

# IMM EGCSTF Proposal

EGCSTF

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# IMM Proposal

- **The goal of the IMM proposal is to enhance awareness and transparency to improve the scheduling problem that PJM and gas fired units face.**
- **Proposal summary:**
  - **Reflect pipeline constraints in generators operating parameters.**
  - **Account for offline reserves from units that can start quickly per their submitted parameters.**
  - **Provide supply awareness to PJM.**
  - **Incent generators to inquire about gas supply.**
  - **Consistent treatment among long lead time units.**

# Pipeline Constraints

- **Generators should use temporary PLS exceptions to reflect pipeline constraints. These may impact:**
  - Notification Time
  - Minimum Run Time
  - Turn Down Ratio
- **On September 8, PJM and the IMM posted [guidelines](#) for the use of temporary exceptions when pipelines imposed restrictions.**
- **On September 11, 2023, PJM and the IMM filed a motion to expedite the replacement of real time values with temporary exceptions in real time by December 1, 2023.**

# Pipeline Constraints

- The IMM also proposes a new operating parameter: extension time.
- Similarly to the current notification time parameter, the new parameter will reflect the time at which gas generators need to be notified to continue operating.
- NAESB Cycles (Eastern Time):

	Timely	Evening	ID1	ID2	ID3
Nom Deadline	14:00	19:00	11:00	15:30	20:00
Confirmation Deadline	17:30	21:30	13:30	18:00	22:30
Scheduled Volumes Available	18:00	22:00	14:00	18:30	23:00
Start of Gas Flow	10:00	10:00	15:00	19:00	23:00

# Extension Time – Scenario 1

- **A unit is notified to run prior to the ID1 deadline (11:00 EPT). The unit procures gas for the balance of the gas day (15:00 through 10:00 EPT the next day).**
- **This is reflected in the unit's minimum run time. The min run time should be 19 hours.**
- **By 19:00 EPT (evening cycle), the unit needs to decide if gas is procured for the next gas day.**
  - **If gas is not procured, the unit will not be able run from hours 10:00 to 15:00.**
  - **The next time gas can be procured is by the ID1 deadline (11:00 EPT) for gas that starts flowing at 15:00.**
  - **If gas is procured by the evening nom, the unit will run from 10 to 10 (assuming ratable take requirements).**

## Extension Time – Scenario 2

- **A unit is notified to run prior to the ID3 deadline (20:00 EPT). The unit procures gas for the balance of the gas day (23:00 through 10:00 EPT the next day).**
- **This is reflected in the unit's minimum run time. The min run time should be 11 hours.**
- **By this time, the unit cannot longer procure gas for hours 10:00 to 15:00 EPT next day because we are passed the evening deadline.**

## Extension Time – Scenario 2

- **By 11:00 EPT (ID1 cycle), the unit needs to decide if gas is procured for balance of the gas day.**
  - **If gas is not procured, the unit will not be able run from hours 15:00 to 18:00.**
  - **The next time gas can be procured is by the ID2 deadline (11:00 EPT) for gas that starts flowing at 18:00.**
  - **If gas is procured, the unit will run from 15 to 10 (assuming ratable take requirements).**
  - **This scenario is the most relevant since failure to commit the unit means that the unit will not be able to run during the evening peak.**

# Extension Time

- **This constraint can be reflected as a specific time of the day by which commitment instructions have to be given.**
- **Scenario 1: Hours 10:00 to 15:00 will have an extension time of 18:00 (one hour before the evening nom deadline). PJM commitment/dispatch tool can only extend the commitment if results are communicated by 18:00. Otherwise, the tool will not commit and not count on MW from these units from 10:00 to 15:00.**

# Extension Time

- **Scenario 2: Hours 15:00 to 18:00 will have an extension time of 10:00 (one hour before the ID1 nom deadline). PJM commitment/dispatch tool can only extend the commitment if results are communicated by 10:00. Otherwise, the tool will not commit and not count on MW from these units from 15:00 to 18:00.**
- **This only affects those two scenarios.**
  - **For ID2, units will already be offline if not called on by ID1.**
  - **For ID3, units will already be offline if not called on by ID2.**

# Extension Time

Hour	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12
Extension Time	NA	18:00	18:00									
Nom Cycle	NA	Evening	Evening									

