California ISO

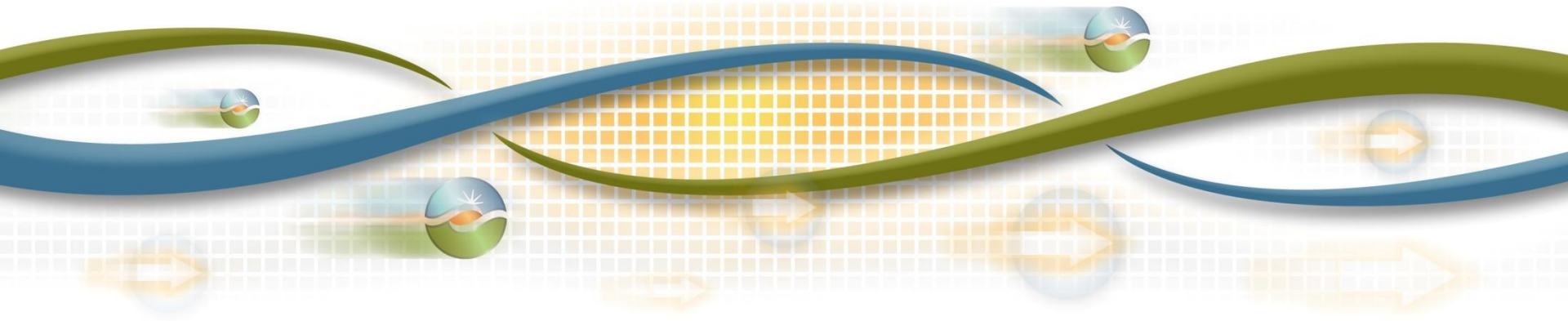## Release User Group Agenda

November 7, 2017   *10:00 a.m.–11:00 a.m.* (Pacific Time)

Web Conference Information	Conference Call Information
URL: https://www.connectmeeting.att.com Meeting Number: 8665282256 Access Code: 5251941	Domestic Call In: (866) 528-2256 International Call In: (216) 706-7052 Access Code: 5251941

Release User Group Agenda

Time	Topic	Facilitator
10:00 – 10:05	Agenda & ISO Roll call	Adrian Chiosea
10:05 – 10:45	Release Plan	Janet Morris Brett Bruderer Michael Lucas Joanne Alai Marcelo Da Costa Raymond Riley Marci Stuckey John Williams Christopher McIntosh Jami Herguth Prince Phillip Sandhya Balasubramanian Eureka Cullado Indu Nambiar Justin Wong LuAnn Rivera Craig Williams Trang Deluca

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The ISO offers innovative training programs

Date	Training All classes are offered at our Folsom, CA campus unless noted otherwise
Nov 8	Settlements 101
Nov 9	Settlements 201
Jan 11*	Welcome to the ISO (virtual instructor led training)
Feb 6-7*	Get to Know the ISO
Feb 8*	Settlements 101
Feb 9*	Settlements 201

*Registration to be open soon

The ISO's External Training & Readiness team provides quality training and readiness programs that successfully prepare Stakeholders to effectively engage with the ISO

Training calendar: http://www.caiso.com/participate/Pages/Training/default.aspx
Contact us: CustomerTraining@caiso.com
EIM computer based training courses: https://www.westerneim.com/Pages/Resources.aspx

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Release Plan 2017 - 2018

Independent 2017
- Black Start and System Restoration Phase 2
- Imperial Valley Phase Shifter Modeling
- SIBR UI Upgrade
- EIM 2017 Enhancements
- RAAIM Production Defects
- Deactivation of TLS 1.0 & 1.1
- OMS Generation Nature of Work Updates

Winter 2017
- EIM 2017 Enhancements
- EIM Winter 2017 Enhancements
- Energy Storage and DER Phase 1C
- RIMS Functional Enhancements
- RAAIM Scalable
- Reliability Services Initiative 2017
- EIM 2018 Idaho Power Company
- EIM 2018 Powerex

Spring 2018
- Commitment Cost Enhancement Phase 3
- Energy Storage and DER Phase 2
- EIM greenhouse gas compliance
- Capacity Procurement Mechanism – risk-of-retirement (no system changes expected)

Release Plan – 2018 and subject to further planning

Fall 2018 – tentative, subject to impact assessment
- Contingency Modeling Enhancements
- Commitment Costs and Default Energy Bid Enhancements – Ph. 1
- Aliso Canyon Phase 3

Spring 2019
- EIM 2019 Seattle City Light
- EIM 2019 Balancing Authority of Northern California (BANC) / SMUD
- EIM 2019 LADWP

Fall 2019 – tentative, subject to impact assessment
- Frequency Response Phase 2
- Commitment Costs and Default Energy Bid Enhancements – Ph. 2 (MPM)
- Generator Contingency and Remedial Action Scheme Modeling
- Congestion Revenue Right auction efficiency
- Flexible Resource Adequacy Criteria and Must-offer Obligation Phase 2
- Real-Time Market Enhancements
- Transmission Access Charge billing structure
- ADS User Interface Replacement

Spring 2020
- EIM 2020 Salt River Project

2017- Black Start and System Restoration Phase 2

Project Info	Details/Date
Application Software Changes	**Settlements:** • Modifications to existing charge codes for Black Start capacity and Black Start allocations will need to occur. **MPP (Market Participant Portal):** • Possibility to use current functionality for receiving RMR invoices for Black Start units.
BPM Changes	**Definitions & Acronyms:** • Revision of the following definitions to match the Tariff language: Ancillary Services (AS), Black Start Generator, Black Start Generating Unit, Interim Black Start Agreement, Reliability Services Costs **Settlements & Billing:** • Pending Settlements review. Revisions will be directly based on Tariff changes.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board approval	May 1, 2017	✓
BPMs	BPM Changes Required	TBD	
Configuration Guides	Publish draft Settlements Configuration Guides	TBD	
Request for Proposal (RFP)	Posted request for proposal documents	June 15, 2017	✓
RFP bids	Closure of RFP	July 31, 2017	✓
Tariff	File tariff	May 15, 2017	✓
	Filed tariff amendment related to cost allocation	Aug 3, 2017	✓
	Tariff approval	Nov 1, 2017	✓
Awards	Awards and final report	December 1, 2017	
Production	Settlements changes effective date	December 1, 2017	
	Settlements implementation	October 1, 2018	
	First Settlements cycle	December 1, 2018	

