



# Interconnection Process Reform Task Force (IPRTF) New Interconnection Process Packages

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Knowledge Management Center  
January 11, 2022  
Planning Committee

- Interconnection Process Reform Task Force
  - Approved to start work at April 6, 2021 Planning Committee
  - Address issues identified as a result of the Interconnection Process Workshops that occurred in 2020.
- First IPRTF meeting – April 23, 2021
- IPRTF has had 15 meetings to date

- Interconnection studies
- Cost concerns
  - Project cost estimates
  - Cost responsibility for network upgrades
- Interim operation and agreements
- New Service Request requirements, requirements to proceed through the process and rules around project modifications
- Opportunities that can reduce the current and future interconnection queue backlog

- Total Companies – 625
- Member Companies – 280
  
- Poll focused on packages related to a new interconnection process
- How to transition to a new process will be brought for a first read at January 11, 2022 PC

- First Ready - First Serve
  - Priority defined by cycle
  - Subsequent cycles “gated” by completion of phases in prior cycles
- Ability to exit study process early
  - Projects that do not contribute to the need for network upgrades and/or do not need Facilities studies may proceed to final agreement early
- Study window = 710 days
- Progress through process in 3 phases
  - Customer decision point at end of each phase
- No inter-cycle cost allocations

- Prior to proceeding to final agreement:
  - All security deposit amounts submitted
  - 100% site control needed
    - Or requirement added to produce evidence within 6 months
  - Necessary state, county & local permits attained
    - Or milestone added to final agreement
  - State jurisdictional interconnections requirements
    - Demonstrates executed a two party interconnection agreement with Transmission Owner/Distribution Provider
  - Rename Interim Interconnection Service Agreement to Engineering and Procurement Agreement
    - Can only be requested in Phase 3 of process

Design Components	<span style="color: green;">83%</span> <span style="color: blue;">86%</span> <b>A (PJM)</b>	<span style="color: green;">59%</span> <span style="color: blue;">88%</span> <b>E (CCR/ORR)</b>	<span style="color: green;">35%</span> <span style="color: blue;">22%</span> <b>G (RWE)</b>	<span style="color: green;">29%</span> <span style="color: blue;">16%</span> <b>C (Clearway)</b>
Application Queue Windows	Rolling cycle. Deadline posted @ beginning of Phase 2 of last cycle	Same as PJM	Same as PJM	Two Annual Windows
Deposit	Unified study deposit all phases (10% nonrefundable). Scaled by MW project size. Readiness Deposit = \$4k/MW; 50% at risk	Same as PJM	Same as PJM	Readiness Payment fully refundable before scoping call. After Decision Point 1, 30% at risk.

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Green = All Stakeholders    Blue = PJM Members Only



# New Process Packages Cont.

Design Components	A (PJM)	E (CCR/ORR)	G (RWE)	C (Clearway)
Point of Interconnection (POI)	Single POI Only. Shared Facilities agreement provided up front if behind existing POI	Same as PJM with the addition that non-material changes will be accepted to POI	Same as PJM	Two projects @ same POI allowed. New requests behind existing POI requires simplified consent agreement prior to Phase 1
Site Control	Deed/Lease/Option required for generating site, IF and POI swyd. Resource-specific acreage requirements.	Same as PJM	Same as PJM with 5 yrs term @ application & 3 yrs @ DP3. No security in lieu of site control.	\$500k Security in lieu of site control. Not demonstrated by Phase 2 project withdrawn & \$250k lost.
Deficiency Review	When cycle closes during application review phase. 15 Business Days	Same as PJM	Same as PJM	Review when submitted. 5 Business Days.

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Design Components	A (PJM)	E (CCR/ORR)	G (RWE)	C (Clearway)
Feasibility Analytical Studies	AC Power Flow @ 100% Commercial probability for Summer Peak & Light Load	Same as PJM	Same as PJM, but include DC analysis and outlet issue screening	Identify Affected Systems early
System Impact Studies & Agreement	Readiness deposit = 10% Network Upgrade (NU) costs. 100% of RD1 at risk. Kick-off call not required	Same as PJM	Same as PJM except one hour kick-off call per cluster group	Deposit for work to complete analysis per request. Portions non-refundable. Kick-off call informs which projects moving forward

DP1

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# New Process Packages Cont.

