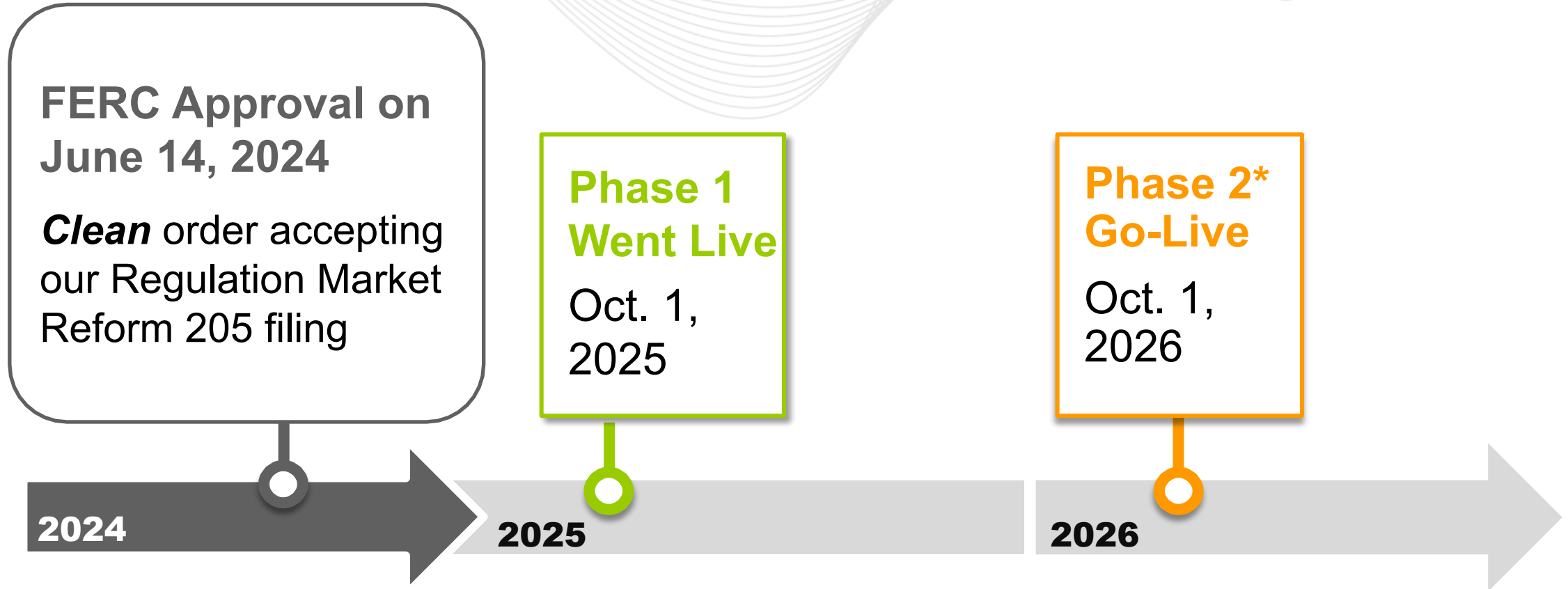




# Regulation Redesign Phase 2 Changes to Markets Gateway, Data Miner 2, Data Viewer and PJM.com

Jack Litzke, Engineer II  
Christopher Wells, Analyst I

Tech Change Forum  
May 18, 2026



\* Go-live date may change to Dec. 1, 2026, pending FERC approval – filing for extension done on May 1, 2026

#	Design Components	Summary Description
1	<b>Signals and Products</b>	Bifurcate <b>one</b> signal bidirectional to two products, <b>RegUp and RegDn</b> , each with its own requirement, clearing price and settlement. Eligible resources will be able to offer, clear and follow either the RegUp, RegDn or both in a given market interval. Only one product is deployed at a time.
2	<b>Requirement MW</b>	Seasonal and hourly requirement MW separate for RegUp and RegDn may be asymmetric to better reflect operational needs, with consideration both to historic and future system conditions and with annual requirements MW updates.
3	<b>Performance Metrics</b>	Phase 1 changes plus performance score, mileage and bias-factor calculation separately for RegUp and RegDn.
4	<b>Offer and Clearing Timing</b>	Phase 1 changes plus offer MW, offer price and availability status separately for RegUp and RegDn. Offer MW will change from hourly granularity to 30 min. granularity.
5	<b>Opportunity Cost Calculation</b>	Separate resource's RegUp and RegDn opportunity cost for pricing. Settlements will calculate one intra-commitment opportunity cost that accounts for both RegUp and RegDn assignments on a resource. The settlements calculated intra-commitment opportunity cost will also account for the amount of energy produced while providing Regulation, referred to as "Regulation signal bias."
6	<b>Settlement</b>	Regulation billing for Reg Up and Reg Dn <ul style="list-style-type: none"> <li>- Separate clearing price credits for RegUp and RegDn</li> <li>- Ability to submit Regulation bilateral transactions separately for RegUp and RegDn</li> <li>- Separate clearing price charges for RegUp and RegDn</li> <li>- A single lost opportunity lost credit accounting for both RegUp and RegDn assignments</li> <li>- A single lost opportunity cost charge</li> </ul>



