Gas Nomination Cycles and Units Operating Parameters

EGCSTF

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Monitoring Analytics

NAESB Nomination Cycles

- **Pipelines can require consumers to nominate gas per the NAESB cycles, based on reliability needs.**
  - **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

- **Pipelines notices do not explicitly state such requirement.**
- **Pipelines use phrases such as balance deliveries and receipts or nominate before flowing.**

Notification Time

- When pipelines enforce these deadlines, generators cannot start per their approved notification times. PJM's proxy PLS notification times for CTs and RICE is 6 minutes.
- The times when pipelines enforce the NAESB nomination cycles deadlines is unclear.
  - In some cases, it is not clear if they apply to all consumers regardless of service acquired.

Notification Time

- **PJM approves longer PLS notification times when more time is required to start, but no CT/RICE in PJM has a PLS notification time longer than 30 minutes.**
  - **Temporary exceptions can be requested to increase the approved limits.**
- **When pipelines enforce nomination deadlines, generators cannot begin their start sequence in 6 to 30 minutes. Instead the notification time is based on the time required by the pipelines to nominate gas.**

Notification Time

- **For example, the last nomination cycle available per NAESB is intraday 3 (ID3). The ID3 deadline is 20:00 EPT for gas that starts flowing at 23:00 (in three hours). The previous cycle, intraday 2 (ID2) deadline is at 15:30 EPT for gas that starts flowing at 19:00. A generator that has not nominated gas by ID2 cannot start until 23:00. Therefore, at 19:00, the unit has an implied time to start of four hours. Four hours is equal to 23:00 (the earliest the unit can start) minus 19:00.**

Declining Hourly Notification Time

- **In order to capture the correct notification time properly, generators have to reflect the nomination deadlines and the time that gas starts flowing in each cycle.**

Hour	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12
Notification Time	15	14	13	12	11	10	9	8	7	6	9	8
Time On (If Called)	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	19:00	19:00
Nearest Cycle	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID2	ID2

Hour	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Notification Time	7	6	9	8	7	6	5	20	19	18	17	16
Time On (If Called)	19:00	19:00	23:00	23:00	23:00	23:00	23:00	15:00	15:00	15:00	15:00	15:00
Nearest Cycle	ID2	ID2	ID3	ID3	ID3	ID3	ID3	ID1	ID1	ID1	ID1	ID1

Elliott and Feb 3, 2023, Cold Weather Alert

- **On Dec 23, DA, 5 gas plants (3,013 MW), submitted extended notification times due to gas nomination deadlines.**
- **On Dec 23, RT, 9 gas plants (5,290 MW), submitted extended notification times due to gas nomination deadlines.**
- **On Feb 3, DA, 8 gas plants (4,979 MW), submitted extended notification times due to gas nomination deadlines.**
- **On Feb 3, RT, 12 gas plants (6,998 MW), submitted extended notification times due to gas nomination deadlines.**

Elliott and Feb 3, 2023, Cold Weather Alert

- **In total, 13 plants used extended notification times between Dec 23-24, 2022, and Feb 3-4, 2023. Out of 13, 12 are based on the gas nomination cycles**
  - **Of the 12 plants, only three plants used the notification times correctly to match NAESB nomination deadlines.**
    - Two of these three plants used it correctly, except for one hour.
  - **The remaining 9 plants used notification times that did not match the nomination deadlines.**
    - These units used the same notification time regardless of time of day.
    - The IMM will contact each plant.

Other Restrictions

- **Usually, the requirement to nominate gas per the NAESB nomination cycles coincides with the requirement to nominate gas ratably (ratable takes).**
- **When these restrictions are imposed, generators have to nominate uniform gas volumes for every hour (or within a threshold).**
- **These restrictions may require the need to increase generators' minimum run times and reduce dispatchable range.**

Minimum Run Time

- **Min Run Time**
  - **When 24 hour ratable takes are imposed, it is expected that units will request a PLS exception to increase the min run time.**
  - **After the evening cycle, the min run times should be reduced to reflect the gas that can flow on ID1, ID2, ID3.**
    - The min run time for ID1 should be 19 hours (15:00 to 10:00).
    - The min run time for ID2 should be 15 hours (19:00 to 10:00).
    - The min run time for ID3 should be 11 hours (23:00 to 10:00).

Hour	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12
Min Run Time	19	19	19	19	19	19	19	19	19	19	15	15
Nearest Cycle	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID1	ID2	ID2

Hour	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
Min Run Time	15	15	11	11	11	11	11	19	19	19	19	19
Nearest Cycle	ID2	ID2	ID3	ID3	ID3	ID3	ID3	ID1	ID1	ID1	ID1	ID1

Turn Down Ratio

- **Turn Down Ratio**
  - **When ratable takes are imposed, it is expected that units will request a PLS exception to reduce their turn down ratio.**
  - **The expected turn down ratio will be a function of the flexibility allowed by the pipeline. If the pipeline does not allow any flexibility, the expected turn down ratio is one (1.0).**

Reserves

- **Longer notification times mean that units cannot provide offline reserves.**
- **Online gas units that cannot adjust output (increase or decrease) once gas is nominated cannot provide reserves either.**
- **Online gas units that cannot adjust output should not be counted towards reserves, and if this is known DA, these units should not be assigned DA reserves.**

Implications

- These restrictions make flexible units (such as CCs and CTs) inflexible.
  - Long minimum run times, long notification times, block loaded.
- When these requirements are imposed and reflected in operating parameters, these units will not be able to provide reserves.
- Other units will be have to:
  - Be held offline as reserves (e.g. oil fired CTs).
  - Backed down (e.g. coal, other gas units).

Remaining Issue: Continued Commitment

- The use of notification times solves the initial commitment problem.
- Initial notification time parameter does not let PJM know how long in advance the unit needs to be told that it is needed to continue running after initial commitment.
- Notification times are used to notify units when they should start.
- There is no operating parameter to reflect the time needed in order to keep operating.

Remaining Issue: Continued Commitment

- **A unit can procure gas in ID3 for the next day morning peak. That gas ends at 10:00 EPT the next day. If PJM wants to keep running the unit for the evening peak, it must notify the unit by 11:00 EPT (ID1 deadline). There is no operating parameter in PJM that reflects this constraint.**
- **The notification time is the time needed to begin the start sequence. It is not the time needed for notification that the unit is needed to operate after certain point in time.**

Next Steps

- **Short Term (no rule changes required):**
  - **Improve transparency: Pipelines should be explicit when shippers are required to nominate per the nomination deadlines.**
    - In the meantime, generators, IMM and PJM should review past notices.
    - Goal is to identify types of notices that are clear enough to grant PLS exceptions.
    - Notices that are not clear would have to be discussed with pipelines.
  - **Any unit that cannot adjust output once gas has been nominated should request synchronized reserve max and secondary max equal to zero.**

Next Steps

- **Mid term (rule changes required):**
  - **The RTV rules remain inconsistent with the tariff. PJM should file at FERC to allow PLS exceptions in real time.**
- **Long term (rule / model change required):**
  - **Introduce a new operating parameter that reflects the notification time needed to continue operating. This operating parameter should only be used when pipelines enforce the NAESB nomination cycle deadlines.**

IMM Proposal

- Reflect pipeline constraints in operating parameters.
  - Using PLS exceptions.
  - Using synchronized and secondary reserve max.
  - Allow PLS exceptions in real time.
  - Introduce new operating parameter to reflect the notification time needed to continue operating.
- Make dispatch training material public.
- Require gas units to inquire about gas availability in advance of a PJM commitment.
- Treat gas units that clear DA with extended parameters the same as STs/CCs.

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