Design Components	A (PJM)	E (CCR/ORR)	G (RWE)	C (Clearway)
Facilities Study & Agreement	RD = 20% NU costs. 100% at risk.	Same as PJM	Same as PJM	Replace with "Phase 3 Study Process" to allow for retool & finalization of costs
Technology Advancement	Allowed during DP 1 and DP2	Same as PJM	Same as PJM	Allowed at any time
POI Change	Only allowed at DP1	Same as PJM	Same as PJM	Allowed prior to Phase 2 Study
Interconnection Construction Service Agreement Suspensions	Not permitted. Issues outside of control handled via milestone changes. Customers allowed up to 12 months to extend milestones	Same as PJM with language Customers allowed up to 12 months to extend <b>Section 6 ISA</b> milestones	Same as PJM	3 years. Shared upgrades must be funded during suspension

DP2

DP3

Package Removed

Design Components	A (PJM)	E (CCR/ORR)	G (RWE)	C (Clearway)
WMPA Treatment	Non jurisdictional projects must use state's process prior to getting WMPA	Two options: 1. Apply for QF status 2. State Jurisdictional queue in parallel with PJM queue <i>Package Removed</i>	Same as PJM <i>Package Removed</i>	Same as PJM <i>Package Removed</i>

- January 11 PC
  - Process Packages Endorsement
  - Transition Packages First Read
- February 8 PC
  - Transition Packages Endorsement
- March 23 MRC
  - First Read Process and Transition Packages
- April 27 MRC/MC
  - Same Day Vote for Process and Transition Packages

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## New Interconnection Process Packages



### Member Hotline

(610) 666 – 8980

(866) 400 – 8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)

# Appendix



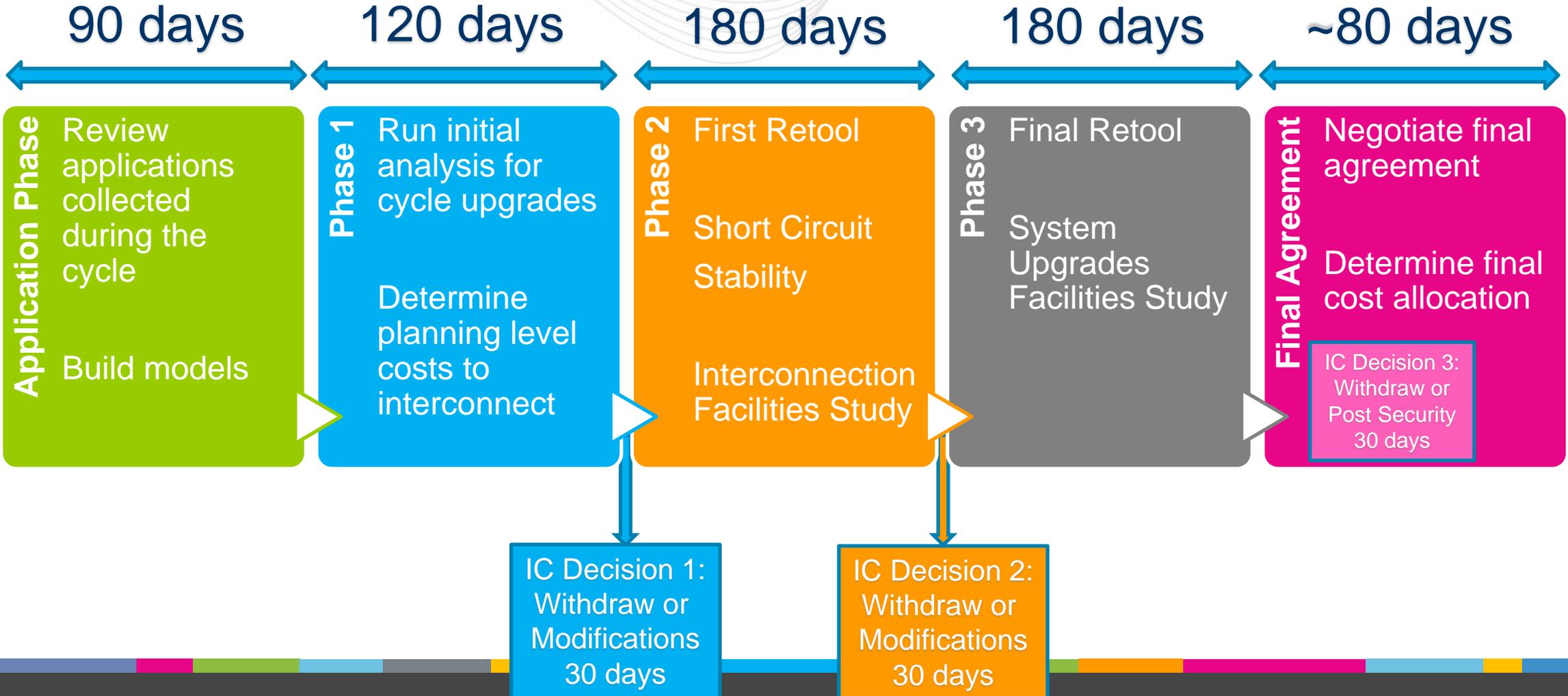
# Interconnection Reform Task Force PJM Solution Proposal Framework