2017 – Imperial Valley Phase Shifter Modeling

Project Info	Details/Date
Application Software Changes	**Allow Market control the Phase Shifter (PST) and manage the power flow** **MF**: No MF system changes, only data changes to: define PST ID, tap max/min number, tap position change limit, parallel PST set **EMS**: Send the market optimized PST tap position to PST device operator through EMS for binding interval at the binding interval time stamp **DAM/RTM:** provide configuration option for PST optimization for each market Set Tap position as Integer Control Variable Include PST tap position movement from initial position impact on transmission flow constraint Enforce limits on tap position, enforce constraint for tap position movement Enforce constraint for Phase shifter's designated as parallel must be optimized at same tap position Publish Tap position for PST **CMRI**: Publish market solution of PST tap position for binding and advisory intervals for IFM, RTPD and RTD
BPM Changes	Market Operations

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
BPMs	Post BPM changes	09/01/2017	✓
External BRS	External Business Requirements	09/15/2017	✓
Tariff	File Tariff	N/A	
	Receive FERC order	N/A	
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Imperial Valley Phase Shifter Modeling	November 30, 2017	

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2017 – SIBR UI Upgrade

Project Info	Details/Date
Application Software Changes	**SIBR** – The CASIO will be upgrading the underlying SDK platform utilized for displaying the user interface. This latest SDK version will strengthen the security of the SIBR application and will improve compatibility with the latest version of Internet Explorer. It is anticipated no functional changes or API will be impacted by this upgrade.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	Publish Final Business Practice Manuals	N/A	
External BRS	Post Draft BRS	N/A	
Tariff	Receive FERC order	N/A	
Config Guides	Configuration Guide	N/A	
Tech Spec	Publish Tech Specs	N/A	
	Technical Specifications	N/A	
User Guide	SIBR User Guide	TBD	
MAP Stage	System available in MAP Stage	TBD	
Production Activation	SIBR UI Upgrade	TBD	

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2017 – EIM Enhancements 2017

Project Info	Details/Date
Application Software Changes	**Scope:** 1. EIM data report enhancements to support market participant and EIM entity settlements - display input Data of Flex Ramp Requirements on OASIS 2. Net Interchange histogram calculation updates 3. Publish all default commitment costs for proxy Startup Cost, proxy Minimum Load Cost, and proxy Transition Cost (only for MSG resource).
BPM Changes	Energy Imbalance Market: Net Interchange Histogram Market Instruments: Net Interchange Histogram Market Operations: Net Interchange Histogram
Business Process Changes	N/A

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	Jan 23, 2017	✓
	Post Updated (v1.2) External BRS to public site	Apr 10, 2017	✓
Tech Spec	Publish Technical Specifications (Master File)	Apr 10, 2017	✓
	Publish Updated Technical Specifications (Master File)	Jun 30, 2017	✓
	Publish Technical Specifications (OASIS)	Apr 07, 2017	✓
	Publish Updated Technical Specifications (OASIS)	Jun 23, 2017	✓
	Publish Technical Specifications (CMRI)	Apr 26, 2017	✓
	Publish Updated Technical Specifications (CMRI)	Jun 28, 2017	✓
Configuration Guides	Post Configuration Guides	June 27, 2017	✓
Market Simulation	Enhancements available in MAP Stage - OASIS - CMRI	Nov 6, 2017 Nov 15, 2017	✓
Production Activation	EIM Enhancements 2017 - OASIS - CMRI	Nov 15, 2017 Nov 30, 2017	

Project Info	Details/Date
Application Software Changes	**RAAIM (Resource Adequacy Availability Incentive Mechanism)** – California ISO intends to release several fixes for RAAIM production defects within the Settlements system. It includes formula fixes for • Applying outage exemptions for non-Resource Specific System RA Resources • Availability calculations for NGR REM with RA capacity • Exempting RMR resources from RAAIM • Resources being assessed in Real Time when it is a Long Start or Extremely Long Start resource, and also is eligible for RAAIM exemption for being a combined heat and power resource, QF resource, participating load that is pumping load, resource with acquired rights, or have pmax < 1.0 MW. Refer to CG PC RA Availability Incentive Mechanism v5.3

Milestone Type	Milestone Name	Dates	Status
Configuration Guides	Update Configuration Guide	Jun 23, 2017	✓
BPMs	Post Draft BPM Changes - Settlements & Billing	Aug 30, 2017	✓
External Validation	Validation using production data with the new calculation	Sep 12, 2017	✓
Production Deployment	Implement and deploy into Production revised charge codes per Fall release deployment plan.	Nov 1, 2017	✓
Production Activation	Revised RAAIM penalties and incentives become financially binding with re-settlement of 4/1/2017 going forward. Schedule of re-settlement statements will follow California ISO Payments Calendar	Apr 1, 2017	✓

