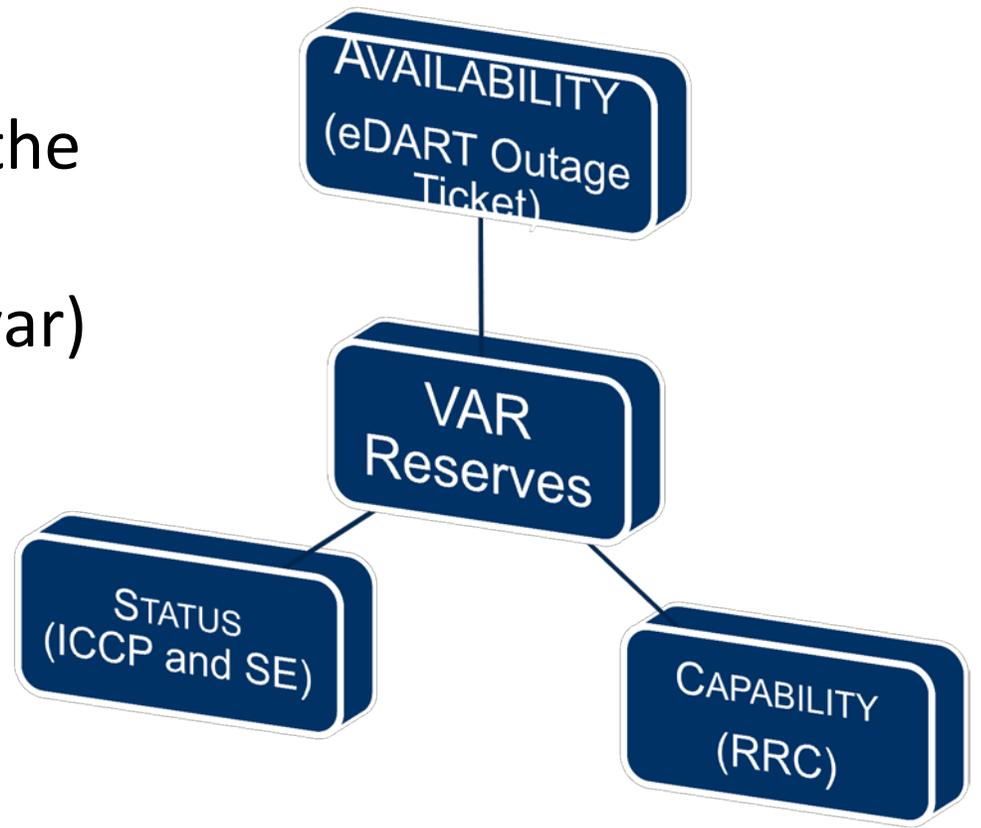




# Reactive Reserve Check



- M-03, Transmission Manual, Section 3.12
- PJM leverages a process known as a Reactive Reserve Check (RRC) to assess the RTO's and its members' position with respect to dynamic and static reactive (var) power.



- Operators (PJM & Member TO) utilize PJM data to discern issues and recognize differences in PJM and Member's data.
- Remedy lies not within RRC. RRC is a tool to Assess the Reactive Reserve state, and the quality of the components within the solution.
- Resolve differences by:
  - Updating eDART Tickets,
  - Informing PJM if non-telemetered devices are in the wrong state or derated,
  - Informing PJM if EMS modeling is incorrect.

- Upon request by PJM, a Member TO will compile the RRC data for capacitors, reactors and SVCs/Statcoms within their area.
- The results will be reported via the MVAR Reserve Check Company Data Form
- PJM will then summarize and post the data.

- Only once PJM has called for an RRC will the Submit RRC button be visible, otherwise the RRC Self Check button will be visible.
- To enter RRC data, select the Submit RRC button.



