

Cycle 01, Phase I Model Posting FAQs for Developers

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General Questions

Q1 What are the Cycle 01 (C01), Phase I model posting requirements?

A1 During the Application Review Phase, and at least 30 days prior to initiating Phase I, PJM will post the Phase I base case data for review. Specifically, the PSSE summer peak base case model for Cycle 01 will be available to comply with Tariff, Part VIII, Subpart E, section 416.

Short Circuit and Stability models are currently in development and will be made available at the start of C01 Phase II. These models will be available upon request via the Critical Energy Infrastructure Information (CEII) request process, which will be outlined in more detail once the model availability is announced at the start of Phase II.

Q2 Where can the C01 Phase I models be accessed or requested?

A2 Stakeholders must submit a CEII request on the [CEII Access Request page](#) on the PJM website to gain access to the posted models. Access to the posted models will be granted upon approval of the CEII request.

The C01 Phase I models can be accessed on [PJM.com](#) once a user is provisioned access to their PJM account.

Q3 What version of PowerGem TARA GD should be used to run the analysis?

A3 Once the C01 Phase I models are posted for review, PJM will announce the latest version of TARA GD that should be used for running any generator deliverability (GenDeliv) studies. PJM will also include an Options file for each seasonal case (SP/WP/LL), so anyone can replicate the settings to be used in the official PJM studies. For the final C01 Phase I model posting after the start of Phase I, PJM will announce whether a newer version of TARA GD was or will be released and what version will be used for the official Phase I studies. Any changes to the TARA GD version used for the PJM studies will be announced externally to stakeholders.

Phase I Model Questions

Q1 What RTEP series base case was used for the C01 Phase I models, and what upgrades are modeled?

A1 The C01 Phase I models are based on the 2025 RTEP series models with updates in topology to reflect a 2029 case year. The 2024 series load forecast for the 2029 Delivery Year was used for the C01 Phase I models. During the initial C01 base case development in October 2025, all Board-approved baseline, supplemental and Network Upgrades were included in the model if the projected in-service date of the upgrade was on or before the seasonal case reference cutoff dates as outlined in Manual 14B, Section C.3.1.3.

Q2 Will the C01 Phase I model consider TC2 project withdrawals at Decision Point II, and will any Network Upgrades be modeled in the C01 Phase I models for TC2 and prior queues?

A2 The preliminary C01 Phase I model will reflect the removal of TC2 projects that voluntarily withdrew at Decision Point II. Regarding Network Upgrades, the same rules apply as outlined in Q1 and A1 above. When the C01 base case was developed in October 2025, only Network Upgrades were modeled for prior cycles/queues if the upgrades were securitized and Board approved and had a projected in-service date by the reference year cutoff dates for each seasonal case. For the securitized upgrades that are not modeled in the C01 Phase I models, they will be considered in the analysis as potential mitigations and tested (as required) to determine if the upgrade is a suitable mitigation required for C01.

Q3 Will PJM take the Board-approved upgrades that were not included in the C01 Phase I base models into consideration for the C01 Phase I analysis?

A3 Yes. All Board-approved upgrades (baseline, supplemental, Network) that were not included in the C01 Phase I base case model will be considered in the analysis as potential mitigations and tested (as required) to determine if the upgrade is a suitable mitigation required for C01. While the C01 New Service Requests may take advantage of the approved upgrades if they are determined to be suitable mitigations, an interim deliverability study may be required prior to the generator(s) being placed in service if the required contingent upgrades are not complete.

Q4 For New Service Requests that share a common Point of Interconnection (POI) on a FERC jurisdictional facility, will they be aggregated in the C01 Phase I models?

A4 No, New Service Requests will continue to be modeled separately to determine their individual project contributions (MW impacts) to facility overloads in the GenDeliv and Individual Plant Deliverability (IPD) studies. For New Service Requests sharing a common POI (electrical bus), PJM will aggregate the MW impact of the New Service Requests to determine if the aggregated impact meets cost allocation criteria as outlined in Attachment B of Manual 14H. If the aggregated impact meets cost allocation criteria, then cost allocation will be applied proportionally to the MW impact of each individual New Service Request. This is consistent with how project aggregation was handled for TC1 and TC2.

Q5 We found withdrawn New Service Requests along with some deactivated units in the posted models. Will this be addressed by PJM before the final C01 Phase I models are posted at the start of Phase I?

