Enhance CIR Transfer Efficiency – PJM Solution Package

Ed Franks
Interconnection Analysis Department
Planning Committee
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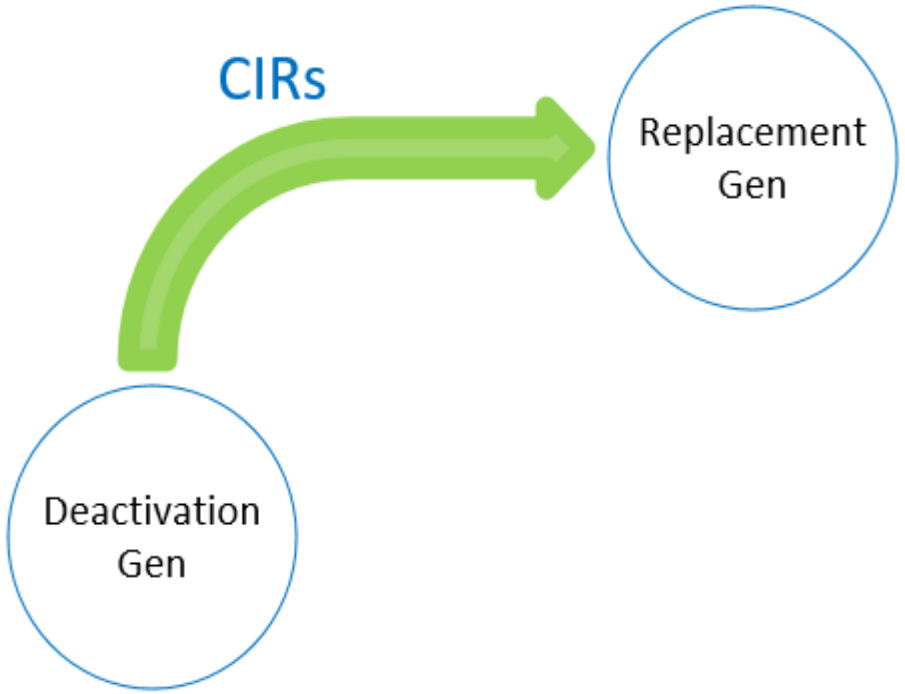
Overview - Replacement Generation Interconnection Process

- Create a new, separate Replacement Generation Interconnection Process outside of the PJM Cycle Process
- Key Principles:
  - Ensure no material adverse impacts to the system or to other interconnection requests in the Cycle Process
  - Expedited – requests can be submitted at any time and study process can begin immediately. The overall process and associated timeline should be efficient.
- Develop eligibility criteria to enter this process and associated processing rules in order to support the key principles

Eligibility Criteria - Replacement Generation Interconnection Process

- Process for the transfer of CIRs from a Deactivation capacity resource to a Replacement capacity resource (applies to battery storage fuel type), which meets the following criteria:
  - Requires an official Deactivation Notice sent to PJM (status quo)
  - CIRs claimed prior to expiring, which is 1 year after the Actual Deactivation Date (status quo)
  - A Notice of Intent to Transfer CIRs form must be submitted to confirm the holder of the CIRs. The form confirms the owner/Transferor of the CIRs and the Transferee to whom the CIRs are being transferred to (which may be the same entity or a different entity) (status quo).
    - The entity submitting the Replacement resource application must be the Transferee of the CIRs (status quo)
  - POI - Replacement resource must connect at same voltage level at same interconnection substation as the Deactivation resource
    - Note: If a line tap with no interconnection substation, the POI must be at same line tap termination location
  - MWs – Replacement resource's CIRs and MFO cannot exceed the Deactivation resource
  - No material adverse impact - Replacement resource cannot consume available transmission capability from the system in excess of what the Deactivation resource already utilizes



***** Any Generation Interconnection request seeking a CIR transfer that does not meet the criteria above can submit an application for and enter the Cycle Process**

***** If a Replacement Gen application is submitted to PJM, and the Replacement project is withdrawn for any reason, the Developer must submit a Cycle Process application if they choose to enter that process (the Replacement project will not be automatically moved over to the Cycle Process).**

*****Alternatively, Developer can choose to re-apply to Replacement Gen Process**

Replacement Generation Interconnection Process

Total time – ~13 months

Note: a Phase could be completed earlier than estimated below and the next Study Phase then started sooner.