# Phase 2 Markets Gateway Summary of Changes

#	Markets Gateway Screen	Summary Description
1	<b>Demand Response &gt; Regulation Market &gt; Offers Generator &gt; Regulation Market &gt; Offers</b>	Product Type Column added for RegUp and RegDn Reg Self Scheduled column moved to Unit > Detail / Demand Response > Parameters
2	<b>Demand Response &gt; Regulation Market &gt; Updates Generator &gt; Regulation Market &gt; Updates</b>	Tab renamed to 'Hourly Updates' Reg MW column removed – Offer MW is moved to Period Updates New column Symmetry – as a drop down with list as 'None', 'Bidirectional', 'Symmetrical' Existing Offer Price and Cost columns replaced with Offer Price and Offer Cost columns for RegUp and RegDn
3	<b>Demand Response &gt; Regulation Market &gt; Availability Updates Generator &gt; Regulation Market &gt; Availability Updates</b>	Tab renamed to 'Period Updates' and will have all parameters with 30-min granularity RegUp MW and RegDn MW columns added Reg Availability replaced with RegUp and RegDn Availability columns Reg Self-Schedule moved to a separate column from Reg Availability and is a single column that applies to both RegUp and RegDn - (RegUP/RegDN Self-Scheduled)
4	<b>Demand Response &gt; Demand Response &gt; Parameters Generator &gt; Unit &gt; Detail</b>	Regulation Self-Schedule field added and applies to both RegUp and RegDn New column Symmetry – as a drop down with list as 'None', 'Bidirectional', 'Symmetrical'
5	<b>Generator &gt; Unit &gt; Detail</b>	Regulation Resource checkbox replaced with RegUp Resource and RegDn Resource checkboxes

Regulation Parameters that are submitted in Markets Gateway at a resource level (not product type specific) and apply to both RegUp and RegDn

- Reg Min MW
- Reg Max MW
- Spilling
- Reduced Ramp Rate (%)
- Min Offer MW
- Symmetry
- Self-Scheduled

- Bilaterals
- Demand
- ▶ Demand Response
- ▼ Generator
- Unit
- Schedules
- Dispatch Lambda
- Market Results
- Regulation Market
- Synchronized Reserve Ma
- Non-Synchronized Reserv
- Secondary Reserve Marke
- Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator
- Resource Unit

Refresh XML  
Save CSV

Portfolio: [Dropdown] Location: [Dropdown]

Offers | Hourly Updates | Period Updates

Location	Area	Product Type	Offer MW	Capability Offer Price	Mileage Offer Price	Capability Offer Cost	Mileage Offer Cost	Econ. Max. Heat Rate	Reg. Min. Heat Rate	Variable Operating & Maintenance Expense Rate	Fuel Cost	Energy Storage Loss	Econ. Max. MW	Reg. Min. MW	Min. Offer MW	Availability	Rolling Average Performance Score
<input type="checkbox"/>	PJM_RTO	REGDN														Not Available	
<input checked="" type="checkbox"/>	PJM_RTO	REGUP														Not Available	

- Product Type Column is added for REGUP and REGDN indication
- Also note, renaming to Mileage Offer from Performance Offer (this was a Phase 1 change)
- Updates displayed above were also made to respective Demand Response screen (listed in appendix)

- Bilaterals
- Demand
  - Demand Response
  - Generator**
  - Unit
  - Schedules
  - Dispatch Lambda
  - Market Results
    - Regulation Market**
    - Synchronized Reserve Ma
    - Non-Synchronized Reserv
    - Secondary Reserve Marke
  - Unit Limitations
  - Interface Pricing
  - Opportunity Cost Calculator
  - Parameter Limits
  - Price Responsive Demand
  - Pseudo Tie Transaction

Portfolio

Location

[Refresh](#)

[Save](#)

Offers **Hourly Updates** Period Updates

<input type="checkbox"/>	Hour	Reg. Min. MW	Reg. Max. MW	Spilling	Reduced Ramp Rate (%)	Min. Offer MW	Symmetry	REGUP Capability Offer Price	REGUP Mileage Offer Price	REGUP Capability Offer Cost	REGUP Mileage Offer Cost	REGDN Capability Offer Price	REGDN Mileage Offer Price	REGDN Capability Offer Cost	REGDN Mileage Offer Cost
<input checked="" type="checkbox"/>	1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<div style="border: 1px solid red; padding: 2px;"> <input type="text" value="None"/>                      None                      Bidirectional                      Symmetrical                 </div>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

- Hourly Updates tab now includes “Symmetry” indicator
  - ‘None’ (Indifferent to RegUp/RegDn MW clearing amount)
  - ‘Bidirectional’ (Must clear both RegUp and RegDn or not clear at all)
  - ‘Symmetrical’ (Must clear both RegUp and RegDn with the same MW amount or not clear at all)
- REGUP/REGDN Capability Cost and Price Offer Inputs are independently available
- REGUP/REGDN Mileage Cost and Price Offer Inputs are independently available
- Updates Displayed were also made to respective Demand Response MG screen (listed in appendix)

- Bilaterals
- Demand
- ▶ Demand Response
- ▼ Generator
- Unit
- Schedules
- Dispatch Lambda
- Market Results
- Regulation Market
- Synchronized Reserve Ma
- Non-Synchronized Reserv
- Secondary Reserve Marke
- Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator

Portfolio  Location

Refresh

Save

Offers

Hourly Updates

Period Updates

<input type="checkbox"/>	Interval	REGUP Offer MW	REGUP Availability	REGDN Offer MW	REGDN Availability	REGUP / REGDN Self Scheduled
<input checked="" type="checkbox"/>	00:30	<input type="text"/>	Not Available	<input type="text"/>	Not Available	Self Scheduled
<input type="checkbox"/>	01:00		Available		Available	Self Scheduled
<input type="checkbox"/>	01:30		Available		Available	-
<input type="checkbox"/>	02:00		Available		Available	-

