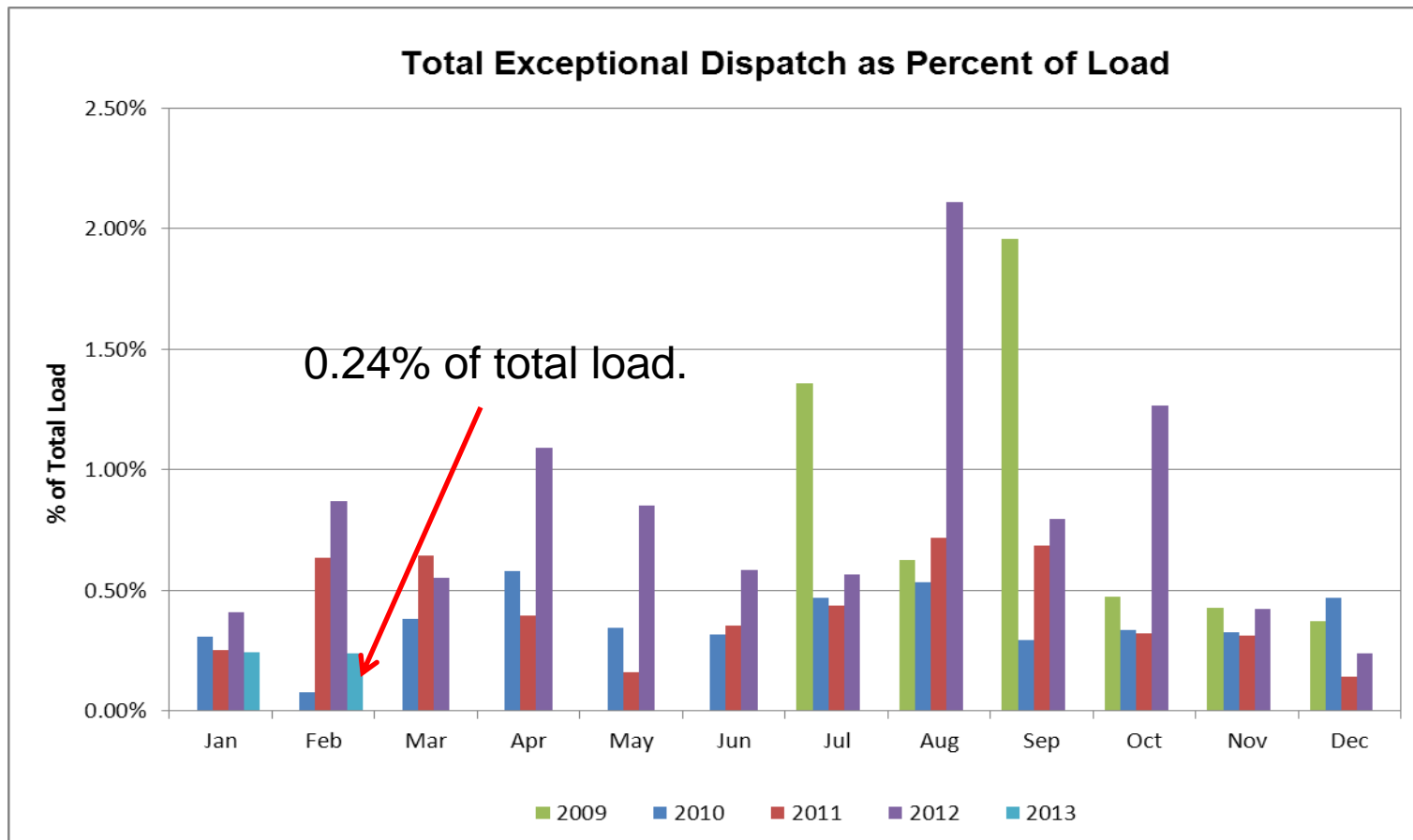


Real-time congestion offset and imbalance energy offset costs stabilized in Q1 2013.

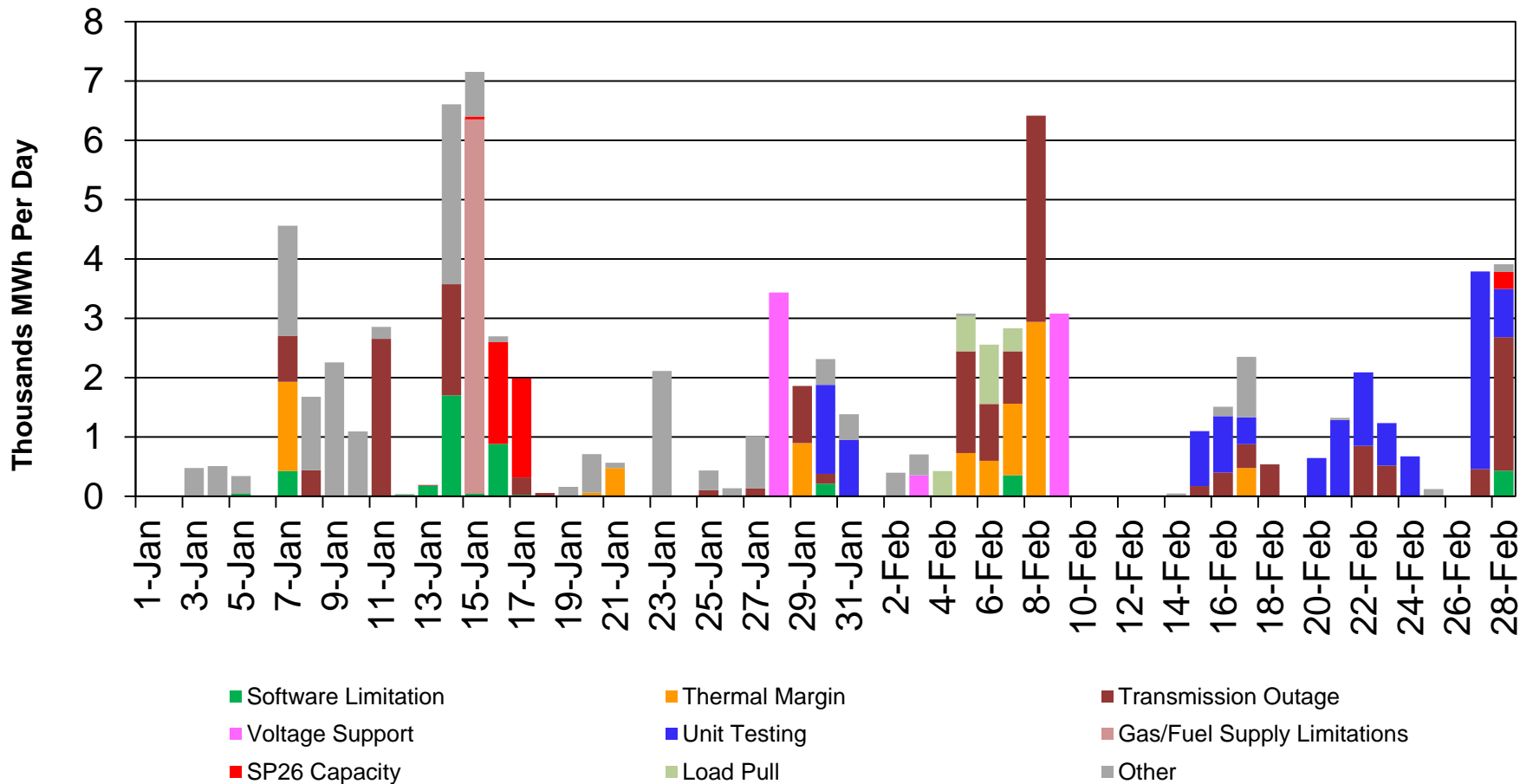
Real-Time Congestion and Energy Imbalance Offset Cost



