

Review of Real Time Values Market Rules Report Out and First Read

Laura Walter
Sr. Lead Economist, Advanced
Analytics Department
Markets Implementation Committee
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Capacity Resources

- Required to submit cost based and parameter limited price based schedules (price PLS)
- Based on technology type, resources are required to submit parameter limits that adhere to the established proxy parameters found in the Minimum Operating Parameter matrix
- Three ways to communicate a change in the operational capability of a resource
 1. Unit Specific Parameter Adjustment
 2. Parameter Limited Exception
 3. Real Time Values

Parameter Limits
Minimum Down Time
Minimum Run Time
Maximum Run Time
Maximum Daily Starts
Maximum Weekly Starts
Hot/Warm/Cold Start Up Time
Notification Time
Turn Down Ratio (Eco Max/Eco Min)

- Mechanism for a resource to communicate to PJM the current operating capability of a resource if it could not operate according to its unit specific parameter limits or approved parameter limited exceptions
- Do not require PJM approval and are non-permanent
- Resources using RTVs will not receive Operating Reserve Credits and will not be made whole unless the Market Seller can justify to PJM that operating outside of its unit specific parameters was the result of an actual constraint

Parameters Eligible for RTV Overrides
Minimum Down Time
Minimum Run Time
Maximum Run Time
Hot/Warm/Cold Start Up Time
Notification Time
Turn Down Ratio

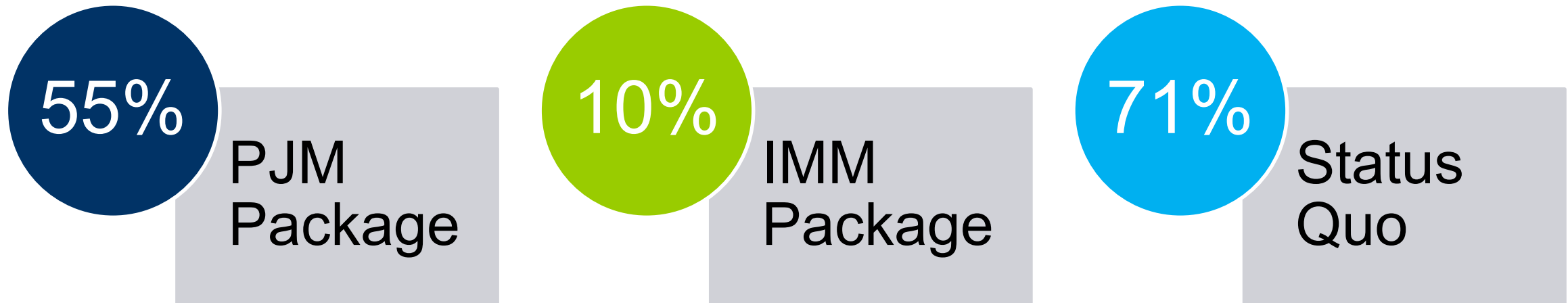
1. It has been observed that RTVs are being used to consistently override a resource's unit specific parameter limits or approved parameter limited exceptions
2. There have been operational impacts in real time when a resource is called on by PJM dispatch based on its unit specific parameter limits or approved parameter limited exceptions, and at that time the resource notifies PJM that they cannot physically meet their unit specific parameter limits and have not submitted a RTV

- Provided education on PLS parameters including the unit specific parameter adjustment process, parameter limited exception process, and RTV process.
- Created and vetted design components
- 5 solution packages were reviewed
- Non-binding poll to determine support for existing solution package design components and fundamental concepts regarding real time value market rules.
 - Based on poll results, PJM amended its solution package

Poll responses were non-binding and intended to solicit feedback on potential support for key design components.

Summary

- With regards to a penalty for not using RTV, it is preferred to retain the status quo which currently has no explicit monetary penalties required.
 - The most supported penalty structure for situations when a RTV was not used is requiring a ticket in GADs for a forced outage.
- With regards to a charge for using RTV, the status quo which currently requires a forfeiture of Make-whole payments if committed on Price PLS or Cost Schedule is supported over a proposed charge being applied.
 - It was not supported to apply a RTV charge if a unit is not needed by PJM or is mitigated.