- Previously titled “Availability Updates”, updated to “Period Updates”
- REGUP/DN Offer MW is separately enterable
- Self Scheduled indicator is available, and applies to both REGUP/DN
- REGUP/DN Availability is independently configurable, and is only applicable when resource is not Self Scheduled
- Updates displayed above were also made to respective Demand Response screen (listed in appendix)

- Bilaterals
- Demand
  - Demand Response
    - Demand Response**
    - Market Results
    - Regulation Market
    - Synchronized Reserve Ma
    - Secondary Reserve Marke
  - Generator
  - Interface Pricing
  - Opportunity Cost Calculator
  - Parameter Limits
  - Price Responsive Demand
  - Pseudo Tie Transaction
- Public
  - System Utilities
  - Up-To-Transaction
  - Virtual
  - Weather Forecast

Portfolio  Location

[Offer Curve Manager](#) [Offers](#) [Offer Updates](#) **[Parameters](#)** [Schedule Selection](#) [Hourly Updates](#) [Composite Offer Verification](#)

**Parameters**

Period 1 Shutdown Cost (\$)	<input type="text"/>	Period 2 Shutdown Cost (\$)	<input type="text"/>
Minimum Downtime Limit	<input type="text"/>	Notification Time (Hour)	<input type="text"/>
Maximum Downtime Limit	<input type="text"/>	Minimum Release Time	<input type="text"/>

**Regulation**

Minimum MW	<input type="text"/>	Maximum MW	<input type="text"/>
Min Offer MW	<input type="text"/>	Regulation Self Scheduled	<input type="text" value="Self Scheduled"/>
Regulation Symmetry	<input type="text" value="None"/> <ul style="list-style-type: none"><li>None</li><li>None</li><li>Bidirectional</li><li>Symmetrical</li></ul>		

- Regulation Symmetry and Self-Scheduled status is now configurable via Demand Response Parameters tab

- Bilaterals
- Demand
  - Demand Response
- Generator
  - Unit**
  - Schedules
  - Dispatch Lambda
  - Market Results
  - Regulation Market
  - Synchronized Reserve Ma
  - Non-Synchronized Reserv
  - Secondary Reserve Marke
  - Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator
- Generator Units

Portfolio  Location

Hourly Updates **Detail** Ramp Rates Ramp Rates Updates Wind Forecast Solar Forecast Storage Updates Long Lead Commitment IntraDay Opt Out

**Regulation**

Minimum MW  Maximum MW

Min Offer MW  Self Scheduled

Symmetry   
None  
Bidirectional  
Symmetrical

**Cost**

- Regulation Symmetry and Self-Scheduled status is now configurable via Unit Detail tab

- Bilaterals
- Demand
  - Demand Response
- Generator
  - Unit**
  - Schedules
  - Dispatch Lambda
  - Market Results
  - Regulation Market
  - Synchronized Reserve Ma
  - Non-Synchronized Reserv
  - Secondary Reserve Marke
  - Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- Public

Portfolio: [dropdown] Location: [dropdown]

Hourly Updates | **Detail** | Ramp Rates | Ramp Rates Updates | Wind Forecast | Solar Forecast | Storage Updates | Long Lead Commitment | IntraDay Opt Out

Last Updated Date/Time: 2024-12-06 20:59:54

Description	
Type of Unit	[dropdown]
Unit Number	[input]
Node	[dropdown]
Capacity Resource	<input checked="" type="checkbox"/>
Capacity Performance	<input checked="" type="checkbox"/>
Fast Start	<input type="checkbox"/>
Plant Name	[dropdown]
Unit Name	[input]
Operating Company	[dropdown]
Regulation Up Resource	<input type="checkbox"/>
Regulation Down Resource	<input type="checkbox"/>
Energy Storage	<input type="checkbox"/>

- Regulation Resource checkbox replaced with RegUp Resource and RegDn Resource checkboxes



# Phase 2 Markets Gateway Summary of Changes

#	Markets Gateway Screen	Summary Description
6	<b>Generator &gt; Dispatch Lambda</b>	Reg MW column replaced with RegUp MW and RegDn MW columns
7	<b>Demand Response &gt; Market Results &gt; Regulation Award</b> <b>Generator &gt; Market Results &gt; Regulation Award</b>	Split into separate RegUp and RegDn Regulation Award tabs. It will continue to be 30-minute granularity.
8	<b>Public &gt; Market Results Ancillary Services &gt; Regulation Results</b>	Split into separate RegUp and RegDn Regulation Award tabs. It will continue to be 30-minute granularity.
9	<b>Bilaterals</b>	Reg MW column replaced with RegUp MW and RegDn MW columns.

- Bilaterals
- Demand
- ▶ Demand Response
- ▼ Generator
- Unit
- Schedules
- Dispatch Lambda
- Market Results
- Regulation Market
- Synchronized Reserve Ma
- Non-Synchronized Reserv
- Secondary Reserve Marke

Portfolio:

Refresh

Last Queried: 5/6/2026 10:41:56 Total Steam: 552.7 Total Regulation MW: 0

Location	Schedule	Schedule Type	Lambda	Gen. MW	Non-Ramp MW	REGUP MW	REGDN MW	Deviation MW	Econ. Min.	Econ. Max.	Capacity Max.	SR Assignment	NSR Assignment	SecR Assignment	On Time	Off Time	Status
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

- On Dispatch Lambda screen, Reg MW column replaced with separate REGUP MW and REGDN MW columns

Markets Gateway

Portfolio:

Interval	Location	Offer MW	Self-Schedule MW	Awarded MW	TPS Result	Offer Price Used	Performance Score
Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all
00:30							
01:00							
01:30							
02:00							

