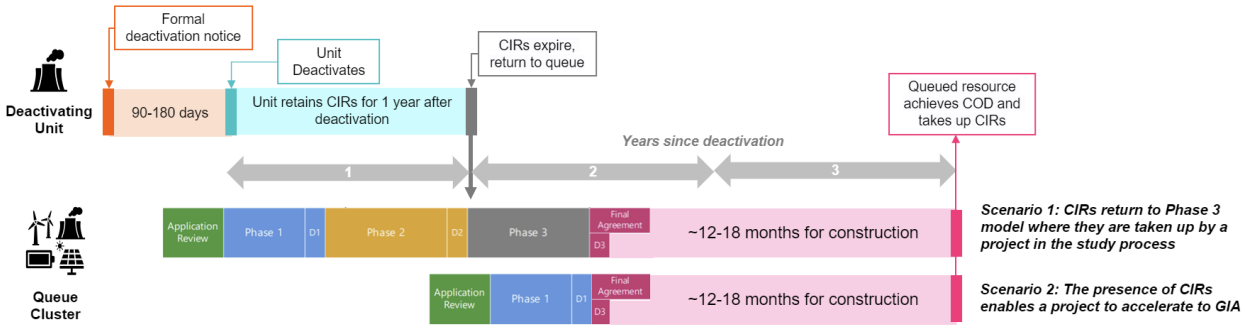
1. Why is there a three-year commercial operation date (COD) requirement for the replacement resource? Why does it start when the existing resource deactivates?
    a. This timeline requirement ensures that the generator replacement (GR) process is *at least as fast* as replacement by the standard queue cycle process.
    b. To determine the length of the requirement, we assessed how much time it would take for CIRs to be taken up by a new resource through the standard cycle process under two different scenarios:
        i. a resource deactivates, returns its CIRs to the standard cycle process during Phase 3 studies, and the CIRs are taken up by a new project in the queue, and
        ii. a resource deactivates and the CIRs are returned to the standard cycle process during an earlier study phase, where they are taken up by a project that is then enabled to proceed without network upgrades, in which case it can accelerate straight to GIA execution.
    c. Under both scenarios, assuming a "best case" development and construction schedule, the CIRs would be taken up by a new resource that could become operational within three years after the deactivation of the original resource. This is shown by the timeline below:



    d. Additionally, a three-year COD requirement would match NYISO's generator replacement process.[1]
    e. Commercial operation requirements that are pegged to later milestones in the process, e.g., GIA execution, would increase the risk of inefficient "downtime," whereby CIRs could have been in use by an operative generator had they been recycled in the normal interconnection process but instead went through the GR process and resulted in delayed use.

2. What is MN8's material adverse impact (MAI) standard?
    a. Any proposed CIR transfer that threatens the reliability of the transmission system will be deemed an MAI and will not be eligible to use the generator replacement process.
    b. MN8's standard consists of three parts that measure power flow impacts, short circuit duty impacts, and stability impacts of the replacement facility. The standard employs

[1] NYISO OATT Attachment S 25.9

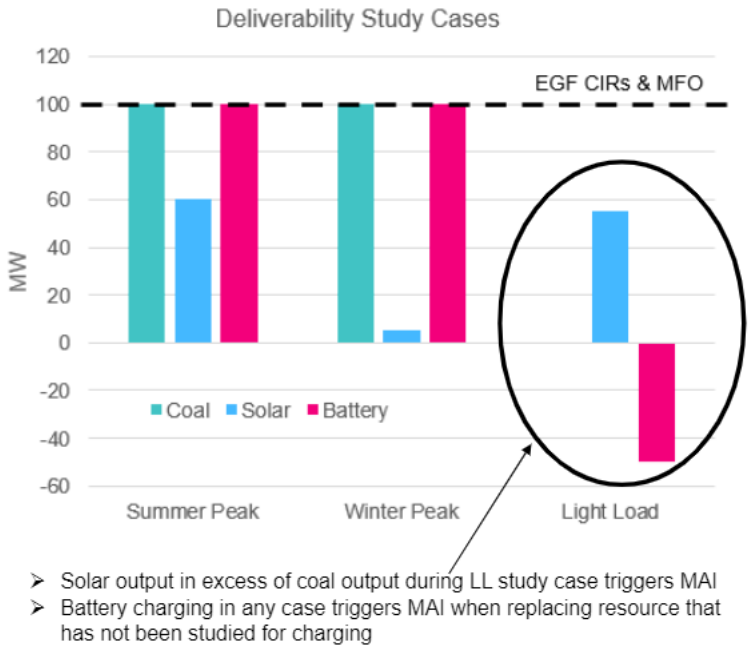
materiality thresholds. Specifically, in our proposal, an MAI is defined as any of the following:

i. Power flow impacts on an overloaded transmission system element greater than 5 MW and greater than 1% of the element rating, or if the *dfax* of the replacement facility is greater than 5% over the element and greater than 3% of the element rating
ii. Short circuit duty increases that are greater than 100 amps
iii. Replacement facility causes unacceptable transient voltage recovery and damping

c. The thresholds for power flow impacts ((i) above) and stability impacts ((iii) above) are meant to be the same thresholds that PJM uses in assigning cost responsibility for network upgrades (NUs).[2]
d. Under MN8's proposal, if there is enough system capability to support the replacement resource without needing to build NUs, the replacement does not have material adverse impact on the system and is deemed permissible.
e. If there is not enough system capability (e.g., if the replacement facility contributes to a reliability violation where the existing facility did not as defined above), then the replacement is deemed to have MAI on the system and the transfer request is not allowed through the standalone GR process.