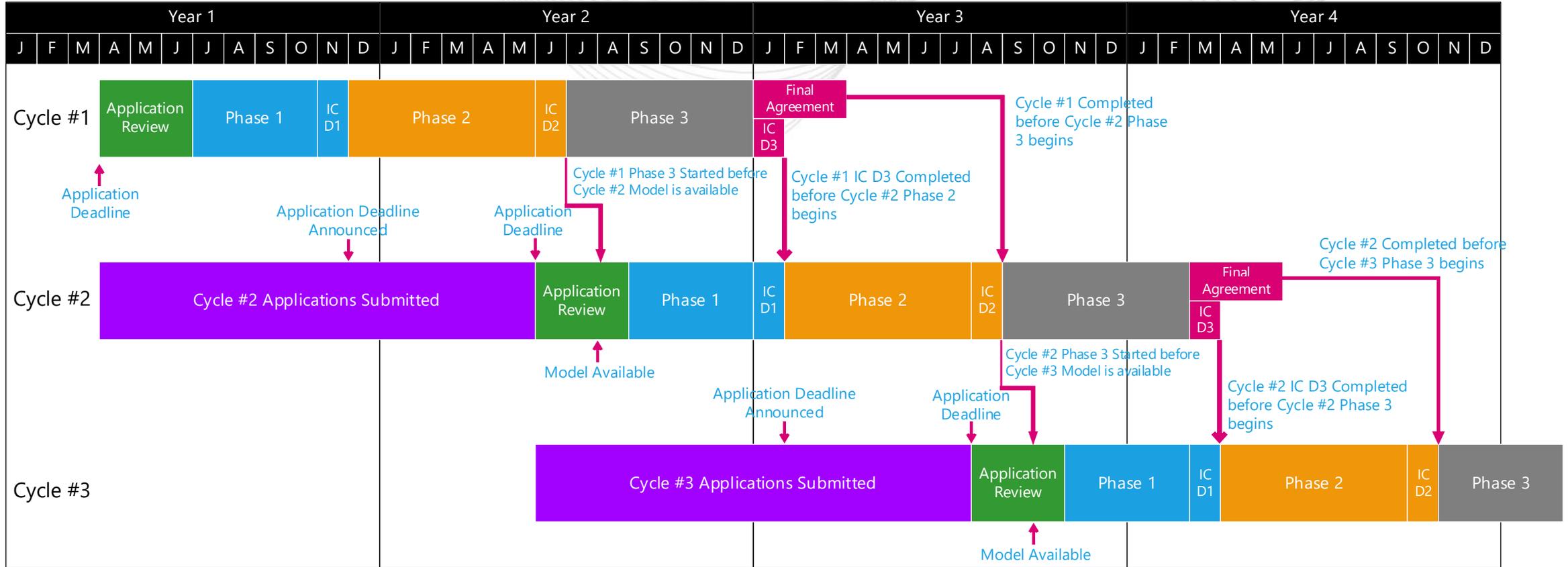
- Framework was created by PJM staff and management over several sessions
- The framework borrows heavily from interconnection processes in other RTOs
- Full solution details in the PJM Solution proposal matrix.