- Resource specific Market Results is now split into separate RegUp and RegDn Regulation Award tabs
- It will continue to be 30-minute granularity
- Demand Response Regulation Down Award tab, as well as Generator Up and Down Regulation Award tabs, are shown in the appendix

- Bilaterals
- Demand
- ▶ Demand Response
- ▶ Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- ▼ Public
  - Messages
  - Reports
  - Pricing Nodes
  - Market Results Energy
  - Market Results Ancillary
  - System Utilities
  - Up-To-Transaction
  - Virtual
  - Weather Forecast

REGUP Regulation Results
REGDN Regulation Results
DA Synchronized Reserve Results
RT Synchronized Reserve Results
DA Primary Reserve Results
RT Primary Reserve Results
DA 30 Minute

PJM >> 2026-05-06

Interval	Requirement	REGDN SelfScheduled Effective MW		REGDN Procured Effective MW		Total	Deficiency		RTO Average Performance Score	REGDN Mileage
		Show all	Show all	Show all	Show all		Show all	Show all		
00:30		750.0	0.0	750.0	750.0	750.0	0.0	0.8825		
01:00		750.0	0.0	750.0	750.0	750.0	0.0	0.89		
01:30		650.0	0.0	650.0	650.0	650.0	0.0	0.9097		
02:00		650.0	0.0	650.0	650.0	650.0	0.0	0.9204		
02:30		550.0	0.0	550.0	550.0	550.0	0.0	0.8848		
03:00		550.0	0.0	550.0	550.0	550.0	0.0	0.9181		
03:30		550.0	0.0	550.0	550.0	550.0	0.0	0.9152		

- Public Market Results Ancillary Services have been split into separate RegUp and RegDn Regulation Award tabs
- Will continue to be 30-minute granularity
- Above displays REGDN Regulation Results, respective REGUP tab is configured in the same format (in appendix)

- Bilaterals**
- Demand
  - Demand Response
    - Demand Response
    - Market Results
    - Regulation Market
    - Synchronized Reserve Ma
    - Secondary Reserve Marke
  - Generator
  - Interface Pricing

Date: June 2026

Refresh XML Save CSV

**Regulation Bilaterals** Synchronized Reserve Bilaterals Non-Synchronized Reserve Bilaterals Secondary Reserve Bilaterals

<input type="checkbox"/>	Confirmation	Confirmation Time	ID	Buyer	Seller	REGUP MW	REGDN MW	Start Time	Stop Time
--------------------------	--------------	-------------------	----	-------	--------	----------	----------	------------	-----------

- Regulation Bilaterals tab updated to separately reflect REGUP MW and REGDN MW

The following documents have been posted on the Ancillary Services page under a new section called **Regulation Redesign Phase 2:**

[PJM.com > Markets & Operations > Ancillary Services >](#)

Regulation Redesign Phase 2	Date
Regulation Phase 2 Open House - March 2026 <a href="#">PDF</a>	4.2.2026
Regulation Cost-Based Offers Validation Template - Phase 2 <a href="#">XLS</a>	4.22.2026
Sample Regulation Up and Regulation Down Test Signal Pattern <a href="#">XLS</a>	3.3.2026
40-Minute Performance Score Template <a href="#">XLS</a>	3.3.2026
Regulation Conversion Testing Checklist for Phase 2 <a href="#">PDF</a>	2.18.2026
Regulation Redesign Phase 2 FAQs <a href="#">PDF</a>	3.2.2026
Regulation Up & Down Effective Megawatt Requirement Definition <a href="#">PDF</a>	1.27.2026



# Phase 2 Data Miner 2 Summary of Changes

#	Data Miner 2 Feed Location	Summary Description
1	<b>Ancillary Services &gt; Real-Time Ancillary Service Market Results</b>	A new feed will be created that includes Requirements, Procured MWs, and Clearing Prices for both RegUp/RegDn and Reserve products. This feed is posted daily on business days.
2	<b>Ancillary Services &gt; Regulation Market Data</b>	A new feed will be created that includes RegUp/RegDn Requirements and procured MWs. It will also include RegUp/RegDn Mileage and overall performance scores. This feed is posted daily on business days.
3	<b>Ancillary Services &gt; Regulation Prices</b>	A new feed will be created that includes the five minute RegUp/RegDn clearing prices, requirements, and procured MWs. This feed is updated every five minutes in real time.
4	<b>Ancillary Services &gt; PJM Regulation Zone Preliminary Billing Data</b>	A new feed will be created to provide hourly preliminary billing data for both RegUp and RegDn products. The feed contains data once processed and made available by PJM Settlements.
5	<b>Locational Marginal Prices &gt; Real-Time Ancillary Service Five-Minute LMPs</b>	Existing feed will be updated. Ancillary Service column will include RTO Regulation Up Capability, RTO Regulation Up Mileage, RTO Regulation Up Mileage Ratio, RTO Regulation Down Capability, RTO Regulation Down Mileage, and RTO Regulation Down Mileage Ratio. RTO Regulation Capability, RTO Regulation Mileage, and RTO Mileage Ratio will not be included.
6	<b>Locational Marginal Prices &gt; Real-Time Ancillary Service Hourly LMPs</b>	Existing feed will be updated. Ancillary Service column will include RTO Regulation Up Capability, RTO Regulation Up Mileage, RTO Regulation Up Mileage Ratio, RTO Regulation Down Capability, RTO Regulation Down Mileage, and RTO Regulation Down Mileage Ratio. RTO Regulation Capability, RTO Regulation Mileage, and RTO Mileage Ratio will not be included.