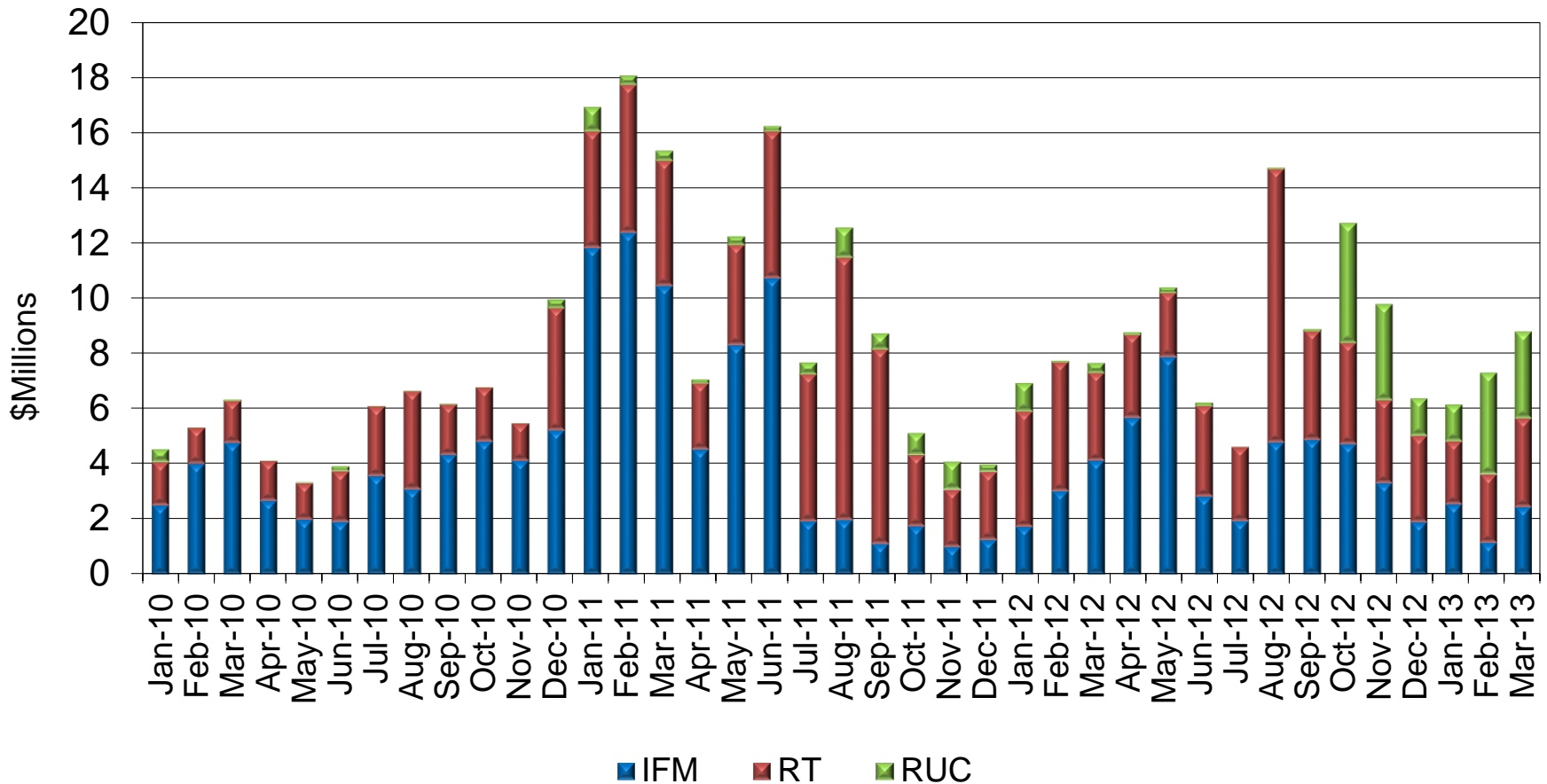
Exceptional dispatch volume continues to be lower than same periods of previous years.



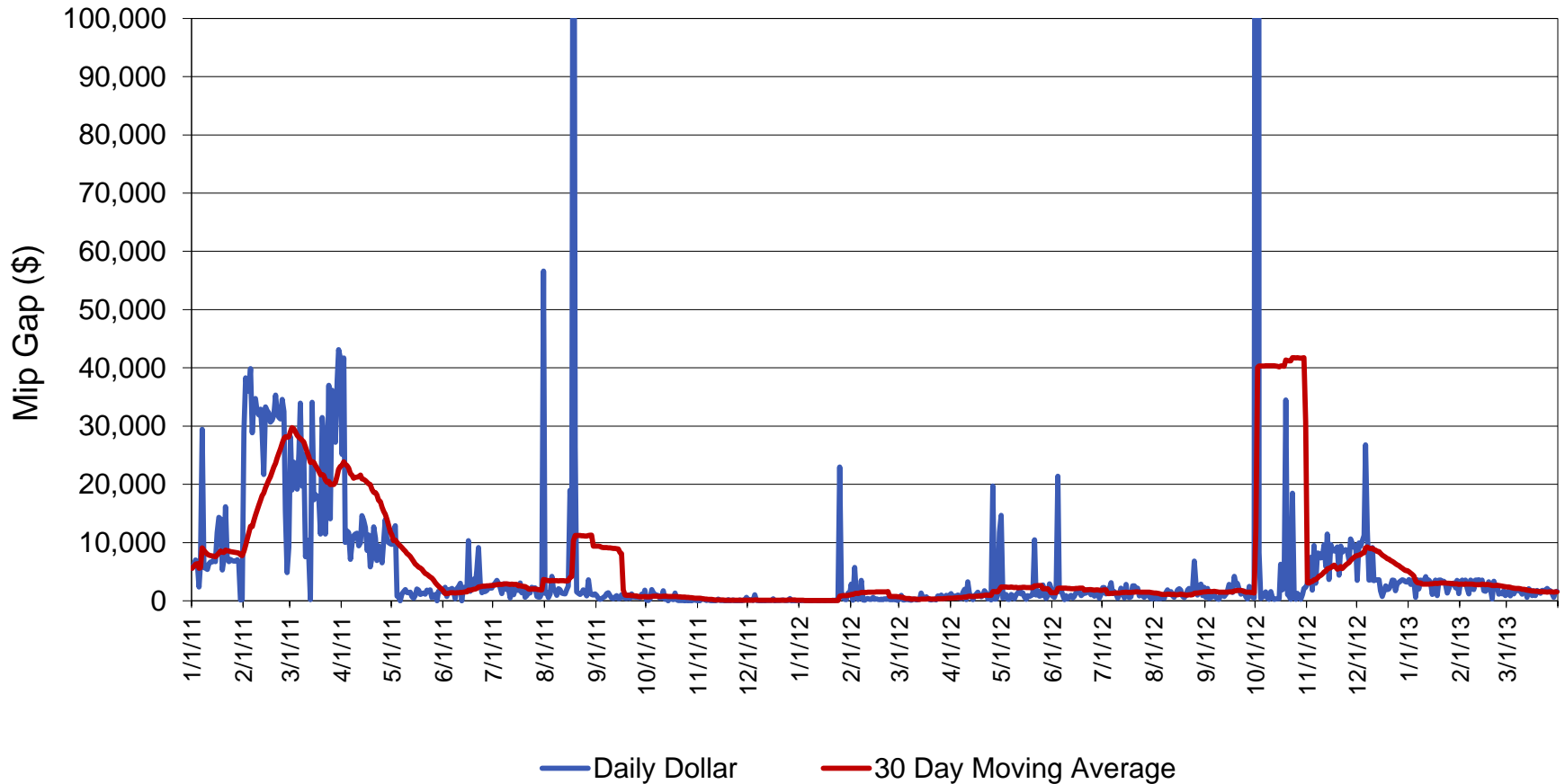
Daily exceptional dispatches in MWh – by reason



Bid cost recovery (BCR) costs increased in the last two months.