- Ideal timing not to exceed 2 years
- Cost and study construct should be cluster/cycle based and convert from first in/first out processing to first ready/first out processing
  - Readiness demonstrated by site control and financial milestones
- Subsequent cycle management should be assessed based on completion of a certain point in the prior cycle to minimize backlog
- Provide customers with more actionable information, earlier in the process
- Attempt to merge all other application types into new process
- State jurisdictional projects should have appropriate milestones to enter into an interconnection agreement from the Transmission Owner / Distribution Provider prior to receiving a Wholesale Market Participation Agreement

- Remove incremental financial rights for generators for simplification and due to removal of first-to-cause construct. Add a parallel process for generators seeking to receive these rights
- Remove other generation interconnection request forms (Attachments Y & BB) for simplification
- Remove or reduce scope of pre-application process
- Make project changes predictable from a process viewpoint and automatic to provide certainty to customers
- Allow off-ramps for generators proceeding through the process at various decision points
- Remove Optional Interconnection Study process

Total time per cycle – 710 days





### Subsequent Cycle Start

- Application deadline of the subsequent cycle will be announced 180 days in advance at the conclusion of Phase 1 - IC D1 of the most recent cycle.
- Only completed applications received by the Application Deadline will be considered for the upcoming Cycle.
- Applications will only be reviewed during the Application Review period.
- Phase 1 of a subsequent cycle will only start after Phase 3 of the previous cycle has started AND all Application Review period activities have been completed AND the model have been made available for a 30 day review. Phase 2 of a subsequent cycle will only start after IC D3 have concluded. Phase 3 of a subsequent cycle will only start after the prior cycle has concluded.

- Single closing period for kicking off a cycle
- Allow a defined window to review all active applications from the open cycle
  - Do not review applications “mid-stream”
- Single application agreement with a unified study deposit and milestone payments
  - Typical data required + dynamic data up front
  - Shared facilities agreement required if connecting behind another POI
- Site control for generating site required and will be revisited throughout the process
- Single Point of Interconnection only
- Study Deposit (see table) + Readiness payment (\$4,000 / MW)
- Load Flow study model provided at least 30 days prior to the start of Phase 1

- Analysis Provided
  - Summer Peak load flow
  - Light load season load flow
  - This analysis will be the equivalent of an Impact study analysis at full commercial probability and DC & AC
- Interconnection Facilities
  - Scope, cost, schedule – planning desk-side estimate
- System Upgrades
  - Scope, cost, schedule – planning desk-side estimate
  - Cost allocation
- Results provided as a single cycle format (e.g. spreadsheet)

- Changes permitted:
  - Reduce the output of the request (both MFO & CIR)
    - Up to 100% of requested MFO and/or CIR value
  - Point of Interconnection finalized
    - Location along transmission line or
    - Substation breaker position
  - Equipment changes
  - Withdraw project
- Customer Requirements:
  - Provide 100% generation facility site control again
  - Provide 50% of site control for customer interconnection facilities (gen-tie) to the Point of Interconnection & new interconnection switchyard (if applicable)
  - Provide evidence of air & water permits if applicable
  - State jurisdictional interconnections to provide evidence of entering the state's interconnection process (if applicable)
  - Readiness Payment #2 (10% of network upgrade costs)
- Off ramp for projects that do not require a Facilities Study and do not contribute to the need for network upgrades