- Non-binding poll on remaining two packages (PJM and IMM)
 - Three of the five packages were removed after the September special session

- October – MIC Report out and First Read of the PJM and IMM Solution Packages
- November – MIC Vote
- December – MRC First Read
- January – MRC Vote
- February - MC vote (if applicable OA / OATT redlines)

- **Market participant Consequences for not reflecting known actual operating conditions in submitted operating parameters (not using RTV).**
 - PJM will include RTV in the tariff including that multiple discrepancies or incidences of misrepresentation of parameters may result in PJM, the with timely advice and input from the Market Monitor, referring the market seller to FERC.
 - Market Participant will be required to enter a forced outage ticket into eGADS for the period of increased notification, start-up time and/or minimum downtime.
- **Market participant Consequences for using RTV to override unit specific parameters on the price based PLS or cost based schedules.**
 - In addition to the status quo on make whole payments, during a hot weather or cold weather alert or max generation emergency: if market participant uses RTVs to modify a schedule resulting in an offer with more limited parameters (for PJM), unless it is a physical limitation, PJM has the option to refer the Market Seller to the FERC.
 - Additionally documentation of the physical limitation must be provided to PJM within 3 business days.
- **Timeline of RTV submittal**
 - RTV submittal will not carry forward. RTV request time period cannot exceed one market day. When an RTV is requested it will be available for that one day then the schedule will revert to the previous day's values (for the entire schedule).
 - Participants will need to be aware that their schedule from the day that has the RTV will not roll forward and RTVs will need to be entered each day they are needed.
- **Implementation Date**
 - Upon FERC Approval

Presenter/SME:
Laura Walter,
Laura.Walter@pjm.com

Review of Real Time Values Market Rules First Read



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

Appendix

Polling Question	Majority	Other Results
With regards to a penalty for not using RTV, do you prefer to retain the status quo which currently has no explicit monetary penalties required?	Yes – 63%	No – 37%
Which of the penalty structure options for not using RTVs do you most strongly support?	Receive a Forced Outage – 49%	<ul style="list-style-type: none"> • Status Quo – 18% • PJM will include RTV in the Tariff – 17% • Considered a violation of FERC market behavior rules – 11% • Other – 5%
With regards to a charge for using RTV, do you prefer to retain the status quo which currently requires a forfeiture of Make-whole payments if committed on Price PLS or Cost Schedule that have RTV that are less flexible than the unit's USP Values. Make whole can be paid out if proper documentation is submitted within 30 days of billing cycle as per M11?	Yes – 61%	No – 39%
Which of the charge structure options for using RTVs do you most strongly support?	Status Quo – 57%	<ul style="list-style-type: none"> • In the case when market participants use RTV – 17% • Other – 13% • Forfeit capacity revenues on a daily basis – 11% • RTV override penalty – 2%

Polling Question	Majority	Other Results
Please rate your willingness to compromise on the following design components: Penalty structure for not using RTVs	May be willing to compromise – 58%	<ul style="list-style-type: none"> • Most willing to compromise – 25% • Not willing to compromise – 17%
Please rate your willingness to compromise on the following design components: Charge structure for using RTVs	May be willing to compromise – 47%	<ul style="list-style-type: none"> • Not willing to compromise – 43% • Most willing to compromise – 10%
In the event a change to RTV market rules is endorsed and filed with FERC, which effective date for the applicable revision(s) do you most strongly support?	Changes effective with the start of the 22/23 DY – 71%	<ul style="list-style-type: none"> • Immediate implementation – 29%
Should a RTV charge be applied if a unit is not needed by PJM?	No – 63%	<ul style="list-style-type: none"> • Maybe – 37% • Yes – 0 %
Should RTV charges apply if a unit is not mitigated?	No – 62%	<ul style="list-style-type: none"> • Maybe – 36% • Yes – 2%
Do you believe an LMP test is appropriate to determine if a unit is needed by PJM?	Yes – 61%	<ul style="list-style-type: none"> • No – 29% • Maybe – 10%
What offer should the LMP test be compared to if the unit is mitigated?	Cost – 78%	<ul style="list-style-type: none"> • Price PLS – 20% • Price – 2%
What offer should the LMP test be compared to if the unit is not mitigated?	Price – 62%	<ul style="list-style-type: none"> • Price PLS – 16% • Cost – 2%