A5 Yes, PJM will remove withdrawn New Service Requests from the final C01 Phase I models as of the case lockdown date by the official start of Phase I. As it relates to deactivated units in the C01 Phase I models, some units will remain offline in the models if their CIRs haven't expired (≤ 1 yr from actual deactivation date), their CIRs were claimed (transferred), or the owner notification date for the deactivation along with the actual deactivation occurred after the close of the C01 application window on April 27, 2026. How generator deactivations are handled in the interconnection study process is covered in more detail in a [training video](#).

Q6 Why do some units/New Service Requests have different Pmax values across the different seasonal cases?

A6 In line with Manual 14B, Attachment C, a unit's Pmax value in each seasonal case should align with its max seasonal net energy output. Typically, the unit Pmax values in the Summer Peak and Light Load cases will be identical with an exception for Winter Peak where conventional units such as combustion turbines, combined cycle plants, and nuclear plants will have higher Pmax values to reflect the higher winter energy output.

There are also some scenarios, depending on the type of C01 New Service Requests under study, where the generator Pmax/Pmin may not match across seasons if the New Service Request is claiming CIRs from an existing resource at the same POI. In these modeling scenarios, PJM will model the incremental output above the resource's claimed CIRs already existing in the case based on the resource's seasonal ramping. As it relates to battery projects that charge from the grid and are claiming CIRs from an existing resource at the same POI, the Pmin value in Light Load must reflect -100% of the MWE to capture the grid charging impact of the battery during the Light Load studies.

Also, the Pmax/Pmin differences between seasons will not apply to C01 New Service Requests that are claiming CIRs from an existing resource located at a **different POI**. These CIR claims are considered POI transfers, and therefore the full output of the New Service Request will be modeled at its final POI location in the Phase I models to support a POI transfer study completed later in each phase of the C01 studies. A comparative GenDeliv analysis with the claimed MWs at the original deactivated unit's POI will be performed to analyze any change in flowgate loading to determine overload and cost responsibilities for the New Service Request claiming the CIRs.

Q7 Why are some New Service Requests modeled in some of the seasonal cases but missing from the other cases?

A7 This scenario typically only applies to 1) New Service Requests claiming CIRs at the same POI as the deactivated resource and 2) New Service Requests that are only requesting a seasonal-based uprate. For the New Service Requests claiming CIRs at the same POI as the deactivated resource(s), there may be no need to model any incremental output above the existing CIRs already modeled in the case depending on the seasonal resource ramping. For New Service Requests that are only requesting a seasonal-based uprate such as conventional units looking to increase CIRs and summer net energy, there may be no

change to the existing winter net energy output and therefore no need to model the uprate project in the Winter Peak case.

Q8 How is the block dispatch being set in each seasonal case?

A8 Please reference Manual 14B, Attachment C, Section C.3.1.3, Step 2, for more details on the procedure used to set the block dispatch in the RTEP base case. PJM will dispatch Blocks 1, 2 and 3 generation consecutively based on demands of the system while also leveraging TARA SCED to ensure generation is ramped as required for constraint control while also meeting CETO requirements by designated area. Typically Blocks 1-3 are required for Summer & Winter Peak cases while only Blocks 1-2 may be required for the Light Load case.

Q9 How were the generator output/performance values established for the C01 models?

A9 In the C01 Phase I models, the generator EEFord class averages, renewable resource Capacity Factors (CF), and renewable resource ramp limits in the GD datafiles are all based on the 2025 RTEP series values. The renewable CF and ramp limits are developed on an annual basis and posted as part of the study assumptions for the given RTEP series. For reference, the 2025 RTEP series renewable CF and ramp limits values by season may be found on slides 12–14 in the [TEAC presentation](#) (PDF).

Typically for Non-Solar/Wind units, the 50/50 and Regular Adder ramp limits should be the same across RTEP years where the 50/50 limit is set to 100% across all seasons and the Regular Adder ramp limit is set to 1 – PJM Avg EEFord (~94 %) for Summer Peak only. There is no Regular Adder ramping in the Winter Peak or Light Load studies.

Existing unit CIRs were also updated to reflect the latest 2031 RTEP CIR values provided by Resource Adequacy Planning to better reflect recent generator testing performance.

Q10 Will PJM post the final C01 Phase I models once the Phase I studies begin?