3. How is MN8's MAI standard different from the one PJM proposes?
    a. PJM's proposal precludes any transfer where the replacement resource would consume additional available transmission system capability in any study case (e.g., light load deliverability, etc.). While MN8 agrees that replacement resources should not be able to consume available capability by requesting a higher interconnection service level (i.e., CIRs or MFO), we do not agree that replacements should not be permitted if there is any case with higher studied dispatch than for the deactivating resource. We believe that such replacements should be subject to an MAI screen, as described above. We believe that this can be done while still protecting queued resources by implementing an appropriate counterfactual for the replacement resource – namely, studying it on the latest applicable model (see answer (4) below).
    b. This difference is critical because PJM's proposal may significantly restrict the use of the generator replacement process between different resource types.
    c. PJM employs different dispatch assumptions for different resource types in its deliverability studies.[3] In off-peak deliverability study cases such as the light load study case, it is possible that a replacement facility will be modeled as having positive (e.g., standalone solar) or negative (e.g., standalone battery) output while an existing facility is modeled at zero. The chart below visualizes this dynamic using values from slides that MN8 previously presented in the IPS and PC.

[2] Manual 14H, Attachment B Section 3.1
[3] See Manual 14B, Attachment C for description of deliverability study cases; see slide 10 of PJM CIR Transfer Education for sample deliverability study output values



d. Under PJM's proposal, any instance where the replacement facility has higher output than the existing facility under any study case would be deemed an MAI, even if this difference would not cause reliability violations on the transmission system. Therefore, under PJM's proposal, there is significant risk that the GR process could only be used to replace like-for-like resources.

4. How does MN8's proposal ensure that the generator replacement process is not used for queue jumping?
    a. MN8's proposal does not allow a replacement facility to request an increase in CIRs or MFO level. This ensures that a resource cannot increase its interconnection service level through the generator replacement process.
    b. Under MN8's proposal, replacement requests are studied on top of the most recent Phase 2 or Phase 3 model from the current active cluster (i.e., they are queued immediately behind the current active cluster). This ensures all projects that have been accepted for study through the standard cycle process will be prioritized for transmission system capability ahead of the replacement resource.
        i. All standard cycle requests that have been accepted into a cluster will be included in the study models. These projects are retained in the models as long as the interconnection requests are active.
        ii. Projects corresponding to standard cycle requests are modeled as if they exist. They are first in line to claim transmission system capability that may exist in any study case.

iii. Because replacement requests are studied using models that include active interconnection requests, they will only be able to claim transmission capability[4] that is left unclaimed by the current active cluster.

c. A queue-jumping problem might arise if a replacement resource could jump the line to be studied before resources that were already in the queue. By studying a replacement resource using a model from the current active cluster, MN8's proposal ensures that this cannot happen.

5. Why does MN8 propose to study on top of a Phase 2 model?
    a. MN8's proposal is to use the latest Phase 2 or Phase 3 model from the cluster that was active at the time when the replacement request was accepted. PJM does not develop short circuit or stability models until Phase 2, and hence, Phase 1 models cannot be effectively used.
    b. This protects queued projects by ensuring that all projects that have been accepted into a cluster for study are prioritized for any transmission system capability that may be available under the off-peak deliverability study cases, thereby preventing queue jumping.

6. What changes from these Phase 2 studies would necessitate a retool for a replacement request?
    a. Stakeholders have expressed concern that the models used in Phase 1 and Phase 2 studies may change throughout the interconnection process (e.g., as generators downsize or drop out of the queue) and that this could lead to a scenario where findings of no MAI for generator replacement requests from an earlier phase might not hold true in a later phase. We have considered this feedback and reaffirm our view that a Phase 2 study should be sufficient to detect material adverse impacts across cases (i.e., if no MAI is found in Phase 2, we would expect no MAI in Phase 3 as well). We explain this position further by exploring three types of impacts that a replacement facility is studied for during interconnection:
        i. PJM studies the instantaneous megawatt flow impact of generators through a power flow study. As an interconnection cycle progresses, generators being studied can only ever reduce their megawatt output by downsizing or withdrawing. Therefore, power flow over elements of the transmission system will never increase. This is because PJM's interconnection studies take measures to reduce the benefit that "helpers" (i.e., generators with negative *dfax*) exert on the system. Therefore, an MAI caused by power flow will never occur in a later phase study that was not detected in an earlier phase study, and a Phase 2 study is sufficient for studying adverse flow impact.
        ii. Short circuit duty is also sufficiently assessed in a Phase 2 study. Short circuit duty can only decrease as generators are removed from the system being

[4] As described in FAQ #4a, generator replacement requests would not be able to increase CIRs or MFO through the standalone generator replacement process.

modeled. Therefore, similar to power flow, an MAI caused by short circuit duty impact will never occur in a later phase study that was not detected in an earlier phase study.

iii. We anticipate that asynchronous generators (e.g., inverter-based resources) will not cause adverse stability impacts. We note that any adverse stability impacts triggered by a generator's deactivation would be addressed through the deactivation process and would not be the responsibility of the replacement facility. We anticipate that synchronous generators may cause adverse stability impacts, but that any adverse impact not detected in a Phase 2 study should not emerge in Phase 3, as any project attrition would only alleviate stability violations. Therefore, it is sufficient to assess a replacement facility's stability impacts on a Phase 2 study.

b. Stakeholders have also expressed concern that new NUs might be introduced in a Phase 2 model to address violations from that cluster, and could then be removed from a model in Phase 3, in the process leading to impacts from a replacement facility that were previously masked by the NU. PJM does not introduce NUs to address violations during the interconnection study process, so this will never occur.