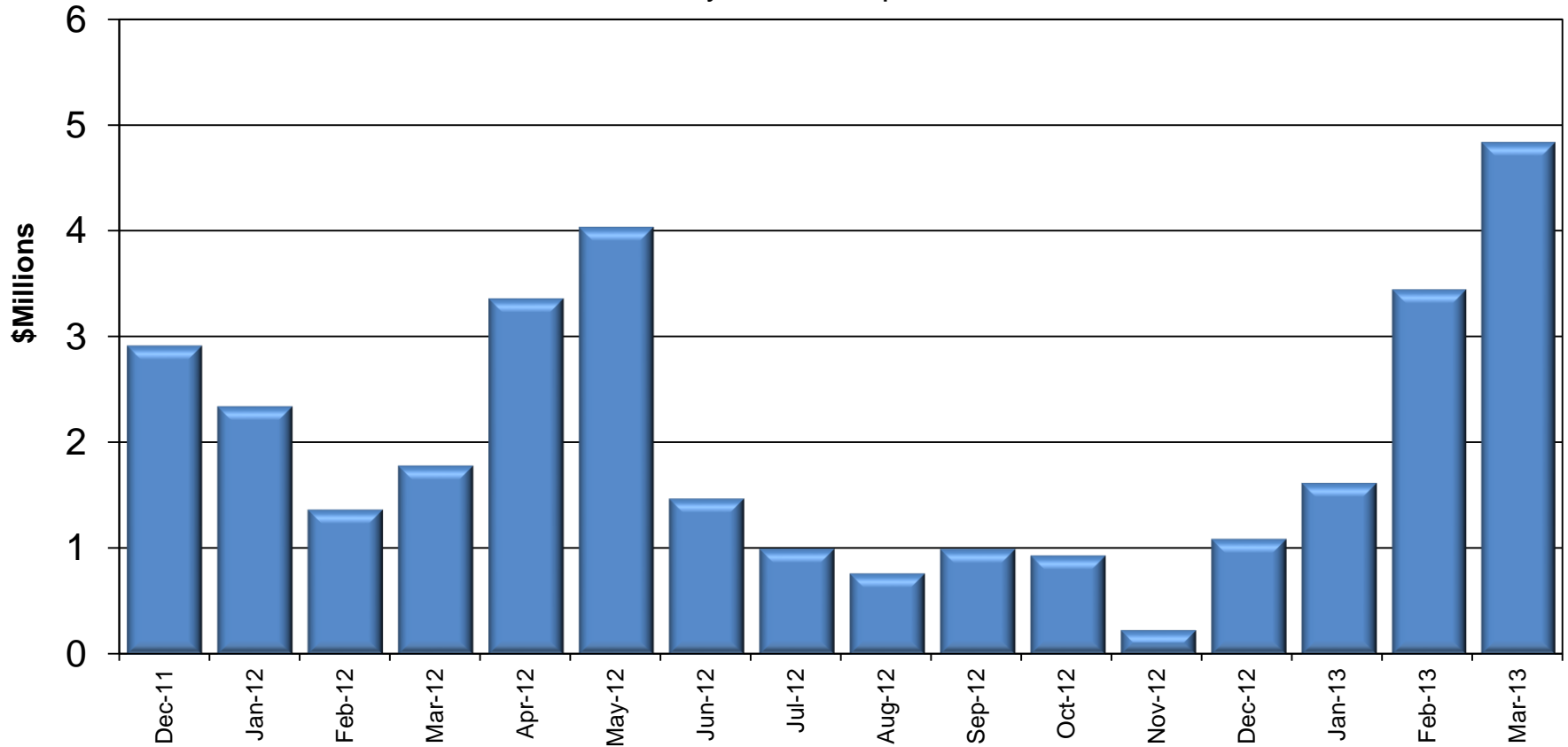


Good MIP gap performance in February and March.

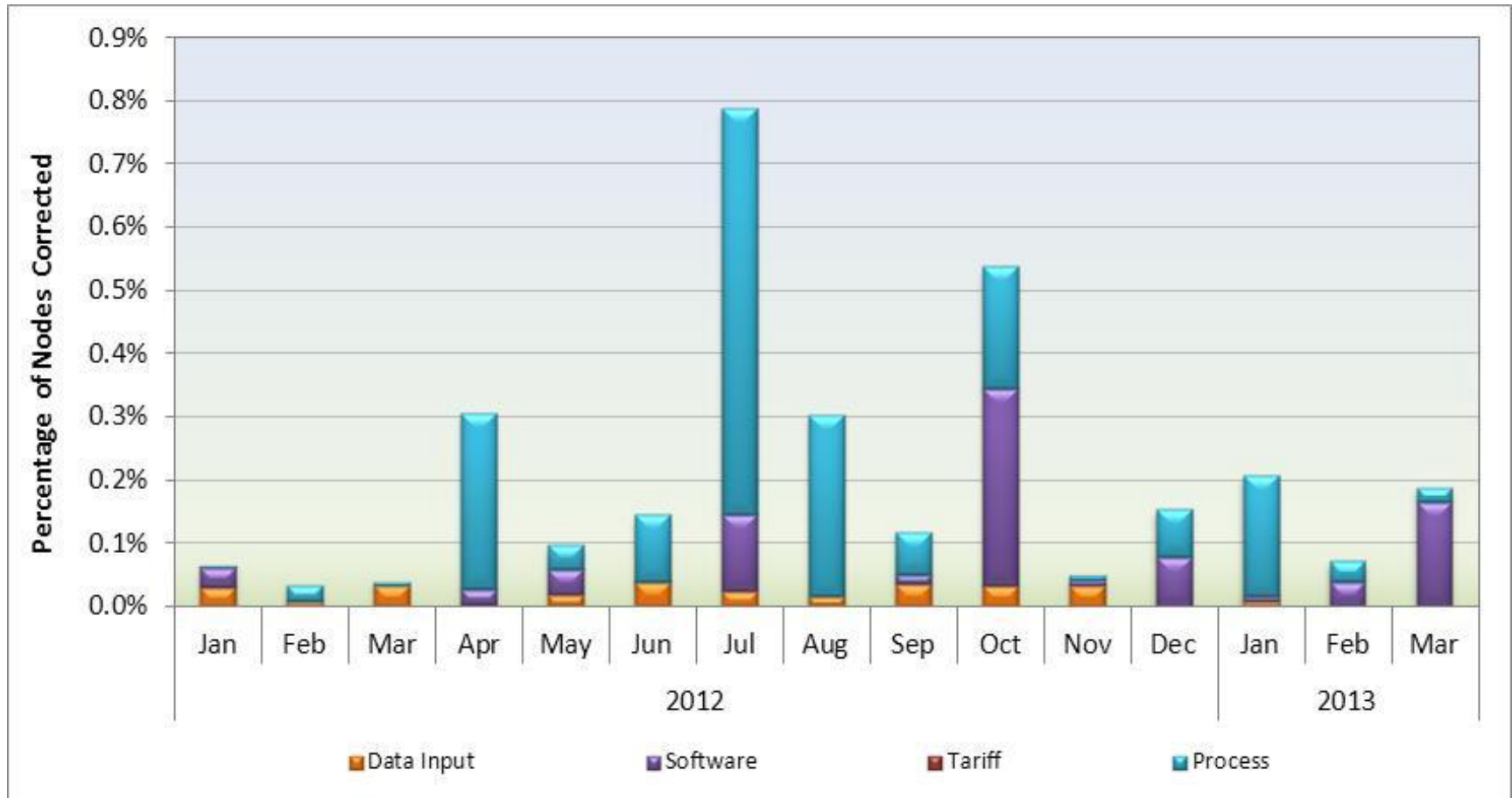


Flexi-ramp constraint costs trended upward since last November.