#	Location	Summary Description
1	<a href="#">Data Viewer &gt; Ancillary Services &gt; Market Clearing Prices</a>	<p>Remove the following fields</p> <ul style="list-style-type: none"> <li>- RTO Regulation Capability</li> <li>- RTO Regulation Performance</li> </ul> <p>Add the following fields</p> <ul style="list-style-type: none"> <li>- RTO Regulation Up Capability</li> <li>- RTO Regulation Up Mileage</li> <li>- RTO Regulation Down Capability</li> <li>- RTO Regulation Down Mileage</li> <li>- RTO Secondary Reserve</li> <li>- MAD Secondary Reserve</li> </ul>
2	<a href="#">PJM.com &gt; Markets and Operations</a>	In Ancillary Services section, replace Regulation Price with Regulation Up Price and Regulation Down Price.

Future versions of this presentation will include, when available:

- Field names and descriptions for Data Miner 2 feeds that will replace existing ones
- Updates on related SCADA points



# Phase 2 Milestones and Tentative Timeline

No.	Milestone	Timeline
1	Regulation Redesign project – information update at the TCF	From March 2026
2	Open Houses 1 & 2 (virtual)	March 30 and July 30, 2026
3	Markets Gateway Train (Sandbox) opens for testing	June 2026
4	RegUp/RegDn resources conversion testing begins	June 2026
5	All related manuals first read (Phase 1): M11, M12, M15, M28	July 2026
6	All related manuals endorsed (Phase 1): M11, M12, M15, M28	August 2026 (September if needed)
7	Special education series	August 14 and September 18, 2026
8	Regulation Redesign Phase 2 market opens	Sept. 25, 2026*
9	Regulation Redesign Phase 2 go-live (cutover)	Oct. 1, 2026, at 00:00*

Inquiry	Email Contact
<b>To request a Regulation test</b>	<a href="mailto:RegulationTesting@pjm.com">RegulationTesting@pjm.com</a>
<b>Regulation telemetry – signal setup or conversion</b>	<a href="mailto:PJMTelemetrySupport@pjm.com">PJMTelemetrySupport@pjm.com</a>
<b>Regulation redesign questions</b>	<a href="mailto:RegulationDesign@pjm.com">RegulationDesign@pjm.com</a>
<b>Communication to PJM Member Relations</b>	<a href="mailto:custsvc@pjm.com">custsvc@pjm.com</a>

**Presenters:**

**Jack Litzke**, [Jack.Litzke@pjm.com](mailto:Jack.Litzke@pjm.com)

**Christopher Wells**, [Christopher.Wells@pjm.com](mailto:Christopher.Wells@pjm.com)

**SMEs:**

**Michael Olaleye**, [Michael.Olaleye@pjm.com](mailto:Michael.Olaleye@pjm.com)

**Damon Fereshetian**, [Damon.Fereshetian@pjm.com](mailto:Damon.Fereshetian@pjm.com)

**Anitha Nekkhalapudi**, [Anitha.Nekkhalapudi@pjm.com](mailto:Anitha.Nekkhalapudi@pjm.com)

**Matthew Pennell**, [Matthew.Pennell@pjm.com](mailto:Matthew.Pennell@pjm.com)

**Regulation Redesign Phase 2 – Markets Gateway, Data Miner 2,  
Data Viewer and PJM.com Changes**



**Member Hotline**

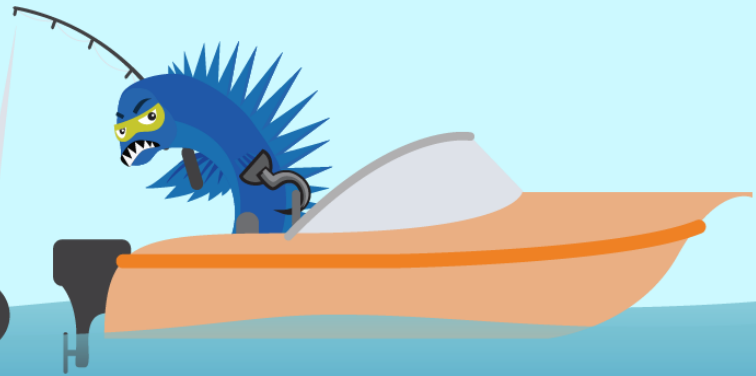
(610) 666 – 8980

(866) 400 – 8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)

**PROTECT THE  
POWER GRID**

**THINK BEFORE  
YOU CLICK!**



**BE ALERT TO  
MALICIOUS PHISHING  
EMAILS**



**Report suspicious email activity to PJM.  
Call (610) 666-2244 or email [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)**

# APPENDIX

- Bilaterals
- Demand
  - ▼ Demand Response
  - Demand Response
  - Market Results
  - Regulation Market
  - Synchronized Reserve Ma
  - Secondary Reserve Marke
- Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction

Portfolio:

Location:

Refresh

Save

**Offers** | Hourly Updates | Period Updates

	Location	Area	Product Type	Offer MW	Capability Offer Price	Mileage Offer Price	Capability Offer Cost	Mileage Offer Cost	Reg Min. MW	Reg Max. MW	Min. Offer MW	Availability	Rolling Avg Performance Score
<input checked="" type="checkbox"/>	PJM_RT0	PJM_RT0	REGDN	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>				Available	
<input type="checkbox"/>	PJM_RT0	PJM_RT0	REGUP									Not Available	

- Product Type Column is added for REGUP and REGDN indication
- Also note, renaming to Mileage Offer from Performance Offer (this was a Phase 1 change)