Application Phase – 60 days

- Submit Application
- Notice of Intent to Transfer CIRs Form
- Study Deposit
- All Site Control Requirements
- Project Data

PJM performs application review

Deficiency review period

PJM assigns Replacement Gen Request #

Scoping meeting with PJM, Project Developer, TO

Impact Study Phase – 90 days

Initial Screening Assessment for material adverse impacts - determine if any thermal or short circuit capability/headroom being taken from system

PJM runs any necessary powerflow and short circuit analysis

Begin preparing stability data/files for stability study

Use latest completed Phase 3 study models from Cycle Process

If no thermal or short circuit material adverse impacts – proceed to Facilities Study

Facilities Study Phase – 180 days

TO performs Facilities Study for new interconnection facilities, metering, relaying, etc.

(if needed)(scope determined on a per project basis)

PJM completes stability study – ensure no stability material adverse impacts

PJM issues Replacement Generation Interconnection Study report to Developer along with draft GIA

GIA Negotiation Phase – 60 days

Developer Decision: Post 100% Security in 30 days

PJM to review draft GIA comments, revise and re-issue as appropriate

Execution of GIA

(similar to Cycle Process GIA phase)

Replacement Generation Interconnection Process – Key Details

- Replacement Generation applications can be submitted to PJM at any time. There are no defined Replacement Generation application windows.
- Replacement Generation applications prioritized serially, in the order each application is received by PJM.
- After the Application Phase:
  - No site control changes
  - No POI changes
  - No fuel changes
  - Cannot change project size, in MW, for CIRs nor MFO
  - Equipment changes (Permissible Technological Advancement changes only) can occur via Necessary Study after GIA execution

Replacement Generation Interconnection Process – Key Details

- Study Deposit requirements – same as Generation Interconnection requests in the Cycle Process
  - PJM Manual 14H section 2.5.1:

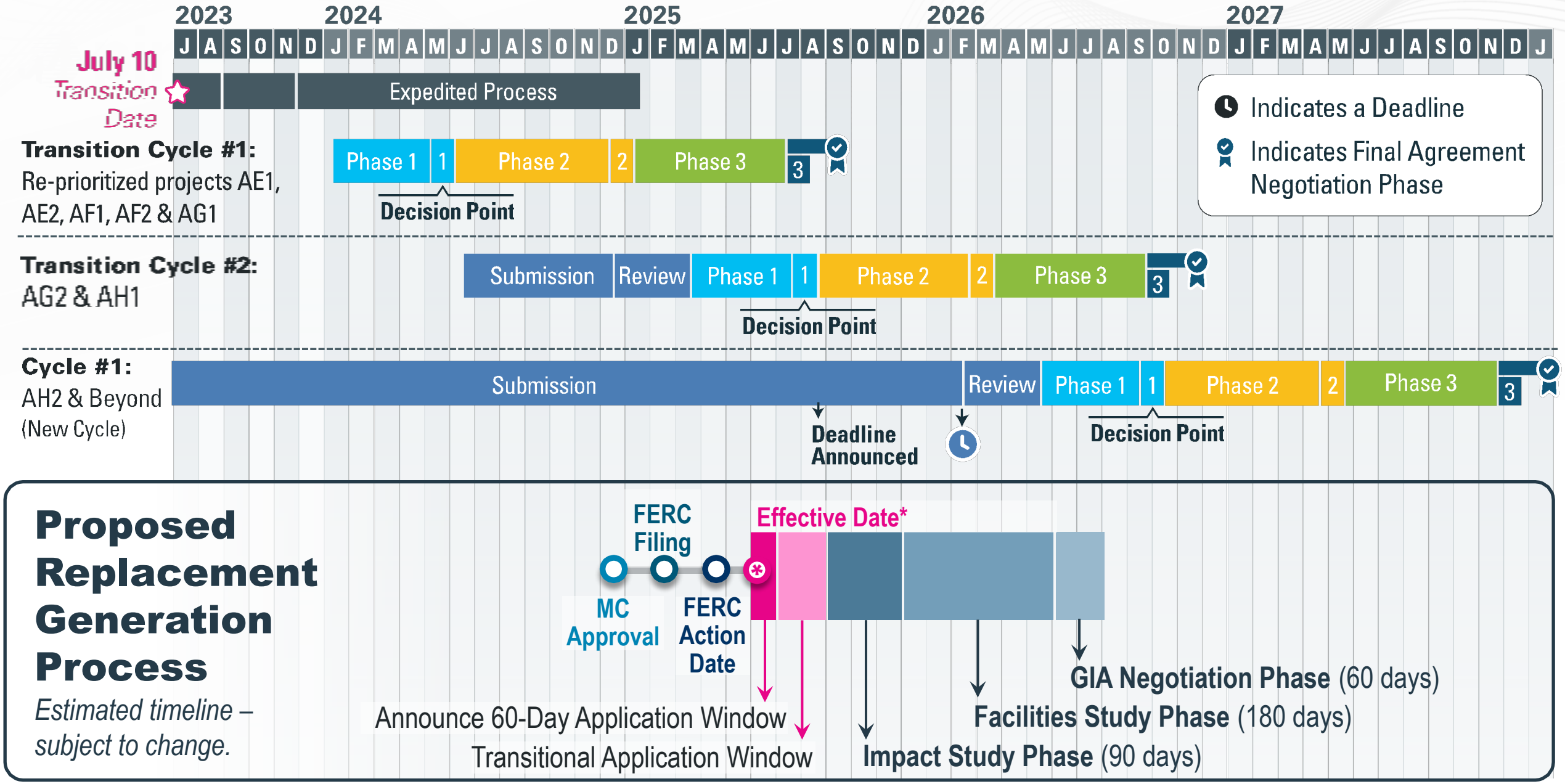
Project Size	Study Deposit
0-20 MW	$75,000
>20-50 MW	$200,000
>50-100 MW	$250,000
>100-250 MW	$300,000
>250-750 MW	$350,000
>750 MW	$400,000

Key PJM Package Component – No Material Adverse Impacts

- How does the PJM Package define “material adverse impacts”:
  - Replacement resource cannot consume available transmission capability (i.e. headroom) from the system in excess of what the Deactivation resource already utilizes. This concept/criteria is presently used in the PJM Surplus Interconnection Service Process.
- If any transmission capability (i.e. headroom) taken from the system by the Replacement resource, it should be evaluated in the Cycle Process where the capability can be awarded and allocated equitably among all interconnection requests in the Cycle Process
- When evaluating transmission system capability, PJM is considering not only thermal (MW) capability, but also short circuit capability and dynamic capability (stability). (reference CIR Transfer Education – Sept 2023 IPS)
  - Short circuit and stability responses are also determined by the electrical characteristics of each resource (not just MWs)
  - New generation and associated facilities will almost certainly have differing characteristics from the deactivating facility that will require analytical evaluation
  - Example - Replacement resource could increase fault current into the system as compared to the Deactivation resource
- Thermal (MW) capability of the PJM transmission system is evaluated at various seasonal conditions (PJM tests generation deliverability of resources at summer peak, light load, winter peak) (reference CIR Transfer Education – Sept 2023 IPS)
  - Different fuel types have different Deliverability criteria at different seasons. Resources are not only tested at their CIR value for Deliverability, but also tested to varying levels up to their MFO for some fuel types for specific seasons
  - If the fuel type of the Replacement resource differs from the Deactivation resource, the Replacement resource’s deliverability requirements will need to be evaluated and compared to the Deactivation resource’s deliverability requirements, even if the MW output is the same or less
  - Standalone Battery/Storage – if charging from the grid, and replacing synchronous generation for example…..would not qualify for Replacement Generation process. Transmission capability is ensured/preserved for battery charging in the Generator Deliverability Test (at light load conditions). This capability has not already been utilized by the Deactivation resource.
    - Note: Hybrid generation projects (multi fuel types) which include Battery Storage may not need to charge the batteries from the grid and may qualify for Replacement Generation process depending if all eligibility criteria is met
- No new reliability driven network upgrades in the Replacement Generation process – if they are required, it indicates that transmission capability is being taken by the Replacement resource