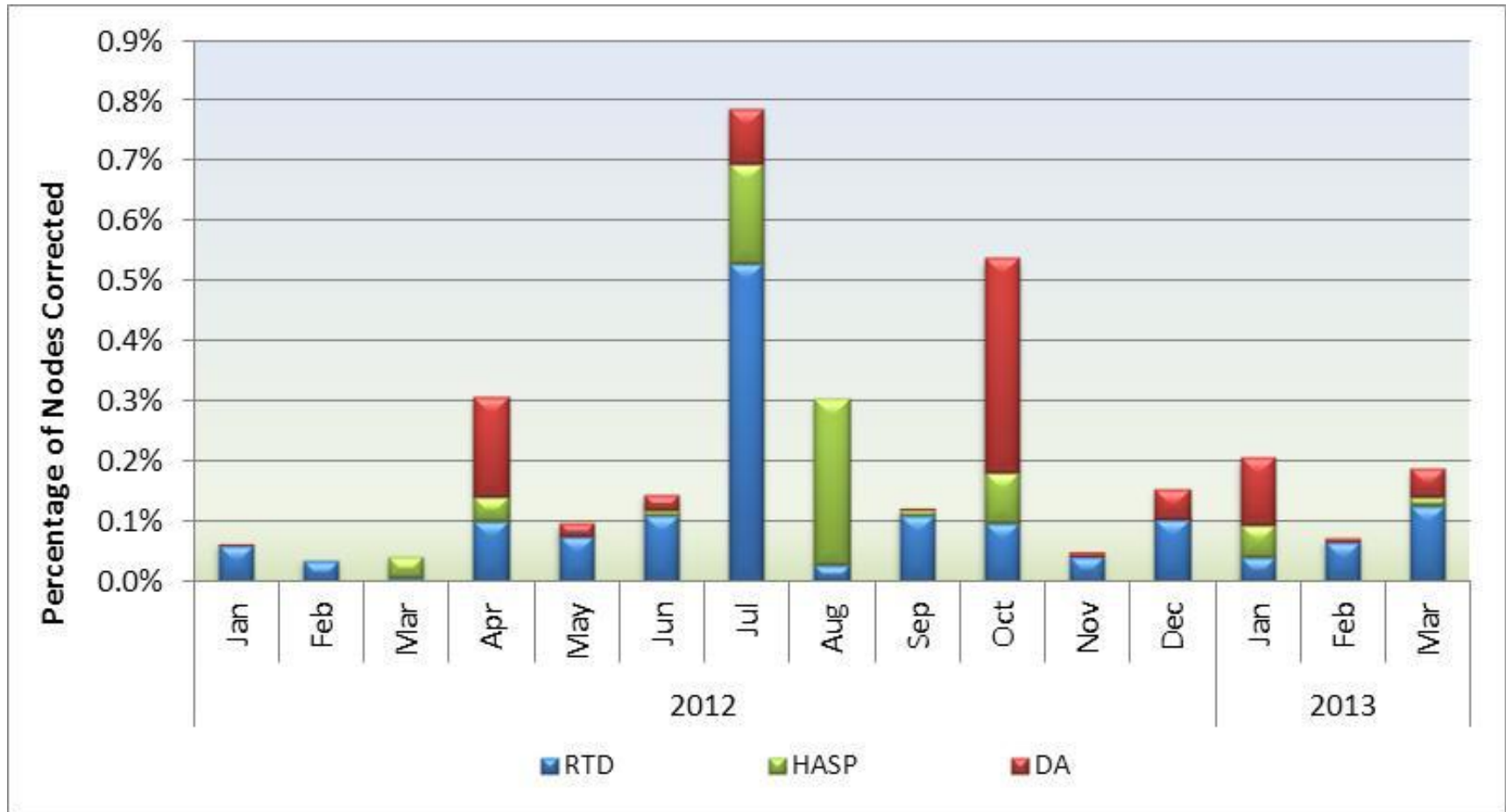
Monthly Flexi-Ramp Cost



Price corrections increased in March.



Price corrections increased in March.



Policy Update

Brad Cooper

Manager, Market Design and Regulatory Policy

Market design initiatives coming soon

- Multi-year forward reliability capacity pricing mechanism
 - Targeted to start Late April – May
- Interconnection Process Enhancements
 - Targeted to start in April
- Load Granularity Refinements
 - Targeted to start May-June
- Reliability Demand Response and PDR - Order 745 Compliance Mod
 - Targeted to start July

Market initiatives going to the Board for approval

Initiative	Board Presentation
FERC Order 764 Market Changes	May
Contingency Modeling Enhancements	September
Interconnection Process Enhancements	September
Energy Imbalance Market	November
Flexible Resource Adequacy Criteria and Must Offer Obligations	November
Reliability Demand Response and PDR - Order 745 Compliance Mod	November
Load Aggregation Point Granularity	December

Technical Updates

Khaled Abdul-Rahman, Director

George Angelidis, Principal

Li Zhou, Senior Advisor

Power Systems Technology Development

RIMPR1 and BCR Mitigation

- BCR Separation and Uplift Allocation
 - IFM BCR will not be netted with RUC/RTM BCR
 - RUC and RTM BCRs will be netted together
 - IFM, RUC and RTM BCR uplifts will continue to be allocated separately in the same logic as in production

RIMPR1 and BCR Mitigation *...continue*

- Day-ahead (DA) and Real-time (RT) Metered Energy Adjustment Factor (MEAF)
 - DA MEAF calculated very different from today
 - Real-time MEAF applies to RUC/RT minimum load cost
 - Real-time MEAF applies to DA minimum load cost if unit is committed in DA and de-committed in RT, which includes MSG DA minimum load cost if unit is committed in DA higher configuration and lower in RT

- DA and RT Minimum Load Cost (MLC)
 - If a unit is committed in DA and de-committed in RT, a negative RT MLC will be generated;
 - If a MSG is committed in DA higher configuration and RT lower configuration, a negative RT MLC will be generated;

RIMPR1 and BCR Mitigation *...continue*

- Detection of Actual Startup and MSG Transition
 - Startup: Use revenue meter to ensure,
Offline before startup time And
Online in the commitment period;
 - MSG transition: Use revenue meter to ensure,
in From-configuration before transition And
in To-configuration after transition;

RIMPR1 and BCR Mitigation

...continue

- Expected Energy Algorithm
 - Residual: To detect,
 - Ramping from more than one hour before or after
 - Ramping due to Pmin re-rate;
 - Ramping due to Exceptional Dispatch
 - Optimal Energy: To detect,
 - Ramping due to Pmin re-rate;
 - Ramping due to Exceptional Dispatch

RIMPR1 and BCR Mitigation *...continue*

- External Report to support shadow settlement
 - RTPD Advisory Schedules
 - Startup or transition period before the commitment
 - Energy Allocation on default energy bid curve

RIMPR1 and BCR Mitigation

...continue

- Upcoming Posting
 - External Business Specification Requirement
 - Expected Energy Algorithm (BPM change)
 - Commitment Cost Rule Change (BPM change)
 - CMRI Report Specification and BPM change
- Technical Update in June MAPP meeting

RIMPR1 and BCR Mitigation

...continue

- Questions/Answers

Full Network Model Expansion

Khaled Abdul-Rahman, Director

George Angelidis, Principal

Li Zhou, Senior Advisor

Power Systems Technology Development

Background

Arizona-Southern California Outages on 9/8/11

Causes and Recommendations*

- ◆ Finding 2: Lack of Updated External Networks in Next-Day Study Models
- ◆ Recommendation 2: TOPs and BAs should ensure that their next-day studies are updated to reflect next-day operating conditions external to their systems, such as generation and transmission outages and scheduled interchanges, which can significantly impact the operation of their systems. TOPs and BAs should take the necessary steps, such as executing nondisclosure agreements, to allow the free exchange of next-day operations data between operating entities. Also, RCs should review the procedures in the region for coordinating next-day studies, ensure adequate data exchange among BAs and TOPs, and facilitate the next-day studies of BAs and TOPs.

*Source: <http://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-nerc-report.pdf>

Background (continued)

Arizona-Southern California Outages on 9/8/11

Causes and Recommendations*

- ◆ Finding 11: Lack of Real-Time External Visibility
- ◆ Recommendation 11: TOPs should engage in more real-time data sharing to increase their visibility and situational awareness of external contingencies that could impact the reliability of their systems. They should obtain sufficient data to monitor significant external facilities in real time, especially those that are known to have a direct bearing on the reliability of their system, and properly assess the impact of internal contingencies on the SOLs of other TOPs. In addition, TOPs should review their real-time monitoring tools, such as State Estimator and RTCA, to ensure that such tools represent critical facilities needed for the reliable operation of the BPS.

*Source: <http://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-nerc-report.pdf>

Primary Objectives

- Improve reliability and market solution accuracy
 - ◆ accurate loop flow modeling
 - ◆ enhanced security analysis
 - ◆ accurate High Voltage Direct Current (HVDC) model
 - ◆ better analysis and outage coordination

Full Network Model Additions

- Include sufficiently detailed model surrounding CAISO to accurately account for loop flow
- Phased expansion conditional on available telemetry and outage information
 - ◆ Reasonably accurate State Estimator solution
- Ultimate goal: entire WECC in the model

Market Data Model Changes

- Scheduling Point changes
 - ◆ New Scheduling Point definition:
 - Generation Aggregation Point (GAP) for each BAA in FNM
 - Default Generation Distribution Factors
 - Generic System Resource for radial ties at FNM boundary
 - ◆ No registered resources (no resource ids)
 - ◆ Any SC can submit physical/virtual import/export bids
- New Load Aggregation Points (LAPs)
 - ◆ Load Aggregation Point defined for each BAA in FNM
 - Default Load Distribution Factors

Bid Identification Changes

■ Bid Identification

◆ Market Id

- DAM or RTM, Trading Day or Trading Hour

◆ SC Id

◆ Location Id

- Resource Id, Scheduling Point, LAP, or Trading Hub

◆ Bid Type

- Physical or virtual, supply or demand, firm/non-firm, etc.