- Bilaterals
- Demand
  - Demand Response**
  - Demand Response
  - Market Results
  - Regulation Market**
  - Synchronized Reserve Ma
  - Secondary Reserve Marke
- Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- Public
- System Utilities
- Up-To-Transaction
- Virtual

Portfolio:

Location:

[Refresh](#) XML

[Save](#) CSV

Offers
**Hourly Updates**
Period Updates

Reg Min MW: Reg Max MW:

	Hour	Reg. Min. MW	Reg. Max. MW	Symmetry	REGUP Capability Offer Price	REGUP Mileage Offer Price	REGUP Capability Offer Cost	REGUP Mileage Offer Cost	REGDN Capability Offer Price	REGDN Mileage Offer Price	REGDN Capability Offer Cost	REGDN Mileage Offer Cost	Reg. Min. Offer MW
<input checked="" type="checkbox"/>	1	<input type="text"/>	<input type="text"/>	<div style="border: 1px solid black; padding: 2px;"> <input type="text" value="None"/> </div> <ul style="list-style-type: none"> <li>None</li> <li>Bidirectional</li> <li>Symmetrical</li> </ul>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	2	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	3	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	4	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	5	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	6	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

- Bilaterals
- Demand
  - Demand Response**
  - Demand Response
  - Market Results
  - Regulation Market**
  - Synchronized Reserve Ma
  - Secondary Reserve Marke
- Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction

Portfolio  Location

Refresh XML  
Save CSV

Offers | Hourly Updates | **Period Updates**

<input type="checkbox"/>	Interval	REGUP Offer MW	REGUP Availability	REGDN Offer MW	REGDN Availability	REGUP / REGDN Self Scheduled
<input checked="" type="checkbox"/>	00:30	<input type="text"/>	Not Available	<input type="text"/>	Available	-
<input type="checkbox"/>	01:00		Available		Available	Self Scheduled
<input type="checkbox"/>	01:30		Available		Available	-

- Bilaterals
- Demand
- ▶ Demand Response
- ▶ Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- ▼ Public
  - Messages
  - Reports
  - Pricing Nodes
  - Market Results Energy
  - Market Results Ancillary
  - System Utilities
  - Up-To-Transaction
  - Virtual
  - Weather Forecast

REGUP Regulation Results

REGDN Regulation Results

DA Synchronized Reserve Results

RT Synchronized Reserve Results

DA Primary Reserve Results

RT Primary Reserve Results

DA 30 Minute Re

PJM >> 2026-05-06

Interval	Requirement	REGUP SelfScheduled Effective MW		REGUP Procured Effective MW		Total		Deficiency		RTO Average Performance Score		REGUP Mileage
▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all	Show all
00:30	750.0	0.0	750.0	750.0	0.0	0.8825						
01:00	750.0	0.0	750.0	750.0	0.0	0.89						
01:30	650.0	0.0	650.0	650.0	0.0	0.9097						
02:00	650.0	0.0	650.0	650.0	0.0	0.9204						
02:30	550.0	0.0	550.0	550.0	0.0	0.8848						
03:00	550.0	0.0	550.0	550.0	0.0	0.9181						
03:30	550.0	0.0	550.0	550.0	0.0	0.9152						

- Bilaterals
- Demand
  - ▼ Demand Response
  - Demand Response
  - Market Results
  - Regulation Market
  - Synchronized Reserve Ma
  - Secondary Reserve Marke
- Generator
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- Public

Portfolio Regulation

Refresh

- DA Energy Award
- Regulation UP Award
- Regulation DOWN Award
- DA Synchronized Reserve Award
- RT Synchronized Reserve Award
- DA Secondary Reserve Award
- RT Secondary Reserve Award

00:30 -- 01:00:00 -- Regulation

Interval	Location	Offer MW	Self-Schedule MW	Awarded MW	TPS Result	Offer Price Used	Performance Score
Show all	▼	Show all	▼	Show all	▼	Show all	▼
00:30	01:00:00:00 - 01:00:00:00	0.0	0.0	0.0		0.00	
01:00	01:00:00:00 - 01:00:00:00	0.0	0.0	0.0		0.00	
01:30	01:00:00:00 - 01:00:00:00	0.0	0.0	0.0		0.00	
02:00	01:00:00:00 - 01:00:00:00	0.0	0.0	0.0		0.00	

- Bilaterals
- Demand
  - Demand Response
  - Generator**
- Unit
- Schedules
- Dispatch Lambda
- Market Results**
- Regulation Market
- Synchronized Reserve Ma
- Non-Synchronized Reserv
- Secondary Reserve Marke
- Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits

Portfolio:

Refresh

XML

CSV

- DA Energy Award
- Regulation UP Award**
- Regulation DOWN Award
- DA Synchronized Reserve Award
- RT Synchronized Reserve Award
- DA Non-Synchronized Reserve Award

Interval	Location	Offer MW	Self-Schedule MW	Awarded MW	TPS Result	Offer Price Used	Performance Score
Show all	<input type="text" value="PJM_REGULATION"/>	Show all	Show all	Show all	Show all	Show all	Show all
00:30	<input type="text" value="PJM_REGULATION"/>						
01:00	<input type="text" value="PJM_REGULATION"/>						
01:30	<input type="text" value="PJM_REGULATION"/>						
02:00	<input type="text" value="PJM_REGULATION"/>						
02:30	<input type="text" value="PJM_REGULATION"/>						
03:00	<input type="text" value="PJM_REGULATION"/>						