- Analysis Provided
  - Retool load flow results
  - Short circuit study
  - Initial affected system study results (if needed)
  - PJM to notify developer of requirement to enter into an Affected System Study Agreement (if needed)
  - Stability analysis
- Interconnection Facilities
  - Transmission Owner to perform Facilities study
- System Upgrades
  - Scope, cost, schedule, & cost allocation

- Changes Permitted:
  - Reduce the output of the request (both MFO & CIR)
    - 10% of the amount studied for Phase 2
  - Equipment changes under permissible technology changes
  - Withdraw project
- Customer Requirements:
  - **Decide whether direct connection network upgrades will be subject to Option to Build**
  - Readiness Payment #3 (20% of network upgrade costs)
  - Enter into Affected System Study Agreement if applicable
- Off-ramp for projects that only have interconnection facilities and do not contribute to the need for network upgrades. They can proceed directly to a final agreement

- Analysis Provided
  - Final retool of all Phase 2 analyses
  - Final affected system study (if needed)
- Interconnection Facilities
  - Target back-feed dates
- System Upgrades
  - Final cost allocation
  - Transmission Owner Facilities study
- Agreement Related
  - Draft ISA/CSA
  - Security calculation

- Changes Permitted:
  - Withdraw project
  
- Customer Requirements:
  - Post security for upgrade cost allocation and indicate the project will proceed to a final agreement.
  
  - Developer to provide 100% site control within 6 months of final agreement execution for the following:
    - generation site
    - interconnection switchyard
    - customer interconnection facilities to the POI
  
  - Provide evidence of necessary state, county, & local permits or a milestone will be created for the final agreement

- Negotiate final agreement details including milestones, construction schedule, site control review, and Transmission Owner input
- True-up final security as required for projects that may have withdrawn during IC Decision 3
- Perform any remaining retool necessary to ensure system upgrades are still needed
- No ability to suspend a project
  - Construction delays can be handled with milestone extensions for issues outside of the developer's control
  - Developers able to extend milestones for up to 12 months
- 15 business days to execute once tendered