Transition Plan – Existing CIR Transfer Requests

- CIR Transfer Requests in Expedited Process/Fast Lane (AE1-AG1) remain in Expedited Process/Fast Lane.
- CIR Transfer Requests in Transition Cycle #1 (TC1) (AE1-AG1) remain in TC1 - TC1 has started and is scheduled to be completed 3Q 2025.
- CIR Transfer Requests in Transition Cycle #2 (TC2) (AG2-AH1) - requests would be eligible to be moved to new Replacement Gen Process. Maintain existing queue priority (between other Replacement Gen Requests) in Replacement Gen Process as already established with their original queue submission.
  - TC2 projects eligible only if the FERC approved Effective Date of such Replacement Gen Process is prior to TC2, Phase 1 Start Date. TC2, Phase 1 presently scheduled to begin March 2025.
- CIR Transfer Requests in Cycle #1 (AH2 & beyond) - requests would be eligible to be moved to new Replacement Gen Process. Maintain existing queue priority (between other Replacement Gen Requests) in Replacement Gen Process as already established with their original queue submission.
  - Cycle #1 projects eligible only if the FERC approved Effective Date of such Replacement Gen Process is prior to Cycle #1, Phase 1 Start Date. Cycle #1, Phase 1 presently scheduled to begin in 2026.
- Projects in Cycles eligible to enter new Replacement Process (potentially TC2 & Cycle 1): within 30 days of FERC approved Effective Date, PJM communicates via IPS and reaches out to applicable Developers requesting a CIR Transfer that a 60 day Replacement Gen transitional application window will open for such TC2 & Cycle 1 eligible Developers to apply to the Replacement Gen Process. Applying during this 60 day transitional application window ensures their existing serial queue priority among each other is maintained in the Replacement Gen Process.
  - After the 60 day transitional application window, any Replacement Gen application can be submitted. These will be queued after the Replacement Gen requests received during the 60 day transitional application window.



Proposed Replacement Generation Process

Estimated timeline – subject to change.

- Avoid if possible potential duplication of replacement generation projects/CIR Transfers (1 in Replacement Gen Process & 1 in Cycle Process). At a minimum, cannot have the same Replacement resource/CIR Transfer receiving 2 GIAs from each Process.
- If a Cycle project withdrawals from Cycle Process, and the CIRs have expired at that point (after 1 year of Deactivation Date), those CIRs are returned to the system and they cannot be claimed again with a new Replacement or Cycle Application. If they are not yet expired, can claim the CIRs again with a new Replacement or Cycle Application. (this is Status Quo concept).
- If directed out of Replacement Gen Process due to ineligibility, and the CIRs have expired:
  - Developer has 30 days from PJM withdrawal notification to submit an application for the Cycle Process to retain the claiming and transfer of the CIRs, else the CIRs expire.

Contact

Facilitator:
Becky Carroll, Rebecca.Carroll@pjm.com

Secretary:
Ashwini Bhat, Ashwini.Bhat@pjm.com

Presenter:
Ed Franks, Edmund.Franks@pjm.com

Enhance CIR Transfer Efficiency - PJM Solution Package

Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

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