PJM Package Overview

Component	Status Quo	PJM Proposal
<p>Market participant Consequences for not reflecting known actual operating conditions in submitted operating parameters (not using RTV). This excludes failing to meet submitted operating parameters due to emergent, unforeseen issues at the plant eg. issues during startup or unit trip.</p>	<p>If a unit fails to follow submitted parameters, dispatch reports parameter discrepancy and PJM follows up with market participant. (FERC market behavior rules: "CFR §35.41 Market behavior rules.(b) Communications. A Seller must provide accurate and factual information and not submit false or misleading information, or omit material information, in any communication with the Commission, Commission-approved market monitors, Commission-approved regional transmission organizations, Commission-approved independent system operators, or jurisdictional transmission providers, unless Seller exercises due diligence to prevent such occurrences.")</p>	<p>PJM will include RTV in the tariff including that multiple discrepancies or incidences of misrepresentation of parameters may result in PJM, the with timely advice and input from the Market Monitor, referring the market seller to FERC. Market Participant will be required to enter a forced outage ticket into eGADS for the period of increased notification, start-up time and/or minimum downtime.</p>
<p>Market participant Consequences for using RTV to override unit specific parameters on the price based PLS or cost based schedules.</p>	<p>Forfeit Make-whole if committed on Price PLS or Cost Schedule that have RTV that are less flexible than the unit's USP Values. Make whole can be paid out if proper documentation is submitted within 30 days of billing cycle as per M11. (PJM will verify if this is a tariff violation)</p>	<p>In the case when market participants use RTV to override unit specific parameters on the price based PLS or cost based schedules (the unit specific parameter or any approved PLS exception), the consequences are the following: In addition to the status quo on make whole payments, during a hot weather or cold weather alert or max generation emergency: if market participant uses RTVs to modify a schedule resulting in an offer with more limited parameters (for PJM), unless it is a physical limitation, PJM has the option to refer the Market Seller to the FERC. Additionally documentation of the physical limitation must be provided to PJM within 3 business days.</p>



PJM Package Overview

Component	Status Quo	PJM Modification
Alternative means of communicating changes to true operating parameters	Calling dispatch, operational restrictions field in MKTs gateway, eDart tickets	Status Quo
Timeline of RTV submittal	When. 7 days in advance through current operating day	RTV submittal will not carry forward. RTV request time period cannot exceed one market day. When an RTV is requested it will be available for that one day then the schedule will revert to the previous day's values (for the entire schedule). Participants will need to be aware that their schedule from the day that has the RTV will not roll forward and RTVs will need to be entered each day they are needed.
How RTVs can be submitted	Through MKTs gateway	Status Quo
Commitment process using RTVs	Market Participants must first submit a RTV exception, then are able to update the corresponding parameter(s) on the Cost and/or Price PLS schedule. Once updated, DA and/or SCED will use the submitted parameter value in commitment decisions based on the following priority (hourly schedule level values, daily schedule level values, unit level values).	Status Quo
Eligible parameters for RTV	Turn Down Ratio o Minimum Down Time o Minimum Run Time o Maximum Run Time o Start Up Time o Notification Time	Status Quo



PJM Package Overview

Component	Status Quo	PJM Modification
Dispatch process using RTVs when on PLS.	Market Participants must first submit a RTV exception, then are able to update the corresponding parameter(s) on the Cost and/or Price PLS schedule. Once updated, SCED will use the submitted parameter value in dispatch decisions based on the following priority (hourly schedule level values, daily schedule level values, unit level values).	Status Quo
Valid reasons for using RTV in place of approved unit specific operating parameters.(no consequence for using RTV)	Undefined in manual & RTV absent from Tariff (Section 2.3.4.4 M11): Real Time Values should be utilized when a resource cannot operate according to the unit specific parameters (Capacity Performance and Base Capacity resources), default Parameter Limited Schedules (non-Capacity Performance resources), or approved Parameter Limit exceptions.	None
Market participant Incentives to provide accurate info	N/A	Status Quo
Credits for penalty allocation	N/A	N/A
Process & timeline for submitting documentation to support RTV justification	Generation Capacity Resource that operates outside of its unit-specific parameters will not receive Operating Reserve Credits nor be made whole for such operation when not dispatched by the Office of the Interconnection, unless the Market Seller of the Generation Capacity Resource can justify to the Office of the Interconnection that operation outside of such unit-specific parameters was the result of an actual constraint.	Status Quo
Implementation Date	N/A	Upon FERC Approval