Info	Details/Date
Summary	The California ISO will be deactivating Transport Layer Security (TLS) 1.0 and 1.1 in the market and performance (MAP) stage environment on date TBD 2017, and in the production environment on October 16, 2017 (TBD based on MAP stage). Deactivating these older TLS protocol versions aligns with industry best practices for security and data integrity. It is necessary for market participants to enable TLS 1.2 as soon as possible in browsers and APIs.
Details	The ISO will deactivating TLS 1.0 and 1.1 in the MAP stage environment on date TBD 2017, and in the production environment on October 16, 2017 (TBD based on MAP stage), and only TLS 1.2 will remain enabled. Deactivating these older TLS protocol versions aligns with industry best practices for security and data integrity. It is necessary for market participants to enable TLS 1.2 in browsers and application programming interfaces (APIs) as soon as possible in order to continue to access the MAP stage environment from date TBD onwards, and to continue to access the production environment from October 16 (TBD based on MAP stage) onwards. Market participants can enable TLS 1.2 now as the MAP stage and production environments currently allow TLS 1.2. Note: it isn't necessary for market participants to manually disable TLS 1.0 and 1.1 in browsers and APIs because the TLS handshake will negotiate the highest mutually available version. Once TLS 1.0 and 1.1 are deactivated in the MAP stage environment, the ISO encourages market participants to confirm successful connectivity to the MAP stage portal, portal application's user interfaces (browser UIs) and APIs prior to the production environment deactivation on October 16 (TBD based on MAP stage). Note: After TLS 1.0 and 1.1 are deactivated, market participants who cannot connect due to a version issue may receive errors depending on how they are connecting. Errors will likely include verbiage such as "wrong version", "unsupported negotiation", or "failed handshake". The Systems Access Information for Market Participants document contains the information to access the MAP stage and production environments. This document is available on the ISO website at http://www.caiso.com/Documents/SystemAccessInformation_Market Participants.pdf.
Market Notice	http://www.caiso.com/Documents/Deactiation-TransportLayerSecurityTLS10and11.html

Please refer to https://portalmap.caiso.com and market notice for updated MAP-Stage deactivation date

Spring 2018 – OMS Nature of Work Updates

Project Info	Details/Date
Application Software Changes	OMS Nature of Work updates are required to better identify reasons for outages. (1) CONTINGENCY RESERVES MANAGEMENT has been added for EIM entities, and (2) UNIT CYCLING is changed to 'TECHNICAL LIMITATIONS NOT IN MARKET MODEL' These enumerations are added to the OMS user interface and the technical specifications. Those who wish to make use of the new Natures of Work can do so as early as November 2017. The ISO requests that participants who use the UNIT CYCLING Nature of Work migrate to the new services by February 1, 2018; however, this is a minor version change, so prior versions will continue to be supported through fall 2018.
BPM Changes	N/A

Milestone Type	Milestone Name	Dates	Status
External BRS	External Business Requirements	Nov 2017	
External Report	Report on GHG Attribution Accuracy	Q4 2017	
Board Approval	Obtain Board of Governors Approval	NA	
	Post Draft BPM changes	NA	
Tariff	File Tariff	NA	
	Receive FERC order	NA	
Config Guides	Design review - BPM and Tariff SMEs	NA	
Tech Spec	Create ISO Interface Spec (Tech spec)	11/15/2017	
Market Sim	Market Simulation	11/15/2017	
Production Activation	New V2 version in production with backward compatibility through fall 2018	November 2017	

Product View - CMRI UI and API changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Service Name & Major Version	Minor Version	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
2017	EIM 2017	New	EIM Market	Adopt when ready	Tab: Default Bids New Report: Default Commitment Costs	retrieveExternalDefaultCommitmentCost_v1 retrieveExternalDefaultCommitmentCost_v1_DocAttach	20171001	*11/15/2017*	*11/30/2017*	v1.0 (Fall)	3.6.0
2017	EIM 2017	Modify	EIM Market	Adopt when ready. API is backwards compatible	Tab: EIM New Report: EIM Bid Capacity	retrieveEIMBidCapacityPercentage_v2 retrieveEIMBidCapacityPercentage_v2_DocAttach	20171001	*11/15/2017*	*11/30/2017*	v1.3 (released 10/27)	3.6.3 (released 10/27)
2017	Enhancement	New	CAISO Market	Adopt when ready	Tab: Post-Market New Report: Regulation Pay for Performance	N/A	N/A	TBD (November 2017)	TBD (November 2017)	N/A	N/A
2017	Imperial Valley	New	PST Operators	Adopt when ready	Tab: Phase Shifter New Report	N/A	N/A	9/8/2017	11/16/2017	N/A	N/A
Winter 2017	EIM 2017	New	CAISO & EIM Market	Adopt when ready	Tab: EIM New Report: Resource Ramp **Capacity**	retrieveResourceRampCapacity_v1 retrieveResourceRampCapacity_v1_DocAttach	20180201	12/1/2017	4/1/2018	v1.0 (Winter)	4.0 (To be released)
Spring 2018	CCE3	New	CAISO Market	Adopt when ready	Tab: Default Bids New Report: Actual Limitation Values	retrieveActualLimitationValues_v1 retrieveActualLimitationValues_v1_DocAttach	20171001	March 2018	5/1/2018	v1.0 (Winter)	3.6.3
Spring 2018	CCE3	New	CAISO Market	Adopt when ready	Tab: Default Bids New Report: Resource Opportunity Costs	retrieveResourceOpportunityCost_v1 retrieveResourceOpportunityCost_v1_DocAttach	20171001	March 2018	5/1/2018	v1.0 (Winter)	3.6.3

Product View - OASIS UI and API changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Web Service	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
2017	EIM 2017	New	EIM Market	Adopt when ready	Tab: Energy New Report: Flexible Ramp Requirements	ENE_EIM_FLEX_RAMP_INPUT	*11/6/2017*	*11/15/2017*	v1.2	5.1.1
Winter 2017	EIM 2017	New	CAISO & EIM Market	Adopt when ready	Tab: Prices New Report: Hourly RTM LAP Prices	PRC_RTM_LAP	12/1/2017	4/1/2018	V1.2	5.1.1
Winter 2017	RSI	New	CAISO Market	Adopt when ready	Tab: Public Bids New Report: CSP Offer	PUB_CSP_OFFER_SET	12/5/2017	4/1/2018	V1.2	5.1.1