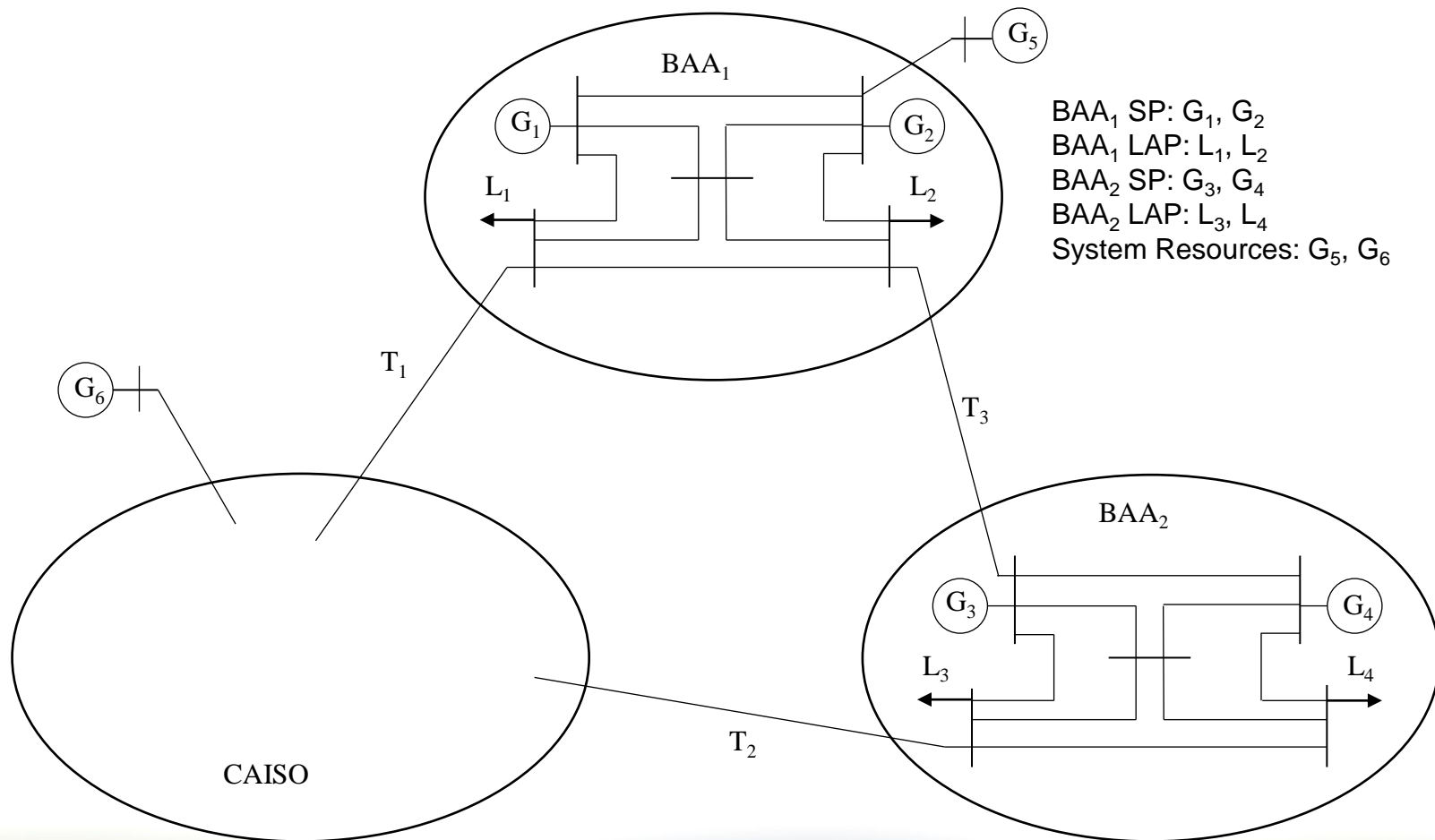
◆ Intertie Id for physical import/export bids

- Used for schedule tagging and scheduling limit constraints

New Resources

- Supply Resources outside CAISO
 - ◆ BAAs included in the FNM
 - Detail model and resource id for dynamic resources
 - Simple model without resource id for static resources
 - ◆ FNM boundary
 - Detail model and resource id for external dynamic resources
 - Simple generic model without resource id for static import/export bids and for compensating injections
- Demand Resources outside CAISO
 - ◆ Load Aggregation Point for each BAA
 - BAA load forecast distributed within the BAA

Full Network Model Expansion Example



Intertie Congestion Management

- Two constraints enforced on each CAISO tie:
 - ◆ Scheduling limit based on declared intertie in bids
 - Physical import/export energy schedules and ancillary services awards
 - Entire schedule/award is constrained (no shift factors)
 - Import and export schedules net out
 - Ancillary services awards do not create counter flow capacity
 - Regulation Down (export capacity) does not net with upward ancillary services (import capacity)
 - ◆ Physical limit based on actual power flow
 - Physical and virtual import/export energy schedules
 - Schedule contributions based on shift factors

High Voltage Direct Current (HVDC) Link Model

- Replace HVDC link with algebraic injections at converter stations
 - ◆ Free variables (no cost in objective function)
 - ◆ Balanced by constraint approximating DC losses
 - ◆ Allow omnidirectional power flow
- Internal HVDC link (Transbay cable)
 - ◆ Injection limited by HVDC power flow capability
- HVDC intertie (PDCI, InterMountain-Adelanto)
 - ◆ Injection limited by associated import/export schedules
 - ◆ Financial right for converter station LMP difference

Market Clearing

- Base schedule calculation for external BAAs
 - ◆ Demand forecast and historical generation patterns
 - ◆ AC power flow solution with net interchange control
- Import/export schedules (cleared bids) superimposed on base schedules
- Congestion management on CAISO network and CAISO interties
- Ignore external transmission loss impact on LMPs

Voice of the Customer

Tom Doughty, Director
Customer Service & Stakeholder Affairs

Release Plan Updates

Janet Morris, Director
June Xie, Sr. Advisor
Program Office

The ISO offers comprehensive training programs

Date	Training
April 9	Introduction to ISO Markets (on-site)
April 10, 11	ISO Market Transactions (on-site)
April 18	Welcome to the ISO (webinar)
April 23	Settlements 101 (on-site)
April 24	Settlements 201 (on-site)

Training calendar - <http://www.caiso.com/participate/Pages/Training/default.aspx>
Contact us - markettraining@caiso.com

Release Plan – 2013

- **Spring 2013**
 - MSG Phase 3 deployment
 - FERC Order 755 – Pay for Performance
 - LMPM Enhancements Phase 2 / Exceptional Dispatch Mitigation in Real Time
 - Price Inconsistency Market Enhancements (not including bid floor cap)
 - FERC Order 745: Changes to the DR Compensation for PDR
 - CMRI UI upgrade (does not impact API)
 - Settlements Quarterly Release (4/1/2013)
- **July 2013**
 - Access and Identity Management (independent effort)
- **Fall 2013**
 - Post Emergency Filing BCR changes / Mandatory MSG is combined with RIMPR-Phase 1 / BCR Mitigation Measures / Bid Floor Cap
 - Circular Scheduling
 - Commitment Cost Refinements (remaining scope)
 - Ancillary Services Buy-Back
 - RIMS Generation
 - PIRP Logic Change
- **TBD**
 - Replacement Requirements For Scheduled Generation Outages Phase 2
 - Contingency Modeling Enhancements
 - DRS API deployment

Release Plan – 2014 (proposed)