### MVAR Reserve Check Company Data

Company: \_\_\_\_\_

Request ID: 725

User Name: \_\_\_\_\_

Request Timestamp: 07/31/2017 12:05

Posted Timestamp: \_\_\_\_\_

Data Updated: 07/31/2017 12:05

**Peak MVAR Reserve Totals**

Company	Capacitors			Reactors			SVCs/Statcom			Units/Condensers		PJM Note	Company Response
	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values			
	426.85	426.85								1842.54			
	4	0 of 4	4 of 4							49			

Capacitors  
  Reactors  
  SVCs/Statcom  
  Units/Condensers

All  
  Unacknowledged Only  
  Adjusted Values Only

Name:   
 Min KV:   
 Max KV:   
 SE Status:

Discrepancies Only:   
 Acknowledge Type:

**Capacitors (1-4 of 4)**

Company	Station/Equipment Name	Zone	KV	eDART Availability	SE Status	SE KV	SE MVAR	Rated MVAR			Lagging Reserve MVAR			Acknowledge Type	Override ICCP
								PJM	Company	Delta	PJM	Company	Delta		
			13	Y	Offline	13.70	0.00	5.40	<input type="text"/>		5.40				
			13	Y	In-Service	13.87	5.45	5.45	<input type="text"/>		0.00				
			115	Y	Offline	113.77	0.00	60.00	<input type="text"/>		60.00				
			230	Y	Offline	233.16	0.00	356.00	<input type="text"/>		356.00				

**Capacitors (1-4 of 4)**

Equipment can be filtered by type, name, voltage and SE status.

- PJM can include notes to all and/or specific TOs.
- User can add note to PJM.

Enter reserve values as needed.

**MVAR Reserve Check Company Data**

Company: \_\_\_\_\_ Request Timestamp: 10/11/2017 14:03  
 Request ID: 1572 Posted Timestamp: \_\_\_\_\_  
 User Name: \_\_\_\_\_ Data Updated: 10/11/2017 14:03

**Peak MVAR Reserve Totals**

Company	Capacitors			Reactors			SVCs/Statcom			Units/Condensers		PJM Note	Company Response
	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values			
	1032.85	1032.85		0.00	0.00		308.91	308.91		634.97			
	54	0 of 54	54 of 54	1	0 of 1	1 of 1	3	0 of 3	3 of 3	52			

Capacitors  
  Reactors  
  **SVCs/Statcom**  
  Units/Condensers

All  
  Unacknowledged Only  
  Adjusted Values Only

Name: \_\_\_\_\_ Min KV: \_\_\_\_\_ Max KV: \_\_\_\_\_ SE Status: Both SE Mode: Both

Discrepancies Only:  Acknowledge Type: All

**SVCs/Statcom (1-3 of 3)**

1	2	3	Company	Station/Equipment Name	Zone	KV	eDART Availability	SE Status	SE Mode	SE MVAR	Max MVAR			Min MVAR			Lagging Reserve MVAR			Acknowledge Type	Override ICCP
											PJM	Company	Delta	PJM	Company	Delta	PJM	Company	Delta		
						230	Y	In-Service	Auto	4.89	150.00			-100.00			145.11				
						230	Y	In-Service	Auto	-13.80	150.00			-100.00			163.80				
						230	N	In-Service	Auto	-0.05	150.00			-100.00			0.00				

Enter reserve values as needed.



# Reactive Reserve Check - Units/Condensers

MVAR Reserve Check Company Data

Company: \_\_\_\_\_

Request ID: **1572**

User Name: \_\_\_\_\_

Request Timestamp: **10/11/2017 14:03**

Posted Timestamp: \_\_\_\_\_

Data Updated: **10/11/2017 14:03**

Peak MVAR Reserve Totals

Company	Capacitors			Reactors			SVCs/Statcom			Units/Condensers	PJM Note	Company Response
	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values		
	1032.85	1032.85		0.00	0.00		308.91	308.91		634.97		
	54	0 of 54	54 of 54	1	0 of 1	1 of 1	3	0 of 3	3 of 3	52		

Capacitors  
  Reactors  
  SVCs/Statcom  
  **Units/Condensers**

Name:  Min KV:  Max KV:  Unit Status:  AVR Status:

Discrepancies Only:

