

**Ramp Capability Enhancement Update  
& Motion**

**Market Subcommittee**

**August 2013**

# Outline

- Ramp Capability Products Overview and Benefits
- Where Are We?
- Motion
- Next Steps
- Questions
- Contact

# Ramp Capability Products Overview and Benefits

# What Are the Proposed Ramp Capability Products?

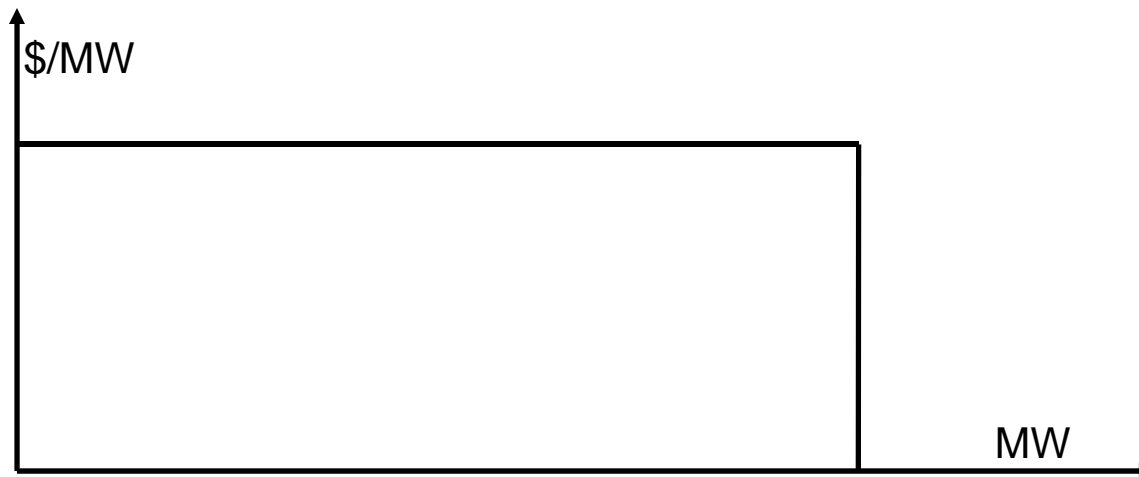
- New products that explicitly manage the ramp available from dispatchable generation through market incentives
- Up and down ramp capability (URC/DRC) products attempt to maintain a specified level of resource ramp capability to meet RT variability in net load
  - Ramp capability targets will vary to account for operating conditions, forecasts, uncertainties, time of day and / or year
  - URC/DRC capacity is not shared with other products and are co-optimized with Energy and Ancillary Service products
  - URC/DRC targets to manage future variations in net load will be reduced when ramp capacity is needed to efficiently and reliably meet net load in the current RT dispatch interval
  - Resource opportunity costs will determine RT URC/DRC prices
    - Ramp product prices will be zero when the target level of ramp capability is available without redispatch for ramp capability **(pay as needed basis)**

## What Are the Proposed Ramp Products? (p.2)

- Ramp products will be modeled in the Commitment and Dispatch of the DA Market, IRAC, FRAC, LAC & UDS
  - Redispatch can create additional operational ramp capability, reducing the need for RT commitments to provide ramp
  - URC/DRC will be priced and included in settlements
  - Ramp products are measured similar to today's Market-Wide Ramp-Up and Ramp-Down (Headroom) Capacity Constraints
    - These capacity constraints apply only to commitment functions
- MISO markets can include URC/DRC with minimal impact
  - Existing energy and AS products are not changed (although the interaction of pricing and dispatch may change clearing results)
  - Versatile ramp product formulation is compatible with current markets and future changes such as ELMP and LAD

# Ramp Product Demand Curves

- Ramp capability acts as a buffer to absorb forecasted and unexpected operational variability
  - Ramp retained in a previous dispatch is available for energy dispatch in the current RT dispatch
- Demand curve pricing allows automatic tradeoff between reserving ramp capacity for a future interval and using the ramp to meet current system needs



# Requirements & Resource Participation

- Requirements
  - URC / DRC requirements in Day Ahead Market are based on expected average hourly Real Time needs
  - Day Ahead ramp capability requirements are estimated based on anticipated Real Time requirements
  - Requirements are identified on system level
- Resource Participation
  - Eligible resources (dispatchable resources) can clear for URC /DRC in Day Ahead and Real Time Markets
  - Self scheduling of ramp products is not allowed in Real Time or Day Ahead Markets