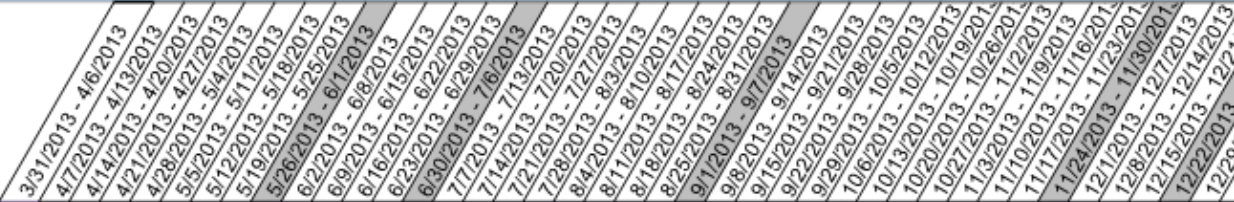
- **Spring 2014**
 - FERC Order 764 Compliance / 15 Minute Market / Dynamic Transfers
- **Fall 2014**
 - Flexible Ramping Product
 - iDAM (simultaneous IFM and RUC)
 - Energy Imbalance Market (EIM)
- **Subject to further release planning:**
 - Outage Management System (Scoping phase started January 22, 2013 for 8 weeks)
 - Enterprise Model Management System
 - Subset of Hours
 - Flexible Resource Adequacy Criteria and Must Offer Obligation
 - Flexible capacity and local reliability resource retention (FLRR) mechanism - rejected

2013 Release Schedule

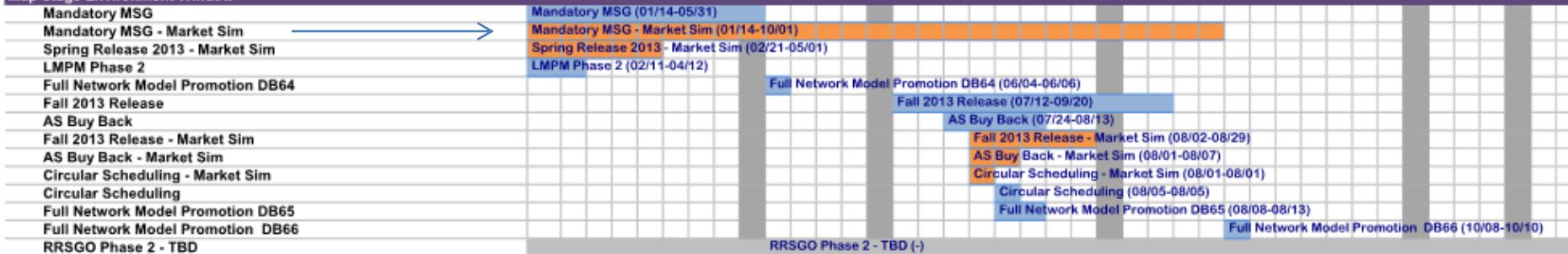


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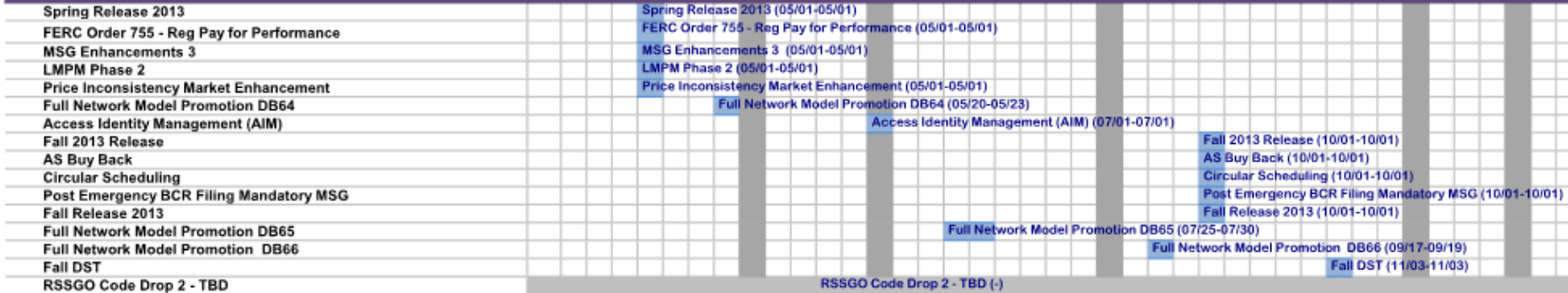
Legend	
Market Simulation	
CA ISO Holiday	
Deployment Week	



Map Stage Environment Window



Production Environment Window



<http://www.caiso.com/Documents/ReleaseSchedule.pdf>

Note: SIBR-Lite is no longer available.





*Mandatory MSG Market Sim occurs one week per month through October 1st 2013.

Spring 2013 Release – RDT and API Versioning Alert








RDT	Versioning
Generator V7.0	The ISO will deprecate the current production version of the GRDT with the 2013 Spring Release and will only support a single version which includes CERT_REG_DOWN and CERT_REG_UP, no longer supporting CERT_REG. The ISO will only be supporting v7.0 (previously v6.5) of the GRDT UI and V1 (previously v20121001) of the GRDT API.
IRDT	The ISO will continue to support 2 versions of the IRDT which is not being affected by the Spring Release.

On 4/7/13, MCI will migrate all Generators and Tie Gens to the new RDT version 7.0 regardless of whether or not they are certified for Regulation. Participants, from that point forward, will need to use version 7.0 to download their RDT data or when submitting revised RDT data using the API or User Interface.












Spring 2013 – 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
Business Process Changes	Not Applicable
Board Approval	Not Applicable
External Business Requirements	June 15, 2012 (updates made to document) 
Registration Form	Draft Available 7/13/12 (subject to change before Market Simulation) 
Market Simulation	Registration Due February 1 st , 2013  Unstructured – March 11 - 21, 2013 
Tariff	Not Applicable
Production Activation	May 1, 2013

Spring 2013 – FERC Order 755 pay for performance

Milestone	Description/Date
Application Software Changes	<p>SLIC – Provide a regulation outage flag CMRI : provide DA and RT regulation up/down mileage price and awards (DM, UM) 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; provision of compare and validate reports, ability to cancel batches OASIS: provide DA regulation up/down mileage price (DMR, UMR, DDMP, DUMP, RDMP, RUMP) Settlements : calculate mileage payment, mileage cost allocation and GMC for mileage bids SIBR: receive and validate regulation up/down mileage bid</p>
BPM Changes	<p>Market Operations Market Instruments Settlements & Billing Definitions & Acronyms Outage Management</p>
Business Process Changes	<p>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</p>
External Business Requirements	<p>June 7, 2012 February 15, 2013 (last update) </p>
Technical Specifications	<p>Nov 16, 2012- MasterFile technical specifications, SIBR rules, charge code list  Jan 15, 2013 – Settlements configuration guides  Jan 7, 2013 – SLIC, OASIS and CMRI technical specifications  April 4, 2013 – SLIC market Notice V5.0.4 release </p>
External Training	<p>February 14, 2013 http://www.caiso.com/Documents/Pay-PerformanceRegulationFERC_Order755Presentation.pdf </p>
Market Simulation	<p>March 11, 2013 – March 22, 2013 Structured Scenario 3/14 posted production mileage data 4/4 </p>
Production Activation	<p>May 1, 2013 FERC accepted compliance filing 3/27/13</p>

Spring 2013 – LMPM Enhancements (Phase 2) and Mitigation for Exceptional Dispatch in Real Time





Milestone	Date	
Application Software Changes	<p>Real-Time Market: MPM for 15 min. DCPA for HASP and 15 min. and create and use Default Competitive Constraint List</p> <p>OASIS: Display LMPM-related components for nomogram & intertie shadow prices, competitive paths for real-time, and default competitive constraint list</p> <p>CMRI : Display real-time mitigated bid curve</p>	
BPM Changes	<p>Market Operations</p> <p>Market Instruments</p>	
Business Process Changes	<p>Real Time Market & Grid</p> <p>Manage Real Time Market- After Close of Market</p> <p>Manage Real Time Operations- Generation Dispatch</p>	
Board Approval	<p>July 14, 2011 (LMPM P2)</p> <p>December 14, 2012 (Mitigation of ExD in RT)</p>	 
External Business Requirements	<p>November 1, 2012 (LMPM P2)</p> <p>January 8, 2013 (release update for Mitigation for ExD in RT)</p>	 
Tariff (includes Mitigation for ExD in RT)	<p>Post Draft Tariff December 18, 2012</p> <p>Stakeholder Comments (January 7, 2013) and Call (January 15, 2013)</p> <p>Post Revised Draft January 28, 2013</p> <p>Filed with FERC February, 21 2013</p>	   
OASIS/ CMRI Technical Specifications	January 8, 2012	
Market Simulation	Open March 11, 2013, Structured scenarios March 20-21, 2013	
Updated BPMs	March 8, 2013 Posted in PRR process	
Production Activation	Spring Release 2013 (May 1, 2013)	