Product View - Master File changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Web Service	Major Version	Minor Version	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
Winter 2017	EIM 2017	Modify	EIM Market	Required for Generic NGR	N/A	retrieveGeneratorRDT	4	20180201	12/1/2017	4/1/2018	v4.0.1	V3.6
Winter 2017	EIM 2017	Modify	EIM Market	Required for Generic NGR	N/A	submitGeneratorRDT	4	20180201	12/1/2017	4/1/2018	v4.0.1	V3.6
Spring 2018	BRE-B CCE3 RSI	Modify	CAISO & EIM Market	Required to provide CCE3 values		retrieveGeneratorRDT	4	20180501	March 2018	5/1/2018	v4.1.2	V4.1.1
Spring 2018	BRE-B CCE3 RSI	Modify	CAISO & EIM Market	Required to provide CCE3 values		submitGeneratorRDT	4	20180501	March 2018	5/1/2018	V4.1.2	V4.1.1
Spring 2018	CCE3	Modify	CAISO Market	Required for ULPDT at Config Level	Upload Tab: ULPDT similar to RDT	N/A	N/A	N/A	March 2018	5/1/2018	N/A	N/A
Spring 2018	CCE3	Modify	CAISO Market	Required for ULPDT at Config Level	Reports Tab: ULPDT similar to RDT	N/A	N/A	N/A	March 2018	5/1/2018	N/A	N/A

Master File Updates & Clarifications

2017 Release includes updated Fuel Regions

- Master File will "freeze" external data updates
    - 10/20 last day to submit RDT with effective date prior to 11/1
    - Resume RDT submittals on 10/30 (earliest effective date will be 11/6)
    - RDTs submitted between 10/20 and 10/30 will be rejected
    - Downloads to view data will be allowed during the freeze
- Electric Regions will not be viewable in RDT until Spring; to request information on Electric Regions assigned to Generators, contact RDT@caiso.com.

Winter Release includes a new Fuel Type enumeration (GNRC) to identify generic NGRs

- There will be no structural changes to the RDT
    - GRDT spreadsheet version 11 will continue to be the production version
- An updated Tech Spec will be posted by 10/10
    - The Tech Spec will only be updated to include the new Fuel Type enumeration.

Spring Release of MF GRDT includes CCE3, BREB, and RSI attributes

- GRDT version 12 and Tech Spec 4.1.1 have been posted since June
- The Spring RDT and Tech Spec will be updated in December to include recent changes (e.g. ICE Hub)

- GRDT Highlights

  - RESOURCE tab – Add Electric Region (R/O), Market Max Daily Starts (R/W), COM MW (R/O), **ICE Hub (R/W)**
  - Ramp Tabs (Resource & Configuration : Operational, Regulation, and Op Reserve) – Add Market Ramp Rate (R/W); discontinue supporting Min/Worst Ramp Rate (submitted values will be ignored)
  - CONFIGURATION tab – Add Implied Starts (previously documented as CT Starts) (R/W)
  - TRANSITION tab – Add Market Max Daily Transitions (R/W), Implied Starts (R/O)

- ULPDT Highlights

  - Add Configuration ID
  - ULPDT will be loaded via Batch Process with automated Batch Status notification
  - Compare Report available
  - Validation Rules will continue to appear on UI, not in a separate Validation Report

EIM Enhancements 2017– Phase 2 (Winter)

Project Info	Details/Date
Application Software Changes	Address enhancements identified by policy, operations, technology, business and market participants. **Scope:** 1. Access & Integration Enhancements: EIM Entity Access in ALFS, MF, OASIS, WebOMS, and CMRI. 2. EIM data report enhancements to support market participant and EIM entity settlements 3. EIM software enhancements 4. Change to ETSR formulation to separate base energy transfer to distinct non-optimizable ETSRs. *Out of Scope:* 1. BAAOP provisioning in AIM 2. Joint Owned Unit/Shared BAA Resource Modeling
BPM Changes	Energy Imbalance Market: Access & Integration, Data Report Outage Management: Access & Integration Market Instruments: Access & Integration, Data Reports Market Operations: Data Report Settlements & Billing: Data Report
Business Process Changes	N/A

EIM Enhancements 2017– Phase 2 (Winter)

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	Jan 23, 2017	✓
	Post Updated (v1.2) External BRS to public site	Apr 10, 2017	✓
Tech Spec	Publish Technical Specifications (Master File)	Apr 10, 2017	✓
	Publish Updated Technical Specifications (Master File)	Jun 30, 2017	✓
	Publish Technical Specifications (OASIS)	Apr 07, 2017	✓
	Publish Updated Technical Specifications (OASIS)	Jun 23, 2017	✓
	Publish Technical Specifications (CMRI)	Apr 26, 2017	✓
	Publish Updated Technical Specifications (CMRI)	Jun 28, 2017	✓
Configuration Guides	Post Configuration Guides	June 27, 2017	✓
BPMs	Post Draft BPM changes	August 15, 2017	✓
Market Sim	Market Sim Window	Dec 1, 2017 – Jan 31, 2018	
Production Deployment	EIM Enhancements 2017	Feb 13, 2018	
Production Activation	EIM Enhancements 2017	Apr 04, 2018	