A10 Yes. Once C01 Phase I officially begins, PJM will finalize the updates to the Phase I models, including C01 project withdrawals, and then post the final C01 Phase I models to PJM.com for Project Developer and Transmission Owner access. The case lockdown date will coincide with the official start of Phase I as it relates to events that PJM will consider in the case update process such as withdrawn projects, expired CIRs, withdrawn deactivations, prior queue/Cycle project changes, etc.

GenDeliv (GD) Reform Questions

Q1 Where can I find posted material covering the GD reforms and when the GD reforms were implemented?

A1 The following stakeholder presentation material was posted on PJM.com in 2022–2023 for various Planning Committee and Markets & Reliability Committee meetings:

Planning Committee Presentation (July 2022):

- [Generator Deliverability Test Modifications July 12, 2022](#) (PDF)

Markets & Reliability Committee Presentation (December 2022/January 2023):

- [Generator Deliverability Test Modifications Dec. 21, 2022](#) (PDF)
- [Generator Deliverability Test Modifications Jan. 25, 2023](#) (PDF)
- The details of the new generator deliverability test are covered under [Manual 14B, Attachment C, Section C.3](#) (PDF)

GD Reforms Implementation Timeline:

- PC/MRC first read in December 2022 → PC/MRC endorsed in January 2023
- Fully implemented in the RTEP for the 2023 Series studies (2028 base case year)
- Fully implemented in the Cycle studies starting with TC2 in 2025 (2028 base case year)

Q2 What are the common terms used for the GD reforms implemented for the C01 studies?

A2 The following terms/abbreviations are commonly used to describe the GD reforms along with IPD implemented in the 2025 RTEP series and for C01:

- GD Reforms, GenDeliv 2, GD2
- IPD, Individual Plant Deliverability, Individual Plant Test

Q3 What new or additional studies will PJM perform due to the GD reform implementation for C01?

A3 Historically for interconnection studies (TC1 and prior), PJM only performed GenDeliv tests (legacy GenDeliv) for Summer Peak (SP) and Light Load (LL) conditions. As a result of the GD reforms, PJM will now perform GenDeliv tests for all three seasons (SP/WP/LL). This is due to the seasonal variability in output for the full spectrum of resources with winter peak being the new seasonal study in the PJM interconnection process.

Also, where resources aren't ramped to their full seasonal energy output in the GD reform test, the IPD test is now required to test these resources at their fuel seasonal energy output on an individual plant basis. Additional details on this new test are covered later in this FAQ document.

Q4 Are operational contingencies studied in the GD reforms?

A4 No, operational contingencies are no longer considered or studied as part of the reformed GenDeliv test. This is outlined in the stakeholder presentation material outlined in Q1 and A1 above. In the new GenDeliv test, resources are ramped to their seasonal injection capability along with solar and wind resources only

being ramped to seasonal percentile-based ramp limits. In the legacy GenDeliv test, resources were always ramped to full energy output for common mode contingencies, but that is no longer applicable under the GD reforms.

Q5 When is CIR testing applied in the GD reform test?

A5 Under the GD reform test, the requested CIRs are applied differently by resource type when ramping the resource across the three seasonal studies. The overview below covers some of the predominant resources under study in C01:

- Solar/Wind: CIRs only applied during Summer Peak single contingency testing, otherwise MW CAP (Energy Output) is applied against the seasonal ramp limits as outlined in the stakeholder presentation material references provided in Q1&A1.
- Batteries: Ramped to CIRs in Summer & Winter Peak studies by ensuring MW CAP = CIRs, otherwise ramped to +/- 100% net energy output in Light Load by ensuring MW CAP = MWE
- Thermal Units: Ramped to CIRs in Summer Peak & Light Load studies by ensuring MW CAP = CIRs, otherwise ramped to 100% winter net energy output in Winter Peak by ensuring MW CAP = Winter MWE

Q6 How are CIR-only uprates ramped in the GD reform test?

A6 If a CIR-only uprate is just an increase of CIRs to an existing fuel, the uprate will be modeled as a separate generator to ensure the correct CIR ramping is applied for Solar/Wind and Non-Solar/Wind resources. A corresponding MFO sheet entry will be provided in the GD datafile to ensure the facility does not exceed its existing seasonal net energy output while ramping the additional CIRs in the GenDeliv test.