Spring 2013 – Price Inconsistency Market Enhancements

Milestone	Date
Application Software Changes	IFM/RTM: <ul style="list-style-type: none"> - Use both MW awards and clearing prices from the pricing run - Use ANode prices for settlements of bids at default load aggregate points and trading hubs, allowing the ISO ability to generate an Anode for the real-time markets.
BPM Changes	Market Operations; Settlements and Billing
Business Process Changes	N/A
Board Approval	November 1, 2012 
External Business Requirements	December 19, 2012 February 11, 2013 – Updated with Tariff  
Updated BPMs	March 8, 2013 
Market Simulation	March 11, 2013 – March 22, 2013 
Tariff	February 19, 2013 
Production Activation	Spring Release 2013 (May 1, 2013)

Spring 2013 Release – DR Net Benefits Test

FERC Order 745 Compliance – DR compensation in organized wholesale Markets

Milestone	Date
Application Software Changes	<ul style="list-style-type: none"> Change Settlement Charge Codes (RT Energy Pre-Calc, CC6806) to comply with guidance issued in FERC order 745
BPM Changes	Settlement Configuration Guides
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	September 27, 2012 
Production Deployment	Spring release 2013
Production Activation	Retroactive settlement dating back to effective trade date Dec 15, 2011 

Replacement Requirements for Scheduled Generator Outages

Market Notice – RAAM Production Fix Deployment

- <http://www.caiso.com/Documents/ResourceAdequacyAvailabilityManagementUpdatedProductionUserInterface-MAPStageAPI.htm>
- Updated Resource Adequacy Availability Management (RAAM) application user interface to the production environment on April 1, 2013
- Effective immediately, generator owners must enter all substitutions or replacements through the RAAM user interface until the updated API is deployed to production.
- This change eliminates the practice of emailing the reliability requirements mailbox for ISO manual entry into RAAM.
- The new RAAM user interface has a Yes or No field to designate if the submission is a replacement for a planned outage. The interface defaults this field to No if not otherwise selected, indicating that the request is a substitution for a forced outage.

RAAM API

- http://www.caiso.com/Documents/InterfaceSpecification_RAAM_Version1_9Redline.pdf
- An updated application programming interface (API) will be available in MAP Stage for user testing prior to production implementation (anticipated to be available after next MAP Stage outage).
- More information about API availability in MAP Stage will be provided at Spring 2013 Release Market Simulation calls (next on Thursday, April 4 at 1 pm)

Spring 2013 Release - CMRI Affected APIs (FERC755 & LMPM)

Market notice: http://www.caiso.com/Documents/Spring2013ReleaseCMRI6_8_0-APISupport.htm

Report	Release	Affected API Versions	Availability as of Spring 2013
MarketAwards	GoLive	RetrieveMarketAwards_PTR_AP	Version will be retired
	MSG	RetrieveMarketAwards_PTRv20091101_AP	Existing version will remain supported
	Spring 2013	RetrieveMarketAwards_PTRv1_AP RetrieveMarketAwards_PTRv1_DocAttach_AP	New version will be supported
Schedule Prices	GoLive	RetrieveSchedulePrices_PTR_AP	Existing version will remain supported
	Spring 2013	RetrieveSchedulePrices_PTRv1_AP RetrieveSchedulePrices_PTRv1_DocAttach_AP	New version will be supported
MPMResults	GoLive	RetrieveMPMResults_PTR_AP	Version will be retired
	MSG	RetrieveMPMResults_PTRv20091101_AP	Existing version will remain supported
	Spring 2013	RetrieveMPMResults_PTRv1_AP RetrieveMPMResults_PTRv1_DocAttach_AP	New version will be supported

Spring 2013 Release - CMRI Affected APIs

Spring 2013 "v1" API version technical docs posted:

CMRI 6.8.0 Release Notes document

http://www.caiso.com/Documents/ReleaseNotes_CMRI_6_8_0_v1.pdf

CMRI Spring 2013 Interface Specifications document

<http://www.caiso.com/Documents/CMRIInterfaceSpecificationsSpring2013Release.pdf>

CMRI Spring 2013 Artifacts Package

<http://www.caiso.com/Documents/CMRIArtifactsPackageSpring2013Release.zip>

Market participants currently utilizing the MarketAwards and MPMResults GoLive API versions must upgrade to either the MSG or (preferably) the v1 versions to continue retrieving market results from the ISO.


Spring 2013 – Market Simulations

Comprehensive Spring Release Market Simulation Plan –

<http://www.caiso.com/Documents/Spring%202013%20release%20-%20plans>

- **Spring 2013 Initiatives Market Simulation Structured / Unstructured Scenarios**
 - FERC Order 755 - Pay for Performance - Successfully executed Scenario TD 3/14
 - LMPM Enhancements Phase 2 - Scenario's to execute TD 3/20 and 3/21
 - MSG Phase 3 - Unstructured simulation
 - Mandatory MSG - Unstructured Simulation
 - Price Inconsistency Market Enhancements (not including bid floor cap) - Unstructured Simulation
 - Replacement Requirements for Scheduled Generation Outages Phase 2 - TBD
 - FERC Order 745 DR Net Benefits Test - Code active in MAP Stage
- **Spring 2013 Initiatives Market Simulation Timelines**
 - FERC Order 755 - Pay for Performance - 3/11 through 3/22
 - LMPM Enhancements Phase 2 with Exceptional Dispatch Mitigation in Real Time - 3/11 through 3/22
 - MSG Phase - 3/11 through 3/22
 - Price Inconsistency Market Enhancements - 3/11 through 3/22
 - Mandatory MSG - One week a month Market Simulations, from now until October 1st, 2013
 - Replacement Requirements for Scheduled Generation Outages Phase 2 - TBD
 - FERC Order 745 - DR Net Benefits Test - Code active in MAP Stage

Spring 2013 – Access and Identity Management (AIM)

Milestone	Date
Application Software Changes	<p>The goal of the AIM project is to improve upon the existing approach for establishing, updating and terminating access to applications as well as providing visibility (transparency), ease of use and self-service where appropriate to POCs (Points of Contact), internal ISO users, business units and IT to manage this process from end to end.</p> <p>AIM: New system with UI and workflow</p>
BPM Changes	Congestion Revenue Rights; SC Certification and Termination; Candidate CRR Holder; Definitions and Acronyms
Business Process Changes	IT Access Mgmt. - Certificate based application access; Metering systems access
Board Approval	N/A
External Business Requirements	Jan 31, 2013 
Updated BPMs	TBD
Market Simulation	N/A
Tariff	N/A
Production Activation	July 1, 2013

Fall 2013 – RIMPR Phase 1 / BCR Mitigation / Bid Floor






	Implementation Impact Assessment
Application Software Changes	<p>IFM/RTM: Energy Bid Floor to -\$150/MWh</p> <p>MQS:</p> <ul style="list-style-type: none">• Modify MLC calculation and cost allocation rules.• Change DA MLC determination• Program PUIE calculation (may need to change MQS energy algorithm)• Split netting between DA and RT markets. <p>Settlements:</p> <ul style="list-style-type: none">• Requires a tune-up on formulas to determine the ON criteria for resources, and the eligibility for Bid Cost Recovery.• Modify and build up to 12 charge codes to implement new BCR netting rules and MLC.• Program PUIE (persistent UIE) calculation.• Program new RT PM (performance metric) calculation.• Offset DA MLC by MLE revenues.• Develop a number of BCR mitigation measurements <p>SIBR: SIBR rule changes will be needed to change the bid floor from -\$30 (soft) to -\$150 (hard).</p> <p>Reporting: Monthly Market Reports incorporating greater granularity in reporting BCR components have been made available.</p>

