



# 2016 Fall Release Training - Energy Storage and Distributed Energy Resources (ESDER)

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# 2016 Project Implementation of ESDER Stakeholder Initiative

The 2015 ESDER initiative included three topic areas:

- Enhancements to the ISO non-generator resources model (NGR)
- Additional performance measurement and statistical sampling options for proxy demand resource (PDR) and reliability demand response resource (RDRR) market participation models
- Clarifications to rules for non-resource adequacy multiple-use applications (provision of retail, distribution and wholesale services by the same resource)

# Changes impacting NGR resources

ISO has implemented enhancements to the non-generator resources (NGR) model in the following ways:

## Update NGR documentation

- ISO has added enhanced NGR material to business practice manuals and user guides
  - Market Operations BPM (changes pending in PRR 921)
  - Market Instruments BPM (changes pending in PRR 922)
  - Direct Telemetry BPM (changes in progress)
  - Outage Management System training (changes in progress)

Numerical examples of ISO resource award optimization are in progress and will also be added to Market Operations BPM (October-November)

# Changes impacting NGR resources

## Allow initial state of charge (SOC) as a daily bid parameter in the day-ahead market

- State of charge (MWh) field has been added to SIBR day-ahead daily bid components for NGRs (see image on following slide)
- Scheduling coordinators with NGR resources can test the new field using the UI or API during market simulation
- New field will be available in production as part of Fall 2016 activation

# Initial state of charge field added to SIBR

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Shaping a Renewed Future

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Daily Bid Components

Day Ahead Bids | Real Time Bids | Trades | Adv Submit | Portfolios | Ind Viewer | Convergence Bids

OTC Viewer | Energy Forecast | Admin

Bid Summary | **Daily Components** | Hourly Components

Market: Day Ahead

Scheduling Coordinator: ABCD

Resource: Non-Generator | FAST\_2\_CHG

Display Mode: Edit New Bid(s)

Refresh

Wednesday August 3, 2016

08/03/16

Daily Bid Components

	Charge Limit		Ramp Rate Curve	Initial State of Charge [MW]
	Min [MWh]	Max [MWh]		
clear	-4.80	4.80		0.05

Note: This field is only visible for NGR resources

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## Changes impacting NGR resources

Allow an option to not provide SOC energy limits or not have the ISO co-optimize an NGR based on SOC

- When resource minimum and maximum energy limits are not provided in master file, the ISO will assume there are not energy limit restrictions in optimization routines

# Changes impacting PDR and RDRR participants

ISO has implemented new options for demand response performance measurements and clarification on how and when statistical sampling can be used:

- Update DRRS application and business processes to accommodate new performance evaluation methodologies and use of statistically sampled load meter data (see image on following slide)
  - Support performance evaluation methodology based on NAESB meter generator output (MGO) concepts
  - Support NAESB baseline type II – statistical sampling
- Update business practice manual for metering (changes pending in PRR 930)



# Performance Evaluation Methodologies using MGO added to Demand Response Registration System

Create Registration will have two new Baseline Method options

Options identify use of the Performance Evaluation Methodologies only, DRRS uses current Hourly Gen functionality (no change)

- SQMD must be submitted to the Demand Response System as generation for those registrations that have selected to use MGO or MGO with 10 in 10
- SQMD, representing the resulting Demand Response Energy Measurement Performance, submitted as generation at the effective registration level for the PDR or RDRR Resource ID



# Performance Evaluation Methodologies using MGO added to Demand Response Registration System

California ISO | Demand Response Registration System

RP VIEW | UDC VIEW | LSE VIEW | ADMINISTRATION

DRP VIEW Registration

Registration

Reg Id

Name\*

Start Date\*

End Date\*

DRP\*

UDC\*

LSE\*

SUBLAP\*

DLAP\*

DRP SCID\*

Program\*

Resource Type\*

Resource

PMax

Baseline Method\*   
Status

- Two options have been added to the Baseline Method field in DRRS
- Options are available to select during market simulation for the DRRS Enhancements Phase 2 project
- Existing Hourly Gen production functionality is triggered when these options are selected requiring meter data to be submitted as generation (Gen).
- Simulation of statistical sampling use is not required. Existing Load data submittal with 10 in 10 baseline functionality is used.

# Provision for use of statistical sampling clarified in BPM for Metering and detailed in DR User Guide

Submit request for approval to statistically derive meter data

Pre-approval of requests using the methodology detailed in the Demand Response User Guide for the following cases:

- Day-ahead energy participation only, when hourly interval metering is not installed at all underlying resource locations. Not applicable for ancillary service participation.
- Day-ahead energy participation only, when hourly interval metering is installed at all underlying resource locations but RQMD is not derived using the hourly interval meter data for settlement purposes, but is developed using load profiles. Not applicable for ancillary service participation.
- For real-time and ancillary services participation when interval metering installed at all underlying resource locations is not recorded in 5- or 15-minute intervals

# Provision for use of statistical sampling clarified in BPM for Metering and detailed in DR User Guide

Virtual SQMD derived based on statistical sampled physical metering rather than physical metering data for all locations, is treated identical to any other SQMD submitted to the Demand Response System (DRS)

Virtual SQMD can only be used for a PDR or RDRR selecting the Customer Load Baseline Performance Methodology (10 in 10 with SMA)

SQMD submitted to Demand Response System DRS as load

Market participants providing statistically sampled SQMD may be requested to comply with ISO information requests to audit their meter data collection and virtual meter data scaling process

No DRRS or DRS changes

# ESDER Stakeholder Initiative Phase 2 – In progress

## NGR Enhancements:

- Development of modeling that best reflect resource use limitations and use characteristics

## DR Enhancements:

## Load Consumption Working Group (LCWG)

- Including load consumption capability for PDR for bi-directional load participation
- Developing modification of current PDR performance measurement practices to support load consumption participation

## Baseline Analysis Working Group (BAWG)

- Alternative baseline methods to better fit DR programs
- Use of control groups to estimate performance

## More Information for ESDER Phase 2

[http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage\\_DistributedEnergyResourcesPhase2.aspx](http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_DistributedEnergyResourcesPhase2.aspx)

# Acronyms

Acronym	Stands for	Acronym	Stands for
API	Application Programming Interface	PDR	Proxy Demand Resource
BPM	Business Practice Manual	PRR	Proposed Revision Request
DR	Demand Response	RDRR	Reliability Demand Response Resource
DRRS	Demand Response Registration System	RQMD	Revenue Quality Meter Data
DRS	Demand Response System	SIBR	Scheduling Infrastructure & Business Rules
MGO	Meter Generator Output	SOC	State of Charge
NAESB	North American Energy Standards Board	SQMD	Settlement Quality Meter Data
NGR	Non-Generator Resources	UI	User Interface