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Project Info	Details/Date
Application Software Changes	**Scope and System Impact:** • Auto-matching for post T–40 Intertie and other EIM Non-Participating Resource (EIMNPR) schedule changes from a single dedicated EIMNPR with the ability to generate or consume energy **(MF, RTM)** • Auto-mirroring for ISO import/export schedules at ISO Scheduling Points **(MF, RTM)** • BASE ETSR imbalance energy settlement: LMP at specified financial location **(MF, RTM, Settlement)** • No-EIM Fee: Exclude EIM administrative fee for non-US transactions after T–40 **(MF, RTM, Settlement)** • Suppress LMP publication in OASIS for non-US Pnodes **(MF, OASIS)** • Allow submission of Base Generation Distribution Factors (GDFs) for aggregate EIMNPR **(BSAP, RTM)** • Allow EIM Entity control to enforce/not enforce EIM BAA internal transmission constraints **(MF,RTM)** • Report resource ramp capability in CMRI for SCs **(BSAP, CMRI)** • Allow EIM and other resources modeled as an aggregation using the Generic NGR model that has the ability to generate or consume energy **(MF, RTM, Settlement)**
BPM Changes	Energy Imbalance Market and Settlements & Billing
Business Process Changes	Manage Real Time Operations - Maintain Balancing Area

Milestone Type	Milestone Name	Dates	Status
Board Approval	EIM Governing Body Meeting	Nov 29, 2017	
	Board of Governors Meeting	Dec 13-14, 2017	
BPMs	Draft BPM changes	Dec 1, 2017	
	Publish Final Business Practice Manuals	Mar 1, 2018	
External BRS	External Business Requirements Revised External BRS for TNGR	August 1, 2017 Nov 13, 2017	✓
Tariff	File Tariff – Consolidated EIM Initiative	Dec 15, 2017	
	Receive FERC order	Feb 15, 2018	
Configuration Guides	Configuration Guides	Oct 26, 2017	✓
Tech Spec	Create ISO Interface Spec (Tech spec) • MF • BSAP • CMRI	 Oct 16, 2017 Oct 16, 2017 Nov 6, 2017	 ✓ ✓ ✓
Market Sim	Market Sim Window	Dec 1, 2017 – Jan 31, 2018	
Production Deployment	EIM Enhancements Winter 2017	Feb 13, 2018	
Production Activation	EIM Enhancements Winter 2017	Apr 4, 2018	

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Project Info	Details/Date
Business Requirements Specification	ESDER 1C requirements incorporated in version 1.1 of the BRS for EIM Enhancements Winter 2017. The nine BRQs identified as ESDER 1C requirements related to the Generic NGR model are: BRQ161, BRQ162, BRQ163, BRQ321, BRQ322, BRQ324, BRQ465, BRQ466, BRQ516
Application Software Changes	Allow market participant to registry NGR Generic Resource (Generic, new subtype of NGR, in addition to LESR and DDR) of NGR with load and generation modes without SOC **MF**: Define NGR resource with subtype Generic **SIBR/BSAP/IFM-RTM** • SC to submit bids for NGR Generic resource • SC to submit EIM Base Schedule for NGR Generic resource • Combine the distributed schedules from multiple aggregated resources that have overlapping aggregation in NA **Settlement**: Settlement calculation to NGR Generic resources level **WebOMS** - Include NGR Generic resource outage/de-rate in the market
BPM Changes	Market Operations Energy Imbalance Market Settlements and Billing

Milestone Type	Milestone Name	Dates	Status
ESDER 1C milestones	Same as EIM Winter Enhancements 2017		

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Winter 2017 – RIMS Functional Enhancements

Project Info	Details/Date	Status
Application Software Changes	Functional enhancements resulting from the Customer Partnership Group CPG. More details to be provided in the future.	
BPM Changes	Generator Interconnection and Deliverability Allocation Procedures Generator Interconnection Procedures Managing Full Network Model Metering Generator Management Transmission Planning Process	
Customer Partnership Group	10/16/15	✔
Application and Study Webinar	3/31/16	✔

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board approval not required	N/A	
BPMs	Generator Interconnection and Delivery Allocation	Apr 29, 2016	✔
External BRS	External BRS not Required	N/A	
Tariff	No Tariff Required	N/A	
Config Guides	Configuration Guides not required	N/A	
Tech Spec	No Tech Specifications Required	N/A	
External Training	• *Train the PTOs.* • *Provide a half hour intro to the new RIMS App at the Resource Interconnection Fair.* • *WebEx full training provided by the Training Team in coordination with the MCI team.*	*January 15, 2018* *March 6, 2018* *March 20, 2018*	
Production Activation	RIMS5 App & Study	Mar 21, 2016	✔
	RIMS 5 Queue Management, Transmission & Generation	January/February, 2018	

Winter 2017 - Reliability Services Initiative 2017

Project Info	Details/Date
Application Software Changes	**Scope:** Redesign of Replacement Rule for System RA and Monthly RA Process. • RA Process and Outage Rules for implementation for 2017 RA year. • CSP Offer Publication (RSI 1A scope) • Local and system RA capacity designation • RA showing requirements for small load serving entities (LSEs) • RA showing tracking and notification **Impacted Systems:** • OASIS • Settlements • CIRA **CIRA:** • Modifications to the RA and Supply Plan to show breakdown of local and system. Validation rules need to be updated. • Update planned/forced outage substitution rules • Allow market participants to select how much system/local MWs to substitute. • Modification of UI screens to accommodate system/local MW split. • Enhance system to allow exemption from submission of RA Plans for LSE that have a RA obligation < 1 MW for a given capacity product. **Settlements:** • Splitting local from system in upstream RA system could potentially impact the RAAIM calculation.
BPM Changes	• Reliability Requirements: Changes to the monthly RA process • Settlements and Billing
Business Process Changes	**Manage Market & Reliability Data & Modeling** • Manage Monthly & Intra-Monthly Reliability Requirements • Manage Yearly Reliability Requirements

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Winter 2017 - Reliability Services Initiative 2017

