



Unit Limitation Reporting Refresher

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Unit Limitations Reporting in Markets Gateway

Resources have the ability to enter unit-level or fuel-level limitation information, as a means to provide more dynamic notice to dispatch if a unit is running close to its limitations by:

1. Providing a mechanism for members to regularly update limitation information in terms of “hours remaining” for a specified time window;
2. Linking member-provided limitation hours to actual unit run hours to monitor how close unit is to its limitation; and
3. Displaying limitation information in tool for PJM Dispatch & Operations Planning for enhanced operational awareness

- Reporting of resource limitations is especially critical when PJM issues Conservative Operations or a Cold Weather/Hot Weather Alert.
- The information on the “Resource Limitations” page is **used for real time situational awareness and multi-day operations planning**. The parameters entered on this page **are not** utilized in the Day-Ahead or Real-Time Market clearing engines



Manual 13 Section 6.4 – Resource Limitation Reporting Table

Resource Limited Unit (Type)	Resource Limitations					PJM Member Actions
	On-site Fuel Only	Emissions	Cooling Water	Demin. Water	Other	
CT	< 72 hours					Report remaining run hours in the "Resource Limitation" page in Markets Gateway
	< 24 hours					Update Max Run field in Markets Gateway
	< 16 hours					Verbally notify PJM Master Coordinator
	< 16 hours					Offer as Maximum Emergency (if PJM issues Cons. Ops/Hot/Cold Weather Alert) and report as detailed in the "Maximum Emergency Reporting and Documentation" section above
Steam	< 240 hours (coal units only*)					Can be offered as Maximum Emergency consistent with the requirements noted below
	< 72 hours					Report remaining run hours in the "Resource Limitation" page in Markets Gateway
	< 32 hours					Verbally notify PJM Master Coordinator
	< 32 hours					Offer as Maximum Emergency (if PJM issues Cons. Ops/Hot/Cold Weather Alert) and report as detailed in the "Maximum Emergency Reporting and Documentation" section above
	< 24 hours					Update Max Run fields in Markets Gateway

Yellow Highlighting – Minimum Level Thresholds for Resource Limited Units

Gas-Only Units with Fuel Limitations:

1. These are not Considered Resource Limited Units, and should not be reported as Resource Limited in Markets Gateway
2. These should not be placed in Max Emergency, following PJM Cons. Ops/Hot/Cold Weather Alerts, but remain Economic, unless directed otherwise by PJM
3. Gas-Only Units with other Resource Limitations (emissions, etc) should report as indicated in the above table

Dual Fuel (Gas/Other) Units:

1. These should report as Resource Limited for only on-site fuel restrictions or other Resource Limitations as indicated in the above table. They should not report natural gas fuel restrictions
2. These may be placed in Max Emergency, following PJM Cons. Ops/Hot/Cold Weather Alerts, for only on-site fuel restrictions (when unavailable on natural gas and on-site fuel falls below Minimum Level Thresholds) or other Resource Limitations as indicated in the above table.

Coal Units with less than 240 hours remaining

1. Coal units with less than 240 hours but more than 32 hours can be offered as Maximum Emergency by the generation owner unless:
 - a) PJM has issued a Hot Weather Alert, Cold Weather Alert, or declares Conservative Operations or
 - b) PJM denies the use of Maximum Emergency for any reason, including but not limited to a potential thermal or voltage violation, to avoid a CEJA limited unit with no economic hours remaining, a black start concern, tornado/hurricanes, extreme weather, GMD activity, etc.
2. If a coal unit is offered into the Maximum Emergency state under the above conditions, it may remain in that state until one of the following is true:
 - a) The generation owner elects to offer the unit as economic
 - b) The remaining run hours reaches 21-days
 - c) PJM has issued a Hot Weather Alert, Cold Weather Alert, or declares Conservative Operations or
 - d) PJM denies the use of Maximum Emergency for any reason, including but not limited to a potential thermal or voltage violation, to avoid a CEJA limited unit with no economic hours remaining, a black start concern, tornado/hurricanes, extreme weather, GMD activity, etc.

- CEJA establishes an emissions ceiling on a rolling 12-month basis for privately owned, natural gas-fueled generation. Act includes provisions by which individual generators can be granted limited and temporary exceptions to the emissions limits for reliability.
- CEJA units without economic run hours shall
 1. Bid in the Day-Ahead and Real-Time markets as “Unavailable”
 2. Enter a full reduction “Unplanned” outage ticket with a cause code of “**Emissions – CEJA**” in PJM’s eDART system. CEJA units entered with this outage type and cause code will not be expected to enter a GADs outages and therefore will not have an eFORd impact

- PJM will communicate the need to run a CEJA units via phone call which will include
 1. Time (Eastern) the unit is requested to begin generating
 2. Reason for commitment (capacity, black start, thermal, voltage, or testing)
 3. Clarifying statement: “This dispatch meets the criteria of an Exception Event”
- CEJA guidance posted on PJM’s Operating Committee webpage <https://www.pjm.com/-/media/committees-groups/committees/oc/postings/illinois-ceja-reliability-guidance.ashx>

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Unit Limitation Reporting Refresher



Member Hotline

(610) 666 – 8980

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Appendix

The information on the “Resource Limitations” page is **used for situational awareness and multi-day operations planning**. The parameters entered on this page **are not** utilized in the Day-Ahead or Real-Time Market clearing engines.