Apply Sort/Filter
Refresh
Main Menu
Help
Color Legend

Units/Condensers (1-52 of 52)

1	2	3										
Company	Station/Equipment Name	Zone	KV	eDART Availability	eDART AVR Auto	Unit Status	AVR Status	SE MW	SE MVAR	Max MVAR	Lagging Reserve MVAR	
			22	Y	Y	In-Service	Auto	232.75	50.05	130.55	80.50	
			69	N/A	Y	Offline	Manual	0.00	0.00	0.00	0.00	
			69	Y	Y	Offline	Manual	0.00	0.00	0.00	0.00	

**MVAR Reserve Check Company Data**

Company: Request ID: 725 User Name: Request Timestamp: 07/31/2017 12:05 Posted Timestamp: Data Updated: 07/31/2017 12:05

**Peak MVAR Reserve Totals**

Company	Capacitors			Reactors			SVCs/Statcom			Units/Condensers		PJM Note	Company Response
	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values			
	426.85	426.45	0 of 4							1842.54			

Capacitors
  Reactors
  SVCs/Statcom
  Units/Condensers

All
  Unacknowledged Only
  Adjusted Values Only

Name:  Min KV:  Max KV:  SE Status:

Discrepancies Only:  Acknowledge Type:

**Capacitors (1-4 of 4)**

Company	Station/Equipment Name	Zone	KV	eDART Availability	SE Status	SE KV	SE MVAR	Rated MVAR			Lagging Reserve MVAR			Acknowledge Type	Override ICCP
								PJM	Company	Delta	PJM	Company	Delta		
			13	Y	Offline	13.70	0.00	5.40	5.00	0.40	5.40	5.00	0.40	U	
			13	Y	In-Service	13.87	5.45	5.45			0.00				
			115	Y	Offline	113.77	0.00	60.00			60.00				
			230	Y	Offline	233.16	0.00	356.00			356.00				

**Capacitors (1-4 of 4)**

ICCP values retrieved when RRC issued. User can override ICCP values if needed.

Clicking Submit acknowledges reserve values: company entered or PJM values.

Additional info available in Help Document.

- I → ICCP: reserve values from ICCP data.
- X → XML: RRCRevise upload.
- U → UI: web UI.

- Reports of RRC data for completed and posted RRCs are available through the Report Search from the Main Menu.
- The Report is filterable by RRC Number and Date.
- By default, RRCs initiated within last 30 days will be displayed. This can be changed by un-checking the Last 30 Days checkbox.



Posted reports display TO submissions to PJM.

RRC Report			
Company:		User Name:	
Report ID	Request Timestamp	Posted Timestamp	
<a href="#">728</a>	07/31/2017 18:09		
<a href="#">727</a>	07/31/2017 16:10	07/31/2017 17:05	
<a href="#">726</a>	07/31/2017 14:09	07/31/2017 15:10	
<a href="#">725</a>	07/31/2017 12:05	07/31/2017 13:09	
<a href="#">724</a>	07/31/2017 10:05	07/31/2017 11:04	
<a href="#">723</a>	07/31/2017 08:04	07/31/2017 09:04	

**MVAR Reserve Check Company Data**

Company: Request Timestamp: 07/31/2017 12:05  
 Request ID: 725 Posted Timestamp: 07/31/2017 17:05  
 User Name: Data Updated: 07/31/2017 12:05

**Peak MVAR Reserve Totals**

Company	Capacitors			Reactors			SVCs/Statcom			Units/Condensers		PJM Note	Company Response
	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values	Company Adj. Values	Unackn.	PJM Values			
	426.85	426.45								1842.54			
	4	1 of 4	0 of 4							49			

Capacitors  
  Reactors  
  SVCs/Statcom  
  Units/Condensers

All  
  Unacknowledged Only  
  Adjusted Values Only

Name:  Min KV:  Max KV:  SE Status:

Discrepancies Only:  Acknowledge Type:

**Capacitors (1-4 of 4)**

Company	Station/Equipment Name	Zone	KV	eDART Availability	SE Status	SE KV	SE MVAR	Rated MVAR			Lagging Reserve MVAR			Acknowledge Type	Override ICCP
								PJM	Company	Delta	PJM	Company	Delta		
			13	Y	Offline	13.70	0.00	5.40	5.00	0.40	5.40	5.00	0.40	U	
			13	Y	In-Service	13.87	5.45	5.45			0.00				
			115	Y	Offline	113.77	0.00	60.00			60.00				
			230	Y	Offline	233.16	0.00	356.00			356.00				

**Capacitors (1-4 of 4)**



- **eDART Unavailable and SE MVAR is not 0**
  - Whenever eDART identifies a facility as unavailable, but the PJM EMS SE MVAR output indicates that the facility is in-service
- **Mismatch between eDART AVR and EMS AVR**
  - Whenever an eDART AVR ticket exists but the PJM EMS has the AVR in AUTO mode
  - Whenever no eDART AVR ticket exists, but the PJM EMS has the AVR in Manual Mode
- **Future or Retired Equipment**
  - Whenever a facility is marked as retired or future in the eDART database

Color Legend
eDART Unavailable and SE MVAR is not 0
Mismatch between eDART AVR and EMS AVR
Future or Retired Equipment
Regular
<a href="#">Close Window</a>

- RRC Features

- Exposes PJM EMS data to TO
- Available 24/7 (Self-Check)
- Points out potential discrepancies

- Impacts of RRC

- For some TOs, more data than a human can process in 5 minutes
- Resolve issues outside of RRC
- Focus change: *Report then Review*



This is key. *PJM cannot assess an RRC until the TOs submit the data.*

- ✓ SUBMIT, then review when in an RRC.
- ✓ REVIEW can take place 24/7 through Self-Check

### Peak MVAR Reserves Self-Check

Company: \_\_\_\_\_ Request Timestamp: 11/01/2017 09:00  
 User Name: \_\_\_\_\_ Data Updated: 11/01/2017 08:01

Peak (Current)    Valley

Zone	Capacitors	Reactors	SVCs/Statcom	Units/Condensers
	3094.30	2180.55	185.69	2938.82
	1497.60	2644.80	0.00	1565.50
	447.90	310.71	0.00	982.87
	4434.80	1223.40	149.85	3190.45
<b>Company Total</b>	<b>9474.60</b>	<b>6359.46</b>	<b>335.54</b>	<b>8677.64</b>
<b>Discrepancies Count</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>

Capacitors    Reactors    SVCs/Statcom    Units/Condensers

SE Status: Both v   Discrepancies Only:

Apply Sort/Filter   Refresh   Main Menu   Help   Color Legend

#### Capacitors

1	2	3	4	5	6	7	8	9	10
Company	Station/Equipment Name	Zone	KV	eDART Availability	SE Status	SE KV	SE MVAR	Rated MVAR	Lagging Reserve MVAR
			69	Y	In-Service	72.04	10.47	10.47	0.00
			69	Y	Offline	68.45	0.00	18.00	18.00
			69	Y	Offline	68.40	0.00	14.40	14.40
			69	Y	Offline	69.32	0.00	14.40	14.40

Switch between peak and valley operating conditions

Select equipment data to be displayed below.

- TOs can submit RRC data via ICCP for the following measurements:

Measurement
Capacitor Rated MVAR
Reactor Rated MVAR
SVC/STATCOM High MVAR Limit
SVC/STATCOM Low MVAR Limit

- If you are interested in submitting the data via ICCP, please ask your telemetry group to reach out to [PJMTelemetrySupport@pjm.com](mailto:PJMTelemetrySupport@pjm.com)

- TOs should provide the following to PJM Telemetry Support Group if they want to send RRC data via ICCP:
  - ICCP Object ID
  - Equipment Name
  - Measurement Description
- PJM can also provide the TO with a list of all Capacitors/Reactors, SVCs and STATCOMs modeled in PJM's EMS.

Questions? Contact [RRCHelp@pjm.com](mailto:RRCHelp@pjm.com)