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	May 12, 2015	✔
BPMs	Post Draft BPM Changes - Reliability Requirements	Dec 15, 2017	
	Post Draft BPM Changes - Settlements & Billing	Aug 30, 2017	✔
External BRS	Post Updated External BRS v1.1 (RSI 2)	Apr 07, 2017	✔
	Post Updated External BRS v1.3 (RSI 1B)	Mar 03, 2017	✔
	Post RSI 2017 External BRS 2.0	Apr 19, 2017	✔
Tariff	File Tariff	Sep 29, 2017	✔
Config Guides	Config Guide	Jun 23, 2017	✔
Tech Spec	Publish Technical Specifications	Apr 03, 2017	✔
Market Sim	Market Simulation	Dec 05, 2017 - Jan 26, 2018	
Production Deployment	Production Deployment	Feb 13, 2018	
Production Activation	Production Activation	Apr 01, 2018	

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Winter 2017 – EIM Idaho Power Company

Project Info	Details/Date
Application Software Changes	Implementation of Idaho Power Company as an EIM Entity.
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during Idaho Power implementation and feedback from Idaho Power.
Market Simulation	The Idaho Power Company network model has been integrated into the ISO non-production environment. Day in the Life (pre-Market Simulation) testing is in progress and will continue through November 30, 2017. Market Simulation is on schedule to begin December 1, 2017.
Parallel Operations	February 1, 2018 – March 30, 2018

Milestone Type	Milestone Name	Dates	Status
Tariff	File Readiness Certification	Feb 28, 2018	
Market Sim	Market Sim Window	Dec 01, 2017 - Jan 31, 2018	
Parallel Operations	Parallel Operations Window	Feb 01, 2018 - Mar 30, 2018	
Production Activation	EIM - Idaho Power	Apr 04, 2018	

Winter 2017 – EIM Powerex

Project Info	Details/Date
Application Software Changes	Implementation of Powerex as an EIM Entity.
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during the Powerex implementation.
Market Simulation	The Powerex network model has been integrated into the ISO non-production environment. Day in the Life (pre-Market Simulation) testing began November 1, 2017. Market Simulation is on schedule to begin December 1, 2017.
Parallel Operations	February 1, 2018 – March 30, 2018

Milestone Type	Milestone Name	Dates	Status
Tariff	File Readiness Certification	Feb 28, 2018	
Market Sim	Market Sim Window	Dec 01, 2017 - Jan 31, 2018	
Parallel Operations	Parallel Operations Window	Feb 01, 2018 - Mar 30, 2018	
Production Activation	EIM - Powerex	Apr 04, 2018	

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Spring 2018 - Commitment Cost Enhancements Phase 3

Project Info	Details/Date

Application Software Changes	**Scope:**
	1. Clarify use-limited registration process and documentation to determine opportunity costs
	2. Determine if the ISO can calculate opportunity costs
	   • ISO calculated; Modeled limitation Start/run hour/energy output
	   • Market Participant calculated; Negotiated limitation
	3. Clarify definition of "use-limited"; *add MSG Configuration ID to ULPDT*
	4. Change Nature of Work attributes (Outage cards)
	   • Modify use-limited reached for RAAIM Treatment
	   • Allow PDR to submit use-limit outage card for fatigue break.
	5. Market Characteristics *(to be added to GRDT)*
	   • Maximum Daily Starts
	   • Maximum MSG transitions
	   • Ramp rates
	Impacted Systems:
	1. Master File: Set use-limited resource types and limits; Set market-based values
	2. ECIC: Process use limited resource input values for and Receive opportunity cost adders from opportunity cost tool
	3. CIRA: RAAIM exempt rule for "use-limited reached"
	4. CMRI: Publish opportunity cost
	5. IFM/RTN: Use market-based values MDS, MDMT and RR
	6. SIBR: Add Opportunity cost adders on bid caps, remove daily bid RR
	7. OMS: "Use-Limited Reached" nature of work attribute for Generation Outage Card
	8. Settlements: Publish the actual start up, run hour and energy output for the use-limited resources
	9. Opportunity cost calculator (OCC): Calculate and publish opportunity costs for start-up, MLC and DEB

BPM Changes	Market Instruments, Outage Management, Reliability Requirement, Market Operations
Business Process Changes	• Manage Market & Reliability Data & Modeling • Manage Markets & Grid

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) Approval	Mar 25, 2016	✓
BPMs	Post Draft BPM changes	**Jan 15, 2018**	
External BRS	Post External BRS	Jan 06, 2017	✓
	Post Updated External BRS	Jul 13, 2017	✓
	Post Updated External BRS	Aug 21, 2017	✓
Tariff	Post Draft Tariff	Jul 31, 2017	✓
	Post Updated Draft Tariff (based on feedback)	**Q1, 2018**	
	File with FERC	Q1, 2018	
Config Guides	Config Guide	Jun 27, 2017	✓
Tech Spec	Publish ISO Interface Spec (Tech spec) – MF	Apr 03, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – MF	Jun 30, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – MF	**Nov 30, 2017**	
	Publish ISO Interface Spec (Tech spec) – CMRI	Apr 17, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – CMRI	Jun 28, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – CMRI	**Oct 27, 2017**	✓
Market Sim	Market Sim Start	March, 2018	
Production Deployment	Commitment Costs Phase 3 Production Deployment	May 1, 2018	
Tariff Effective Date	Proposed Tariff Effective Date	November 1, 2018	

California ISO

Project Info	Details/Date

Application Software Changes	**Settlements:**
	• Alternative Baselines:
	    • Possible system changes to include addition of an automated monitoring tool for performance measurement data received from external participants.
	    • Changes to the DRRS registration system for the selection of the new baselines and allowing for ISO approval prior to use in the market.
	    • Settlement configuration will need to be evaluated and revised to assure PDRs that provide AS services can be calculated correctly based on the submitted SQMD.
	ECIC:
	• EIM Net Benefits Testing:
	    • Code modification to calculation to accommodate addition of all applicable gas price indices.
	MRI-S:
	• Alternative Baselines:
	    • The DRS Decommissioning project seeks to retire the current DRS system. Once this system is retired all current functionality will reside in the MRI-S (Market Results Interface – Settlements) system. It should be noted that all available customer load baseline calculations will be submitted into the MRI-S system once the DRS system is retired.