Fall 2013 – RIMPR Phase 1 / BCR Mitigation / Bid Floor



Milestone	Date
BPM Changes	Settlements & Billing, Market Operation, Market Instrument
Business Process Changes	Manage Billing and Settlements, Market Performance
Board Approval	Bid Floor and BCR netting: December 15-16, 2011 Post Emergency BCR / Mandatory MSG: Feb 15, 2012 BCR Mitigation Measures: December, 2012
External Business Requirements	April 19, 2013 (Post Emergency BCR posted on Feb 1, 2013)
Technical Specifications	TBD
Updated BPMs	TBD
Market Simulation	TBD
Tariff	April 29, 2013
Production Activation	Fall 2013 (October 1, 2013)






Fall 2013 – Circular Scheduling

Milestone	Date
Application Software Changes	<p>CAS: Identify the circular schedules MW, import/export resource IDs for the single e-tag, with source/sink at the same BAA; the BAA could be CAISO or other BAA; Exclude dynamic, DC segment, open intertie, Wheeling through for load.</p> <p>CRR Claw Back/MQS: Identify the SC's affiliation for single SC and circular schedule MW. Build new rule of calculate value the claw-back CRR in dollars.</p> <p>Settlement: Identify the SC's affiliation for single SC. Identify the circular schedule Import applicable IFM and HASP scheduled MW. Build Settlement rule the settle the import schedule at lower LMP of Import/export. Circular schedule is not eligible for BCR for the interval.</p>
BPM Changes	Market Operations, Market Instruments, Settlements & Billing
Business Process Changes	Manage Interchange Scheduling, Manage MQS, Manage Billing and Settlements
Board Approval	March 2012 
External Business Requirements	March 22, 2013 
Technical Specifications	No external system interface changes; draft configuration guides will be provided by 7/3/13
Updated BPMs	August 5, 2013
Market Simulation	Fall 2013
Tariff	Filed November 21, 2012 Approved January 30, 2013  
Production Activation	Fall 2013 (October 1, 2013) 

Fall 2013 – Commitment Cost Refinement

Milestone	Date
Application Software Changes	<p>Masterfile: Creation of new field to capture resource specific characteristics.</p> <p>Settlements: Operational Flow Orders, NOx, and Sox penalties must be submitted ex post under circumstances attributable to exceptional dispatch and real-time commitments. These costs will be included in a re-evaluation of the real-time BCR calculation for that day with the Operational Flow Orders (OFO) costs added into the calculation of the generator's net shortfall or surplus over that day. Must establish an interface in which Market Participants can enter data to flow directly to Settlements.</p> <p>The long-term service agreement costs refer to the major maintenance costs. The ISO is working with POTOMAC to develop a template and will share the template with Stakeholders at first quarter of 2013.</p>
BPM Changes	Market Instruments Billing & Settlements
Business Process Changes	Manage Reliability Requirements
Board Approval	May 2012 
External Business Requirements	March 29, 2013 
Technical Specifications	TBD
Updated BPMs	TBD
Market Simulation	TBD
Tariff	TBD
Production Activation	Fall 2013 Release (October 1, 2013)

Fall 2013 – AS Buy Back

Milestone	Description/Date
Application Software Changes	<p>SLIC: Operators have the ability to manually force a buy back due to resource or transmission constraints. These manually forced buy backs will be compiled in a new SLIC log, which shall include the modified AS quantity, the interval that the buy back is applied to, and the reason for the manual buy back.</p> <p>Settlements: Settlements will need to map to the new SLIC payload. Fourteen Charge Codes related ancillary services are impacted.</p>
BPM Changes	Settlements & Billing;
Business Process Changes	Manage Billing and Settlements
Board Approval	July 13, 2012 
External Business Requirements	February 28, 2013 
Updated BPMs	August 5, 2013
Technical Specifications	No external system interface changes; draft configuration guides will be provided by 7/2/13
Tariff	Filed January 3, 2013 Anticipating FERC decision in June 2013 
Market Simulation	Fall 2013
Production Activation	Fall 2013 Release (October 1, 2013)

Fall 2013 – RIMS Generation

Milestone	Date
Application Software Changes	RIMS Generation module will be changed, including a revamp of the external user interface. Changes include pre-programmed notifications (based on approaching deadlines, status changes, new project creation), canned reporting and ability to push reports to project contacts. External access will be granted with an ability to upload data and attachments directly to the system. Dashboard will be enhanced to provide accurate project statuses, filtering and export functions.
BPM Changes	N/A
Business Process Changes	Manage New Participating Generator Interconnections
Board Approval	N/A
External Business Requirements	April 8, 2013 
Technical Specifications	TBD
Updated BPMs	N/A
Market Simulation	TBD
Tariff	N/A
Production Activation	Fall 2013 Release (October 1, 2013)

Fall 2013 - PIRP Logic Change

Milestone	Date
Application Software Changes	<p>RTM: Dispatch VER based on its economic energy bid with the forecast as its Pmax.</p> <p>PIRP:</p> <ul style="list-style-type: none"> • Provide the hourly VER forecast for RTM. • Determine if the VER hourly eligibility in UIE monthly netting based on VER's RTM DOT and the hourly forecast • For the PIRP unit and/or hours that continues to use self schedule to participate, the existing production logic stays the same <p>Settlements:</p> <ul style="list-style-type: none"> • Perform PIRP resource monthly UIE netting based on the hourly eligibility determined by PIRP. <p>SIBR:</p> <ul style="list-style-type: none"> • Allow market participants to submit real time economic energy bids for VER
BPM Changes	Market Operations, Market Instrument
Business Process Changes	Manage Billing and Settlements, Market Performance
Board Approval	May 15, 2013
External Business Requirements	May 17, 2013
Technical Specifications	TBD
Updated BPMs	August 5, 2013
Market Simulation	Fall 2013
Tariff	NA
Production Activation	Fall 2013 (October 1, 2013)

Implementation Impact Assessment

Application Software Changes

IFM/RTM:

- A new 15-Minute market with financially binding energy and AS awards for internal generators, imports/exports, and participating loads.
 - Real time bid submission process remains same
 - Cleared against the CASIO forecast of real time demand
 - Executed 37.5 minutes prior to the start of the binding interval, 15 minutes earlier than the current 22.5 minute prior to the binding of RTUC run
 - Allow a number of bidding options for an intertie
 - A new hourly process to produce the advisory hourly block schedule for the non-dynamic intertie transaction that will be used for subsequent 15-minute market.
- Convergence bidding will be allowed on intertie scheduling point. All convergence bids will be settled between the day-ahead market and the 15-minute market
- The “physical only” constraint at the scheduling point of the dual constraints not enforced in the IFM but enforced in RUC.
- RUC establishes the number of eTags it can accept for day-ahead physical market awards.
- 15-minute market and 5-minute market dispatch VER based on its economic energy bid and use forecast as its upper operation limit
- Support Primary/Alternative ITC for DS/PTG

Spring 2014 release - FERC 764

Implementation Impact Assessment

Application Software Changes

CAS:

- Perform scheduling check-out based on the 15-minute based schedules and tag energy profile
- Perform the tag update/approval by the hourly deadline T-20 for various intertie bidding options
- Receive and consume the RUC cleared capacity for day-ahead tagging check-out purpose
- Receive and consume the RTPD 15-minute schedules for tagging check-out purpose
- Automatically match retag DS/PTG schedule from the primary ITC to the alternative ITC when the primary ITC become open

Settlements:

- 15-minute energy settlements will be based on the 15-minute schedule and the day-ahead energy schedule. 5-minute energy settlement will be based on the difference of 15-minute schedule and 5-minute dispatch. All metering related settlement will be changed to 5-minute base. Convergence bid settlement will be based on the 15-minute and day-ahead schedules. Real-time Inter-SC trades based on 15-minute price.

Metering:

- 10-minute metering data changed to 5-minute metering data

SIBR:

- Allow market participants to submit 5-minute VER forecast with a 2-hour look-ahead window
- Allow an intertie various additional bidding options:
 - An hourly block schedule
 - A single curtailment for the remainder of the hour with block schedule
 - Option to determine 15-minute market participation if not accepted in the hourly process

Spring 2014 release - FERC 764

Milestone	Date
BPM Changes	Settlements & Billing, Market Operation, Market Instrument
Business Process Changes	Manage Billing and Settlements, Market Performance
Board Approval	May 15, 2013
External Business Requirements	June 21, 2013
Technical Specifications	Date to be provided by 4/30 RUG meeting
Updated BPMs	TBD
Market Simulation	TBD
Tariff	Nov 2013
Production Activation	Spring 2014 (April 1, 2014)