# Day Ahead Market – Payments and Charges

- Pricing
  - Dispatch solutions produce Ramp URC / DRC clearing prices for the incremental cost of additional Ramp Capability products
  - Prices include opportunity costs of not providing other products, and demand curves if not fully cleared
- Payments
  - Awarded Ramp Capability is paid product clearing price
    - Revenues from Ramp Capability included in make whole payment calculation
- Charges
  - Load and export charges will be charged for URC / DRC payments to resources (savings are expected in reducing / eliminating price spikes)



# Real Time Ramp Capability Payments & Charges

- Awarded Ramp Capability is paid product clearing price
  - Revenues from URC / DRC included in make whole payment calculation
- Charges for URC / DRC are similar to other ancillary services
  - Load and export are charged for URC / DRC payments to resources, however reduced scarcity pricing, CT commitment, etc. decreases load payments (*causing an overall production cost saving*)

# New Charge Types

- Similar to the existing Ancillary Services, URC / DRC represent new products in the Energy and Operating Reserves Market (EORM)
- Resource Ramp Capability Payment
  - URC and DRC will clear in both the DA and RT EORM
  - DA\_URC – Charge Type to pay for cleared URC in the DA EORM
  - DA\_DRC – Charge Type to pay for cleared DRC in the DA EORM
  - RT\_URC – Charge Type to pay/charge for the imbalance between cleared URC in the RT EORM and cleared URC in the DA EORM
  - RT\_DRC – Charge Type to pay/charge for the imbalance between cleared DRC in the RT EORM and cleared DRC in the DA EORM

# New Billing Determinants

- DA\_URC\_MW – DA Cleared URC
- DA\_URC\_MCP – DA Marginal Clearing Price for URC
- DA\_DRC\_MW – DA Cleared DRC
- DA\_DRC\_MCP – DA Marginal Clearing Price for DRC
- RT\_URC\_MW – RT Cleared URC
- RT\_URC\_MCP – RT Marginal Clearing Price for URC
- RT\_DRC\_MW – RT Cleared DRC
- RT\_DRC\_MCP – RT Marginal Clearing Price for DRC

# Market / Economic Benefits of Ramp Products

- Direct and transparent pricing and incentives for the supply of ramp capability
- Damped short-term operating scarcity price volatility by avoiding reserve shortages (or potentially transmission violations)
- Reduced abrupt resource dispatch changes associated with short-term price spikes
- Reduced need for ad hoc operator actions such as RT adjustments in the UDS Offset MW and CT commitment providing increased consistency of market results
- Avoid any increase in conventional reserve requirements
  - As a result avoid any increase in production cost

# Where Are We?

# Where Are We?

- **Conceptual Design is completed**
  - For complete design elements refer to workshop 6<sup>th</sup> presentation and / or white paper in MISO webpage
  - MISO has addressed stakeholders inputs and comments
  - Ameren is seeking an alternate solution for providing opt out offer parameter for generation resources
    - Providing such option will reduce the effectiveness of the proposed solution
    - MISO will evaluate the possibility of exempting specific resources from providing URC / DRC
- **MISO Recommends implementation of URC / DRC**
  - Viable economic approach
  - This design addresses a number of current issues in our markets
  - Simplicity of the implementation
  - Stakeholder feedback and support
- **MISO Initial estimate is in the range of \$.7M to \$1.5M**
  - This includes changes in DART, Settlement and others (e.g., communication)
  - MISO internal labor is not included in this estimate

# Motion



# Motion

- **MSC approves MISO conceptual design for Ramp Capability products (URC / DRC) as stated in this presentation. MISO will begin drafting the tariff language and provide it to stakeholders before the end of the year for review and comment.**

# Next Steps

- **Provide a timeline for completion of the tariff language**
- **A status report will be posted in MISO webpage (with periodical updates)**
- **Q & A document will be updated periodically**

# Questions / Contact Info

- MISO Web Page for Ramp Management
  - [www.midwestiso.org/WhatWeDo/StrategicInitiatives/Pages/RampManagement.aspx](http://www.midwestiso.org/WhatWeDo/StrategicInitiatives/Pages/RampManagement.aspx)

- Contact Information

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