BPM Changes	**Market Instruments:**
	• EIM Net Benefits Testing:
	    • Changes will include addition of all gas price indices used in calculation.
	Metering:
	• Alternative Baselines:
	    • Need to revise the BPM to explain new baselines and changes to existing systems.
	• Station Power:
	    • Need to revise BPM to provide examples of wholesale/retail uses for generation and storage
	    • Need to revise BPM to clarify permitted/prohibited netting rules.
	Definitions & Acronyms:
	• Station Power:
	    • Revision of Station Power definition to match Tariff language.
	Settlements & Billing:
	• Alternative Baselines:
	    • Possible changes to reflect settlements configuration changes.

California ISO

Spring 2018 - ESDER Phase 2

Project Info	Details/Date
Business Process Changes	• Develop Infrastructure (DI) (80001) • Manage Market & Reliability Data & Modeling (MMR) (80004) • Manage Operations Support & Settlements (MOS) (80007) • Support Business Services (SBS) (80009) • Other

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	July 26-27, 2017	✓
BPMs	Post Draft BPMs	1/15/2018	
External BRS	Post External BRS	10/19/2017	✓
Tariff	Post Draft Tariff	12/15/2017	
	File with FERC	2/01/2018	
Config Guides	Settlements Configuration	1/15/2018	
Tech Spec	Post Technical Specifications	N/A	
Market Simulation	Market Simulation	March 2018	
Production Activation	Production Activation	5/1/2018	

Project Info	Details/Date

Application Software Changes	The GHG allocation is limited to the dispatch the amount of between Pmax and an economic dispatch reference as "GHG allocation base" The problem is solved in two passes.
	RTM:
	  Build an activation flag allow operator to turn on/off GHG two pass solution
	  Pass 1 *settings and simplification:*
	    • For EIM Participating Resources with California Supply = N: In RTPD, Set the GHG bid capacity $G_{GHGi} = 0$ and the GHG allocation base $\bar{G}_i = 0$. In RTD, set GHG allocation base $\bar{G}_i = 0$ use GHG bid capacity G_{GHGi}
	    • For California Supply = Y, GHG bid capacity G_{GHGi} from the Clean Bid shall be used and the GHG allocation base $\bar{G}_i$ shall be set to the corresponding base schedule
	  Pass 2 *GHG allocation limited by the GHG bid capacity, the optimal dispatch, and the difference between the upper economic limit and the GHG allocation reference calculated in the first pass for non-CA supply*
	SIBR: Support an hourly California Supply Y/N indicator as part of the GHG Bid Component for EIM Participating Resources
	CMRI: Publish the GHG allocation reference

BPM Changes	Market Instruments Energy Imbalance Market (EIM)

Milestone Type	Milestone Name	Dates	Status
External BRS	External Business Requirements	Nov 2017	
External Report	Report on GHG Attribution Accuracy	Q4 2017	
Board Approval	Obtain Board of Governors Approval	Q1 2018	
	Post Draft BPM changes	TBD	
Tariff	File Tariff	TBD	
	Receive FERC order	TBD	
Config Guides	Design review - BPM and Tariff SMEs	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Market Sim	Market Simulation	TBD	
Production Activation		Spring 2018	

Market Status Information in MPP

In MPP, there is a tab under "Market Operations" for "Market Status"

Market status information is published for DA, HA and RT markets

HA & RT market status information includes status for Bids & Schedules as well as ISTs

The proposal is to move this under the System Operating Messages in OASIS

Screenshot of MPP showing market status information

Screenshot of OASIS System Operating Messages

System Operating Message Display - OASISUI Prod - PUBLIC - 1 - Internet Explorer

Timestamp	System Operating Messages
10/09/2017 13:18:39	There has been a change to the OTCs on the ELDORADO_ITC and PALOVRDE_ITC XXXX_BG branch group on 10/9/2017. Check OASIS for updates. From the California ISO OASIS select the (Transmission) tab and select the Report (Current Transmission Usage) for the current values
10/07/2017 08:43:28	Effective immediately there has been a change to the OTCs on the SUMMIT_ITC branch group for 10/8/17. Check OASIS for updates.
10/06/2017 14:07:52	Effective immediately there has been a change to the OTC's on the ELDORADO_ITC PALOVRDE_ITC WSTWGMEAD_ITC & NORTHGILA500_BG branch groups for 10/7/17. Check OASIS for updates.
10/06/2017 12:21:35	Effective immediately there has been a change to the OTC's on the BLYTHE_BG for 10/6/17. The ISO will update you on any changes in transmission line rating status.
10/06/2017 11:14:16	Effective immediately there has been a change to the OTC's on the ELDORADO_ITC PALOVRDE_ITC tie WSTWGMEAD_ITC and NORTHGILA500_BG for 10/6/17. The ISO will update you on any changes in transmission line rating status.
10/06/2017 07:57:19	Effective immediately there has been a change to the OTC's on the BLYTHE_BG for 10/6/17. The ISO will update you on any changes in transmission line rating status.
10/06/2017 07:28:12	Effective immediately there has been a change to the OTC's on the BLYTHE_BG for 10/6/17. The ISO will update you on any changes in transmission line rating status.
10/05/2017 18:21:15	Effective Immediately the Path 59 was changed from for HE 19 on 10/5/17 through HE 06 on 10/6/17. The ISO will update you on any changes in transmission line rating status.
10/05/2017 18:10:23	Effective immediately there has been a change to the OTC's on the Adelanto-SP_ITC branch group for 10/05/17. Check OASIS for updates.
10/05/2017 15:11:17	CAISO Issues with Bids and Schedules submission to the Hour Ahead and Real Time Market Have been RESOLVED. Inquiries please contact the Day Ahead Desk.
10/05/2017 14:22:23	CAISO is experiencing Issues with Bids and Schedules submission to the Hour Ahead and Real Time Market. Critical systems team is currently troubleshooting issue. Sent by Market Operations. Inquiries please contact the Day Ahead Desk.
10/05/2017 13:28:26	The Final Day Ahead Results were published at 13:11 for 10/06/2017. Note that Final Day Ahead Results for 10/06/2017 are expected to be publish by 13:00 as outlined in the CAISO Tariff. Sent by Market Operations. Inquiries please contact the Day Ahead Desk.
10/05/2017 12:55:40	Final Day Ahead Results for trade date 10/06/2017 that are normally published before 13:00 PPT today 10/05/2017 will be delayed. The Final Day Ahead Results for trade date 10/06/2017 are expected to be published by 13:30 for 10/06/2017. ISO estimates that this variation in the publishing time to apply only to the results for the 10/06/2017 trade date.
10/04/2017 19:58:22	Effective immediately there has been a change to the OTCs on the BLYTHE_BG branch group for 10/04/17 and 10/05/17. Check OASIS for updates. From the California ISO OASIS select the (Transmission) tab and select the Report (Current Transmission Usage) for the current values.
10/04/2017 17:38:54	The California ISO has URGENT maintenance in its IFM/RTN production environment today [9/12/2017 @ 18:00PPT]. RTN 5-min and RTPD 15-min dispatches are not expected to be interrupted. Contact the ISO Service Desk with any questions. 916-351-2390.