- Generation Interconnection
  - Attachment N, Y, BB



- Transmission Interconnection
  - Attachment S



- Long Term Firm Transmission Service
  - Attachment PP



- Upgrade Request
  - Attachment EE



- Surplus Service Request
  - Attachment RR



Merge into new cycle process

Parallel Process

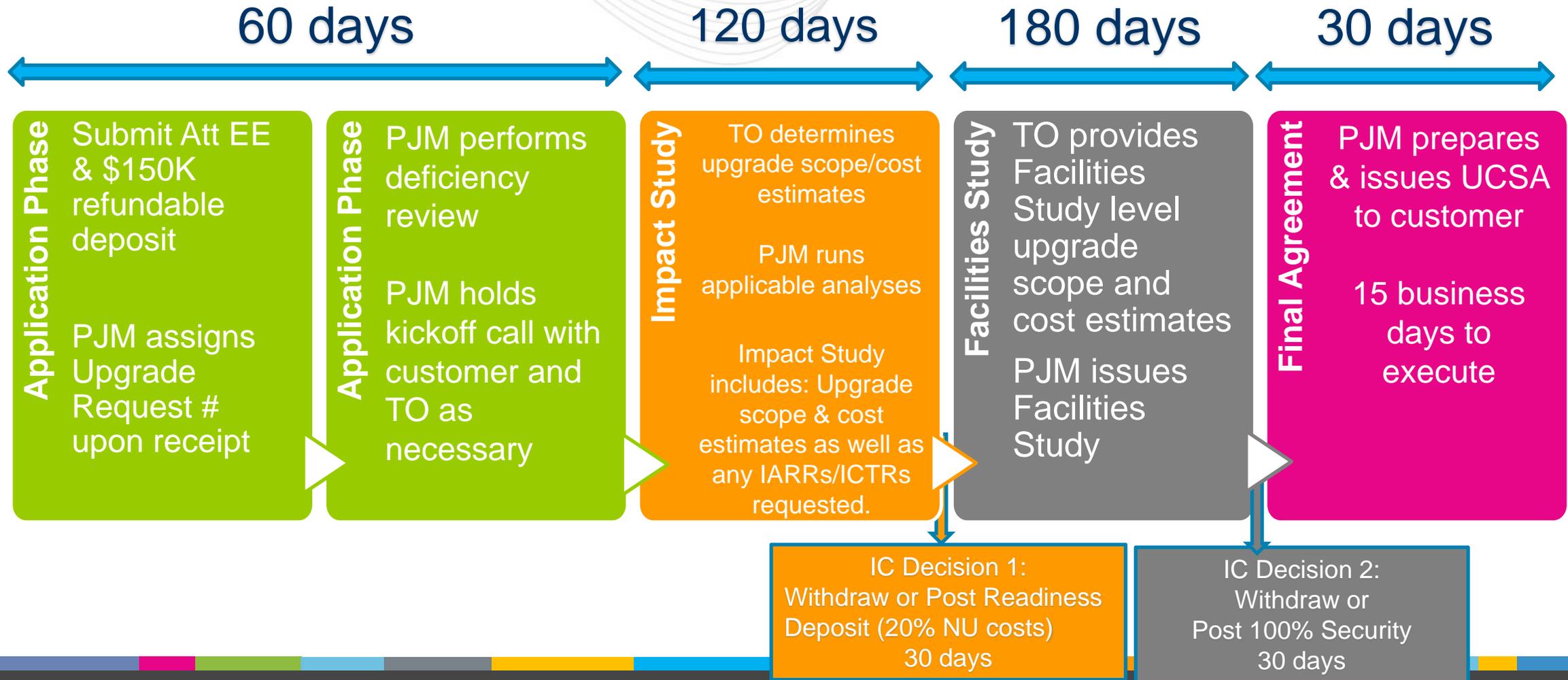
Status Quo

# Attachment EE

- Attachment EE - Upgrade Requests to upgrade existing PJM transmission facilities
  - Examples: Relieve congestion, request IARRs, request ICTRs
  - Presently come through the PJM New Services Queue
- Attachment EE – propose a separate process from the interconnection process with goal to complete processing of these requests in ~ 1 year
  - No Attachment EE window, these requests can be submitted at any time
  - The requested upgrade scope cannot be part of an already executed ISA or UCSA