If the CIR-only uprate is via the addition of a new fuel type to an existing resource, then the facility now becomes an MFO-limited hybrid facility, and it will have a corresponding MFO sheet entry to ensure the facility MFO (Seasonal Net Energy Output) is not exceeded. An example of this is a battery addition to an existing solar facility where the MFO is not increasing but the battery is adding CIRs to the facility.

Another scenario is for energy-only standalone resources where a CIR-only uprate is being studied. In the GD reforms, energy-only standalone resources are not ramped in the GenDeliv test. Once the resource becomes a capacity resource via a CIR-only uprate, it is now subject to the same ramping rules as all of the other capacity resources in the GenDeliv test.

Q7 Are CIR-only uprate New Service Requests subject to the Individual Plant Deliverability (IPD) test?

A7 If a CIR-only uprate does not change the seasonal max net energy injection into the system, then there is no additional injection to study since the existing project's max seasonal output was already studied. However, if the CIR-only uprate is a battery addition to another fuel and adds grid charging to the hybrid facility, then the max net energy withdrawal will be studied in Light Load. To be clear, an actual "CIR-only uprate" is when a New Service Request is adding CIRs to an existing fuel within a plant without ANY changes to the

existing plant. Any changes to the plant such as physical changes, an increase in seasonal output capability or adding an additional fuel type is classified as a traditional uprate.

Q8 In the Generator Sheet of the GD datafile, why is the CIR column populated for the SP case, but blank for the WP and LL cases?

A8 In the GD datafile for the GD reforms, only the CIR column values are used by TARA GD when ramping Solar & Wind resources for Summer Peak single contingencies. This column will be blank for Solar & Wind resources in the light load & winter peak LL & WP GD datafiles since these resources are either ramped to a capacity factor (solar) or percentile (wind) based percentage for single and common mode testing in those two seasons.

For Non-Solar/Wind resources, the CIR column is not used by TARA GD and is only populated as a reference. All ramping for Non-Solar/Wind resources is accomplished via the values in the MW CAP column and the applicable ramp limit by Gen Number. Non-Solar/Wind resources fall under the 50/50 and Regular Adder dispatch.

Q9 How are conventional units such as combustion turbines, combined cycle plants, and nuclear plants ramped in the GD reform test?

A9 For PJM interconnection studies, conventional units such as combustion turbines, combined cycle plants, and nuclear plants are ramped to their CIR output in the Summer Peak & Light Load studies whereas these units are ramped to their winter net energy output in the Winter peak studies.

Q10 How are energy-only resources modeled and ramped in the GD reform test?

A10 Energy-only **standalone** resources will always be offline in the base case block dispatch and will not be ramped during the GenDeliv test. This is accomplished by ensuring MW CAP = 0 and MW Energy = Pmax in the generator sheet of the GD datafile. These energy-only standalone resources are still subject to the IPD test.

Once an energy-only standalone resource becomes coupled with another capacity resource or becomes a capacity resource via a CIR-only uprate, it is no longer considered an energy-only standalone resource, and it will be ramped in the GenDeliv test along with IPD to study its deliverability

Q11 How are batteries modeled and ramped in the GD reform test?

A11 Under the new GD reform test, batteries will be ramped to their requested CIR output in Summer & Winter Peak studies whereas for Light Load the battery is ramped to +/- 100% of its net energy output. The battery charging component is only ramped in the Light Load studies if the battery is charging from the grid, otherwise the battery will only be ramped in the discharging mode. If a battery has zero (0) CIRs allocated to it, but it is coupled with another capacity resource such as Solar/Wind, the battery will only be ramped to +/- 100% of its net energy output in Light Load.

Q12 Why are Gen Number 88 and 90 used for Battery Storage units in the Generator Sheet of the GD datafile?

A12 Standalone batteries or batteries that are coupled with Non-Solar/Wind resources (e.g. thermal facility) will use Gen Number 88 for ramping. For any batteries that are coupled with Solar/Wind resources as a hybrid facility, Gen Number 90 will be used. The ramp limits for both Gen Numbers are the same and set to 100% of the values populated in the MW CAP column for the battery.

Q13 How are MFO-limited hybrid facilities handled in the GD reform test to ensure they are not ramped beyond the requested MFO for the facility?