California ISO

How to get to System Operating Messages

- Link in MPP

- Link in OASIS

Retention of Advisory Market Schedules

- Currently data is available for current trade date and seven days in the past

- Propose to change this to current trade date and three days in the past

- Usage analysis shows that this data is not heavily used by market participants

- This data set is advisory and is superseded by the binding values

- Keeping fours days will help with performance improvement and efficiency in data storage

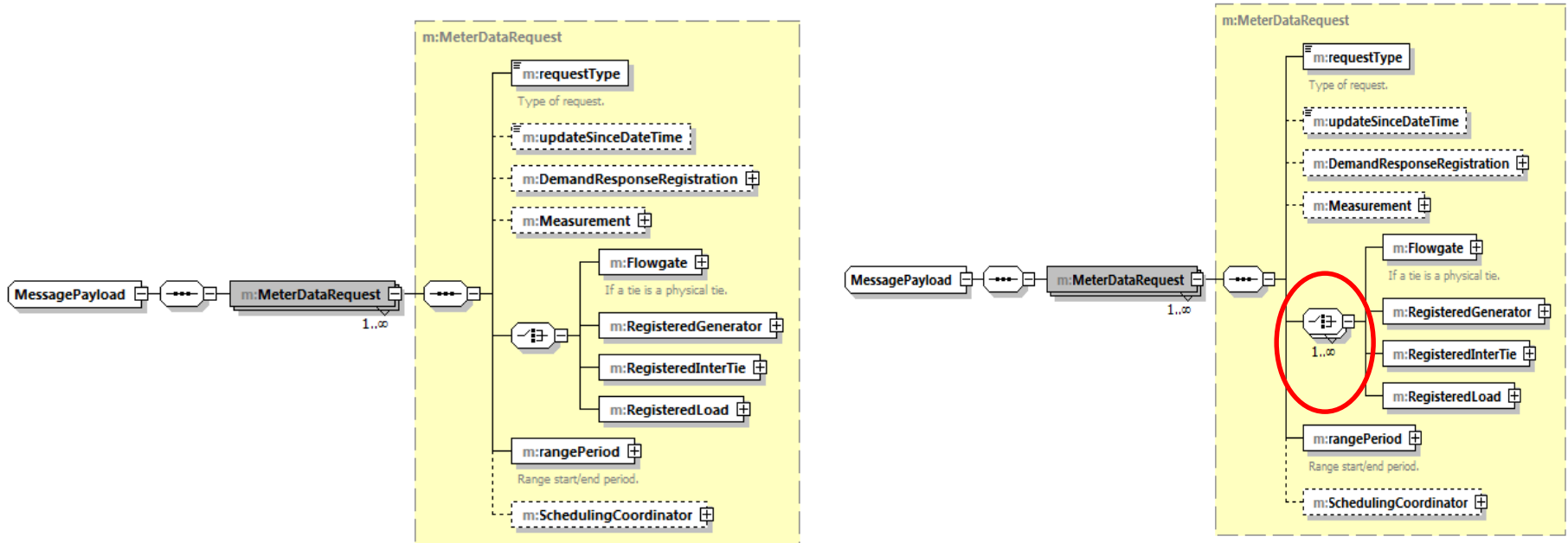# Retention of Advisory Market Schedules

- Following CMRI UI reports will return data for the current date and three days in the past:

  - Two DA RUC Advisory Schedules

  - RTUC Advisory Schedules

  - RTD Advisory Schedules

- Request for Retrieve Market Schedules API with bindingFlag = N (for advisory market schedules) will only return data for the current date and three days in the past

- **Production Implementation**
  - 12/1/2017

Data Retention for CMRI, OASIS and ADS

- Proposal to keep only 39 months worth of data in these three applications

- Data beyond 39 months will no longer be available

- This will align with the Settlement cycle of 36 months

- Data will be rolled off on a monthly basis after 39 months

- This will help with stability and performance of the applications

- **Production Implementation**
    12/1/2017

RequestMeterData XSD – Minor change

- Change in cardinality to request multiple resource IDs within the same MeterDataRequest
- Current XSD allows for one resource ID per MeterDataRequest class, thereby causing multiple queries against the database.
- This change will make the database call more efficient
- Sample XML in the next slide

California ISO

Description	Technical Document & Artifacts Package	MAP Stage Deployment	Production Deployment
Change in cardinality to request multiple resource IDs in the same MeterDataRequest class	11/01/2017	11/15/2017	11/20/2017

California ISO