- Bilaterals
- Demand
- ▶ Demand Response
- ▼ Generator
  - Unit
  - Schedules
  - Dispatch Lambda
  - Market Results
  - Regulation Market
  - Synchronized Reserve Ma
  - Non-Synchronized Reserv
  - Secondary Reserve Marke
  - Unit Limitations
- Interface Pricing
- Opportunity Cost Calculator

Portfolio REGULATION DOWN ▼

Refresh

- DA Energy Award
- Regulation UP Award
- Regulation DOWN Award
- DA Synchronized Reserve Award
- RT Synchronized Reserve Award
- DA Non-Synchronized Reserve Award

Interval ▲	Location	Offer MW	Self-Schedule MW	Awarded MW	TPS Result	Offer Price Used	Performance Score
Show all	▼	Show all	▼	Show all	▼	Show all	▼
00:30							
01:00							
01:30							
02:00							
02:30							

#	Design Components	Summary Description
1	<b>Signals and Products</b>	Change from <b>two</b> signals (RegA and RegD) bidirectional to <b>one</b> signal bidirectional that all resources that are assigned Regulation in a given market interval will follow.
2	<b>Requirement MW</b>	Changes to better reflect operational needs, with consideration both to historic and future system conditions
3	<b>Performance Scoring</b>	Change from accuracy, delay and precision to precision only.
4	<b>Offer and Clearing Timing</b>	Eliminate “cost increase in VOM” except for Reg-only resources, change from hour clearing and commitment to 30-minute clearing and commitment.
5	<b>Opportunity Cost Calculation Reform</b>	<ol style="list-style-type: none"> <li>1. Use the schedule the resource is running for energy or else the cheaper of available schedule for offline.</li> <li>2. Use tracking desired MW at LMP ramp rate limited.</li> <li>3. Use the area between LMP and the energy schedule the resource is running on.</li> </ol>
6	<b>Settlement</b>	<p>For the eligible resources, Settlement will calculate the shoulder interval opportunity cost for two five-minute ramp-in intervals before the resource Regulation operation and two five-minute ramp-out intervals following the resource Regulation operation (currently, three intervals ramp-in and three intervals ramp-out).</p> <p>Also, Settlement will update the calculation for the Regulation Mileage Credit (currently Performance Credit) such that the mileage ratio is equal to [Real-Time Regulation Mileage/Historic Regulation Mileage]</p>



# Markets Gateway Summary of Changes – Phase 1

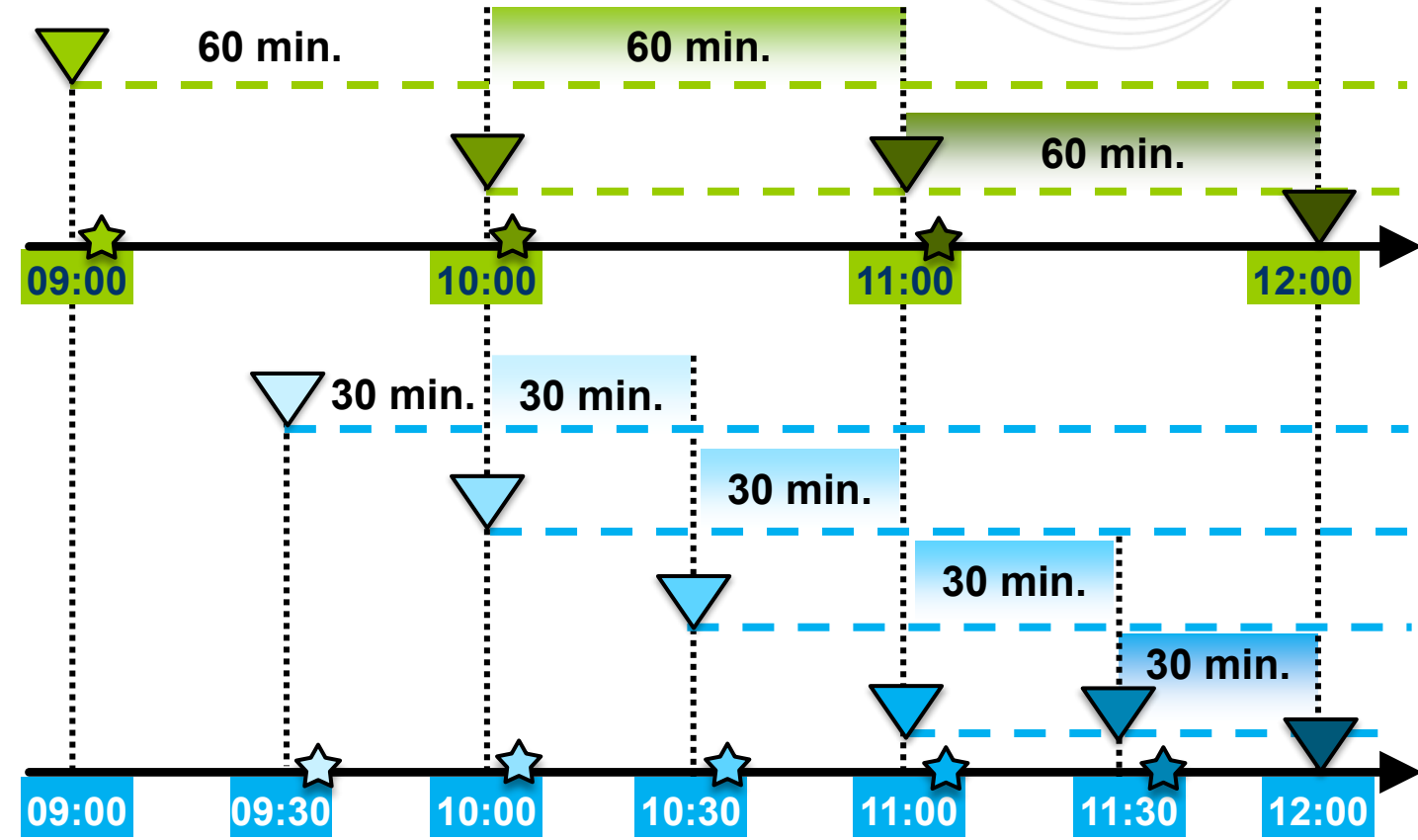
#	Markets Gateway Screen	Summary Description
1	<b>Demand Response &gt; Regulation Market &gt; Offers / Updates</b> <b>Generator &gt; Regulation Market &gt; Offers / Updates</b>	On Offer page, removed column 'Type' for A/D On Update page, merged, deleted and rearranged columns;
2	<b>Demand Response &gt; Regulation Market &gt; Offers</b> <b>Generator &gt; Regulation Market &gt; Offers</b>	Changed Performance Offer Price to Mileage Offer Price Changed Performance Offer Cost to Mileage Offer Cost
3	<b>Generator &gt; Regulation Market &gt; Offers</b>	Removed VOM except for regulation-only resources
4	<b>Demand Response &gt; Regulation Market &gt; Updates</b> <b>Generator &gt; Regulation Market &gt; Updates</b>	Changed Performance Offer Price to Mileage Offer Price Changed Performance Offer Cost to Mileage Offer Cost
5	<b>Demand Response &gt; Regulation Market &gt; Availability Updates</b> <b>Generator &gt; Regulation Market &gt; Availability Updates</b>	New screen to indicate availability status and self-schedule on a 30-minute granularity
6	<b>Demand Response &gt; Market Results &gt; Regulation Award</b> <b>Generator &gt; Market Results &gt; Regulation Award</b>	Changed Regulation Award page from hourly granularity to 30-minutes, deleted RegD columns
7	<b>Public &gt; Market Results Ancillary &gt; Regulation Results</b>	Changed Regulation Award page from hourly granularity to 30-minutes