A13 For MFO limited hybrid facilities, or even some CIR only updates to existing fuel types, TARA GD will ensure a MFO limit is applied to the ramping of the facility via the GroupID and the MFO sheet entry. Essentially, the ramped MWs are scaled down uniformly according to the ratio of MFO Limit / Sum of Ramped MWs to ensure the MFO is not violated for a given flowgate. The MFO limit is only applied if the MFO Limit / Sum of Ramped MWs < 1.0 for a given flowgate. Here are some additional definitions for the MFO sheet entries:

- Total Capacity = For the generator units with the same GroupID, equals the sum of the MW CAP
- Total Energy = For the generator units with the same GroupID, equals the sum of the MW Energy
- MFO Capacity = Facility MFO (Seasonal Net Energy)
- MFO Energy = Should always equal 0 since MFO Capacity is the Facility MFO (Seasonal Net Energy)

Q14 Why are all the Generator Units & Buses under study being placed in Owner 903 in the models and why is that used in the export subsystem just for the Light Load studies?

A14 In the annual RTEP studies, all the units to be ramped in the Light Load test are placed in Owner 903 and ramped via the export subsystem in the sub file by defining Owner 903 instead of the typical PJM areas. For the RTEP studies this primarily includes Block 1 units such as Solar & Wind that will only be online at their Capacity Factor (CF) * Pmax and where ramping beyond their online Pgen to the MW CAP * light load ramp limit is required. As for block 2 & 3 units, most block 2 units will be online in a Light Load case at their Capacity Factor (CF) * Pmax. Some block 3 units may also be online at the same dispatch as the block 2 units if the additional generation is required during the block dispatch procedure.

As for projects under study in the interconnection process, all generator units & buses are placed in owner 903 across all seasonal cases, but it is only used for unit ramping during the Light Load studies. Since all projects in the interconnection study process may eventually be placed online in the block dispatch and/or ramped in Light Load once they are committed to a future RTEP base case, these projects will be ramped in the Light Load interconnection studies to determine impacts on the PJM system.

Q15 How are Merchant Transmission Requests modeled and ramped differently from typical generation New Service Requests?

A15 Merchant Transmission Requests will be modeled similarly to other New Service Requests where the Pmax/Pmin reflects the full directional capability of the project. Some of the differences are the following:

- Merchant Transmission Request buses will be in Area 39 (PJM MTX), which is part of the export subsystem in the sub file for ramping PJM generation during the GenDeliv test.
- Merchant Transmission Requests are only entered on the MTX sheet of the GD datafile and will not have a corresponding entry in the generator sheet. This sheet captures firm and non-firm output values. Only firm output is tested in the GenDeliv test, but firm + non-firm output will be tested in the IPD test.

Q16 How are New Service Requests studied under the Individual Plant Deliverability (IPD) test?

A16 The full plant associated with a C01 project will be ramped individually to their seasonal max net energy output under an AC contingency thermal analysis for the individual plant test (aka Individual Plant Deliverability or IPD). Under these conditions, the system must be secure for single and common mode contingencies.

This test also requires controllable Merchant Transmission Requests to be ramped to their max directional capability across all seasons and battery charging to be tested in Light Load for batteries that charge from the grid.

Q17 How are external (Affected System) projects being studied/ramped in the GD reform test to capture impacts to the PJM system?

A17 For external projects in MISO, NYSIO, DUKE, LGEE and TVA that were studied under the GenDeliv test for PJM Affected System studies, those projects will be modeled by PJM in the C01 models and ramped accordingly unless the project was already committed to the MMWG base case by the external RTO/ISO. For these external projects that are modeled and ramped in the C01 studies, they will be handled via the external subsystems as defined in the Sub file and GD datafile. Each external subsystem is defined in the sub file with an export (source) subsystem (projects to ramp via a defined owner number or by generator bus number) and an import (sink) subsystem (external subsystem areas). These subsystems are also defined in the external subsystem sheet of the GD datafile to define the sending and receiving subsystem.

As PJM transitions to the Energy Resource Interconnection Service (ERIS) modeling and study methodology for Affected Systems to align with FERC Order 2023 requirements, future PJM Affected System studies will no longer be subject to the GenDeliv test and just an IPD test. One most recent example is with this new study methodology being implemented for the PJM Affected System studies of DPP 2021 projects. This is why DPP 2021 projects are no longer modeled or ramped by PJM in either of the Transition Cycle GenDeliv studies.