Hour	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Extension Time	18:00	18:00	18:00	10:00	10:00	10:00	NA	NA	NA	NA	NA	NA
Nom Cycle	Evening	Evening	Evening	ID1	ID1	ID1	NA	NA	NA	NA	NA	NA

- **HE11-HE15, unit commitment can only be extended if called by 18:00**
- **HE16-HE18, unit commitment can only be extended if called by 10:00**

# Extension Time

- **This parameter is only useful if used in a look ahead tools that captures the balance of the current operating day and the next operating day.**
- **ITSCED currently does not look ahead far enough (approx. 2 hours).**
- **The longer term look ahead tool should look further to at least cover the next two peaks in a winter day.**
- **Similar to PLS exceptions, the parameter should only be used when pipeline nomination restrictions are imposed.**

# Impact on Reserves

- **With the implementation of proper use of temporary PLS exceptions and allowing PLS exceptions to be submitted in real time, units that normally qualify as offline primary or secondary reserves will not be assigned reserves based on the extended notification times.**

# Gas Supply Confirmation – Committed Units

- **The IMM agrees with PJM's proposal of requiring gas units that have cleared their DA award to confirm if gas has been purchased.**

# Gas Supply Confirmation – Uncommitted Units

- **Gas fired units offering only on gas and have not secured gas supply must proactively contact suppliers twice a day during cold weather alerts to confirm supply availability. Any indication of lack of supply should be reflected as a forced outage immediately until availability has been confirmed.**
- **Failure to meet this requirement will result in forfeit of the daily capacity payment, unless:**
  - **Unit starts, it performs, gas was available.**
  - **Unit does not start (forced out), EFORd will increase.**

# Gas Supply Confirmation – Uncommitted Units

- **The times at which supply must be confirmed should match (to the extent possible) with a possible PJM commitment.**
- **Proposal:**
  - **Morning, by 09:00 EPT to confirm if supply is available for the evening peak. Two hours before the ID1 deadline.**
  - **Afternoon, by 18:00 EPT to confirm if supply is available for the next morning peak. Two hours before the ID3 deadline.**
- **Documentation must be maintained for proof of compliance.**
- **The charge for noncompliance has the similar impact that a unit would see if it cannot operate for one operating day (forced out).**

# Example

Line	Input	Adding 24h Forced	
		Base Case	Outage
ICAP	Installed Capacity	100	100
PH	Period Hours	8,760	8,760
RSH	Reserve Shutdown Hours	1,000	1,000
FOH	Forced Outage Hours	500	524
NFO	Number of forced outages	1	1
NAS	Number of attempted starts	10	10
NSS	Number of succesful starts	10	10
EFDH	Equivalent Forced Derate Hours	0	0
SH = (PH - RSH - FOH)	Service Hours	7,260	7,236
AH = (RSH + SH)	Available Hours	8,260	8,236
<b>Factors</b>			
r = FOH / NFO	Average Forced Outage Duration	500	524
T = RSH / NAS	Average Time Between Calls	100	100
D = SH / NSS	Average Run Time	726	724
Ff = (1/r + 1/T) / (1/r + 1/T + Ff)		0.8970	0.8960
Fp = SH / AH	Fp	0.8789	0.8786
<b>Forced Outage Rate</b>			
EFORd = (Ff x FOH + Fp x EFORd)		5.82%	6.09%
UCAP = ICAP x (1 - EFORd)	Unforced Capacity	94.2	93.9

## Example

- **The unit sees a reduction of 0.27 MW in UCAP.**
- **At a \$50/MW-day clearing price, the unit's capacity value is reduced by \$5,004 (0.27 MW x \$50/MW-day x 365 days).**
- **Impact is similar to a daily charge of \$50/MW-day x 100 MW (ICAP).**
- **Note: The financial impact of the decrease in UCAP is higher than the daily charge as reserve shutdown hours increase.**

# DA Committed CT Treatment

- **Gas units that do not meet the Flexible Resource definition that clear DA should be treated the same as STs/CCs in real time.**
  - **This means that when these units are committed DA, they should start according to their DA award, and should not have to wait for a PJM call to start (status quo).**
- **OA Definition. “Flexible Resource” shall mean a generating resource that must have a combined Start-up Time and Notification Time of less than or equal to two hours; and a Minimum Run Time of less than or equal to two hours.**
- **Status quo should be documented in the PJM Manuals.**

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