- Bilaterals
- Con Edison
- Demand
- Demand Response
- Generator
 - Unit
 - Schedules
 - Dispatch Lambda
 - Market Results
 - Regulation Market
 - Synchronized Reserve Mar
 - Day-Ahead Scheduling Res
 - Resource Limitations
- Interface Pricing
- Opportunity Cost Calculator
- Parameter Limits
- Price Responsive Demand
- Pseudo Tie Transaction
- Public
 - System Utilities
 - Up-To-Transaction
 - Virtual
 - Weather Forecast

Start Day End Day Portfolio Location Refresh Save

Limitation ID	Location	Fuel Type	Limitation Type	Start Time	End Time	Hrs. Remaining at Full Load	Replenished Hrs. at Limit. End	Is Unlimited at Reduced Output	PJM Est. Hrs. Remaining
Show all	Show All	Show All	Show All	Show all	Show all	Show all	Show all	Show All	Show all
<input type="checkbox"/>									

- “Unit Level” Limitations**
- Limitation Type: Cooling Water, Demineralized Water, or Other Consumables
- “Fuel Level” Limitations**
- Select Fuel Type related to limitation
 - Limitation Type: Emissions, Onsite Fuel

Enter hours remaining at full load between limitation start and end times

Enter additional hours at full after end time (e.g. from fuel delivery or roll-over of emissions hours)

Yes or No

Calculation using actual on hours to count down Member-entered “Hrs. Remaining at Full Load” to create a dynamic estimate of runtime remaining due to a limitation

- XYZ Unit 1 CT is an oil CT with demineralized water and onsite fuel supply restrictions
- Current Datetime: 2/1/2023 08:00:00
- XYZ Unit 1 CT has been on since (for 2 hours) 2/1/2023 06:00:00

Limitation ID	Location	Fuel Type	Limitation Type	Start Time	End Time	Hrs. Remaining at Full Load	Replenished Hrs. at Limit. End	IsUnlimited at Reduced Output	PJM Est. Hrs. Remaining	Date Entered
#####	XYZ Unit 1 CT	Petroleum Kero...	Demin. Water	2/1 00:00	2/7 23:59	16	168	No	14.00	1/29/2023 08:00
#####	XYZ Unit 1 CT	Petroleum Kero...	Onsite Fuel	2/1 00:00	2/15 13:00	40	720	No	38.00	1/29/2023 08:00

User Entered
Populated by System



Example 2: Dual Fuel Unit

- XYZ Unit 2 CT is a dual-fuel CT with onsite fuel supply and emissions restrictions
- Current Datetime: 2/1/2023 08:00:00
- *“PJM Est. Hrs Remaining” calculation for fuel dependent restrictions will use hours associated with fuel related to current schedule*
 - XYZ Unit 2 CT has been on for 2 hours and is running on Natural Gas schedule. Emissions restriction hours for Natural Gas are counted down. If Unit B switches to an oil schedule, countdown for Natural Gas hours will pause and countdown for Oil hours will begin

Limitation ID	Location	Fuel Type	Limitation Type	Start Time	End Time	Hrs. Remaining at Full Load	Replenished Hrs. at Limit. End	Is Unlimited at Reduced Output	PJM Est. Hrs. Remaining	Date Entered
#####	XYZ Unit 2 CT	Gas Natural Gas	Emissions	2/1 00:00	2/31 23:59	60	720	Yes	58.00	1/29/2023 08:00
#####	XYZ Unit 2 CT	Petroleum Kero...	Emissions	2/1 00:00	2/31 23:59	20	720	Yes	20.00	1/29/2023 08:00
#####	XYZ Unit 2 CT	Petroleum Kero...	Onsite Fuel	2/1 00:00	2/31 13:00	40	720	No	40.00	1/29/2023 08:00

Member Entered
Populated by System



Example 3: Multiple Units at Station

- *If multiple units at a station share restriction hours, “Hours Remaining at Full Load” should be divided up and entered on a unit basis. The hours remaining for the station should not be entered for each unit – this would overestimate the hours remaining.*
 - Station with units C, D, and E share a fuel supply. With current inventory, the station has 200 hours remaining at full load. Based on unit availability and other operating conditions, this 200 hours is divided up and allocated to each unit. Next fuel delivery will provide an additional 720 hours.

Limitation ID	Location	Fuel Type	Limitation Type	Start Time	End Time	Hrs. Remaining at Full Load	Replenished Hrs. at Limit. End	Is Unlimited at Reduced Output	PJM Est. Hrs. Remaining	Date Entered
#####	UVW Unit 1 CT	Petroleum Kero...	Onsite Fuel	2/1 00:00	2/15 09:00	100	240	No	98.00	1/29/2023 08:00
#####	UVW Unit 2 CT	Petroleum Kero...	Onsite Fuel	2/1 00:00	2/15 09:00	50	240	No	48.00	1/29/2023 08:00
#####	UVW Unit 3 CT	Petroleum Kero...	Onsite Fuel	2/1 00:00	2/15 09:00	50	240	No	48.00	1/29/2023 08:00

Member Entered

Populated by System

**PROTECT THE
POWER GRID
THINK BEFORE
YOU CLICK!**



Be alert to
malicious
phishing emails.

Report suspicious email activity to PJM.
(610) 666-2244 / it_ops_ctr_shift@pjm.com