# Data Miner 2 Summary of Changes – Phase 1

#	Data Miner 2 Feed Location	Summary Description
1	<b>Ancillary Services &gt; Real-Time Ancillary Service Market Results</b>	Update 'Regulation Performance Clearing Price' to 'Regulation Mileage Clearing Price', Remove 'REGD MW' column
2	<b>Ancillary Services &gt; Regulation Market Data</b>	Change from hourly granularity to 30-minute, Remove RegD related columns, Update RegA related columns to just Reg
3	<b>Ancillary Services &gt; Regulation Prices</b>	Update 'Performance Clearing Price' to 'Mileage Clearing Price', Remove Marginal Benefits Factor column
4	<b>Ancillary Services &gt; PJM Regulation Zone Preliminary Billing Data</b>	Update 'Regulation Market Performance Clearing Price' to 'Regulation Market Mileage Clearing Price', Update 'Total PJM Regulation Market Performance Clearing Price Credits' to 'Total PJM Regulation Market Mileage Clearing Price Credits'
5	<b>Locational Marginal Prices &gt; Real-Time Ancillary Service Five-Minute LMPs</b>	Update 'RTO Regulation Performance' in Ancillary Service column to 'RTO Regulation Mileage'
6	<b>Locational Marginal Prices &gt; Real-Time Ancillary Service Hourly LMPs</b>	Update 'RTO Regulation Performance' in Ancillary Service column to 'RTO Regulation Mileage'

## Move to a 30-Minute Clearing Time and Commitment Duration



**Clock**

### STATUS QUO

- **60 minutes** prior to target time
- Looks ahead 60 minutes beyond target time

### PHASE 1 & 2

- **30 minutes** prior to target time
- Looks ahead 30 minutes beyond target time

**Legend**

- Case execution time
- Case approval
- Service provided



# Sample ASO Case Execution, Posting and Target Intervals

Cases	Execution Time	Products Types	Markets Gateway Posting Deadline	Target Time (Begin)
ASO 00	12:30	Regulation & Reserves	12:50	13:00
ASO 30	13:00	Regulation Only	13:20	13:30
ASO 00	13:30	Regulation & Reserves	13:50	14:00
ASO 30	14:00	Regulation Only	14:20	14:30

- Regulation and Reserves results notification of at least 10 minutes before the operating time
- If ASO 30 is missed, All-Call must go out by **hh:20** to extend the last **Regulation assignment**;
- If **ASO 00** is missed, All-Call must go out by **hh:50** to extend the last **Regulation and Inflexible Reserve assignment**

Offer Type	Markets Gateway Location	Deadline to Update
Daily Offer	Demand Response > Regulation Market > Offers	End of Rebid Period (14:15) the day before the Operating Day
	Generator > Regulation Market > Offers	
Hourly Updates	Demand Response > Regulation Markets > Hourly Updates	35 Minutes Prior to the Operating Hour*
	Generator > Regulation Market > Hourly Updates	
Period Updates (30-min granularity, only applies to Regulation)	Demand Response > Regulation Market > Period Updates	35 Minutes Prior to the Operating Period
	Generator > Regulation Market > Period Updates	

\*Note: Hourly Regulation Capability Offer Price/Cost and Hourly Regulation Mileage Offer Price/Cost can only be updated intraday for resources that are opted in to Intraday Offers (IDO). If opted out of IDO, they may still be submitted prior to 14:15 the day before the Operating Day