# Upgrade Requests (Att. EE) – Transition to Proposed Interconnection Process

Total time – ~15 months

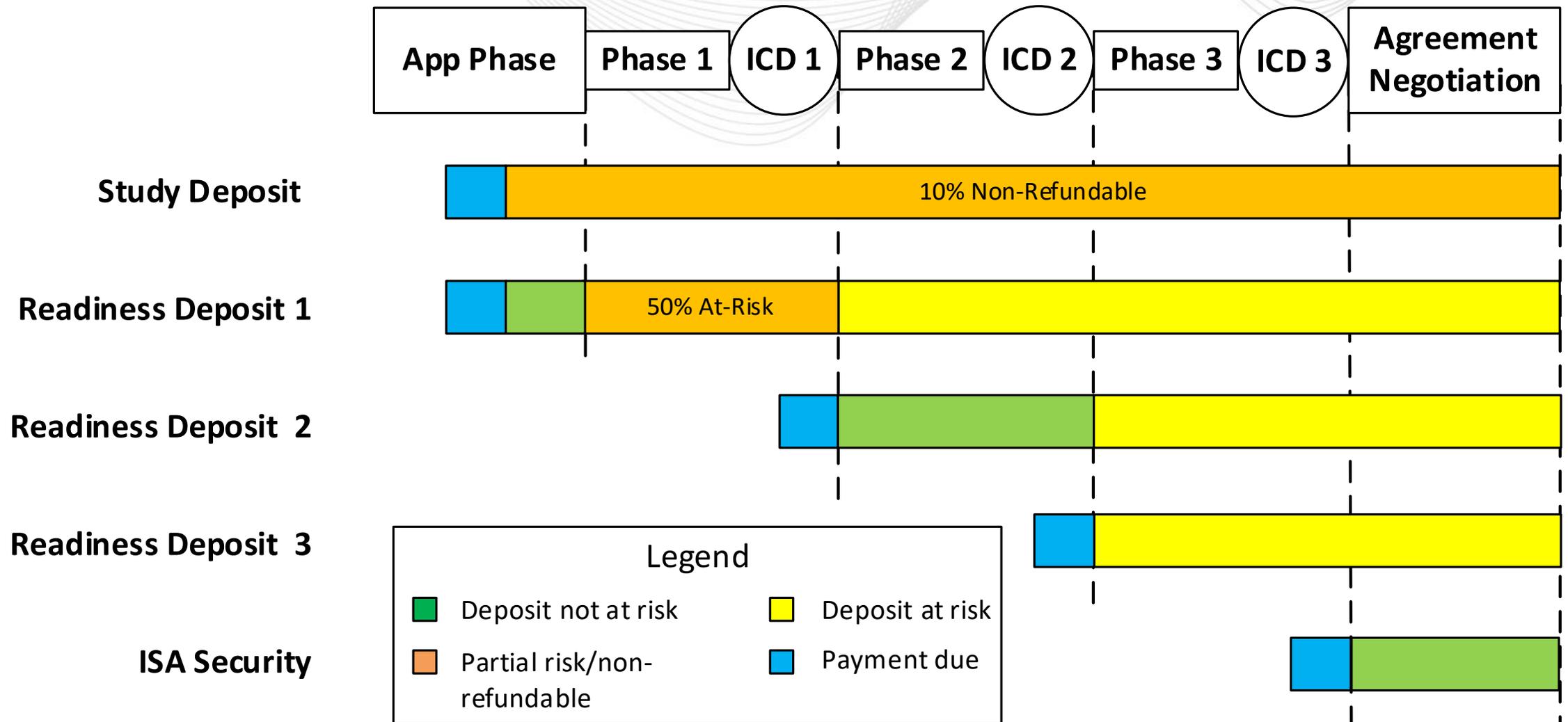


# Study and Readiness Deposits Details

- Proposal adjustments and further clarifications
  - Change to the study deposit to have 10% be non-refundable
  - Separate treatment of Readiness Deposits and Security
  - Readiness Deposit refund timing
  - Proposed forfeited Readiness Deposit disposition

- Update to hold 10% of the study deposit as non-refundable
  - Mirrors the current deposit process
  - Refundable upon reaching commercial operation
  - To be used to fund restudies

# Readiness and Study Deposit Timing Diagram



- Study Deposit
  - Covers the study costs
  - 10% non-refundable
  - Due one time at the beginning of the study process
- Readiness Deposit (RD)
  - Funds committed based upon project size and study results
  - Not used to fund studies
  - Refunds subject to study phase and adverse study results test
  - RDs determined at the time they are due; not to be refunded or reduced based upon later project reductions or cost allocation changes
  - Maximum of three RDs due at the project decision points

- Study Deposit

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

- Readiness Deposit Calculations

- RD1 = \$4,000 per MW
- RD2 = (10% of cost allocation towards required Network Upgrades) – RD1
- RD3 = (20% of cost allocation towards required Network Upgrades) – RD1 – RD2

- RD1 and Study Deposit proposed to be based upon the higher of requested Maximum Facility Output or Capacity Interconnection Rights
- RDs 2 and 3 can be zero, but not negative
  - At IC Decision Point 1, total RDs will be the greater of 10% of the cost allocation of required Network Upgrades or RD1
  - At IC Decision Point 2, total RDs will be the greater of 20% of the cost allocation of required Network Upgrades or RD2 or RD1

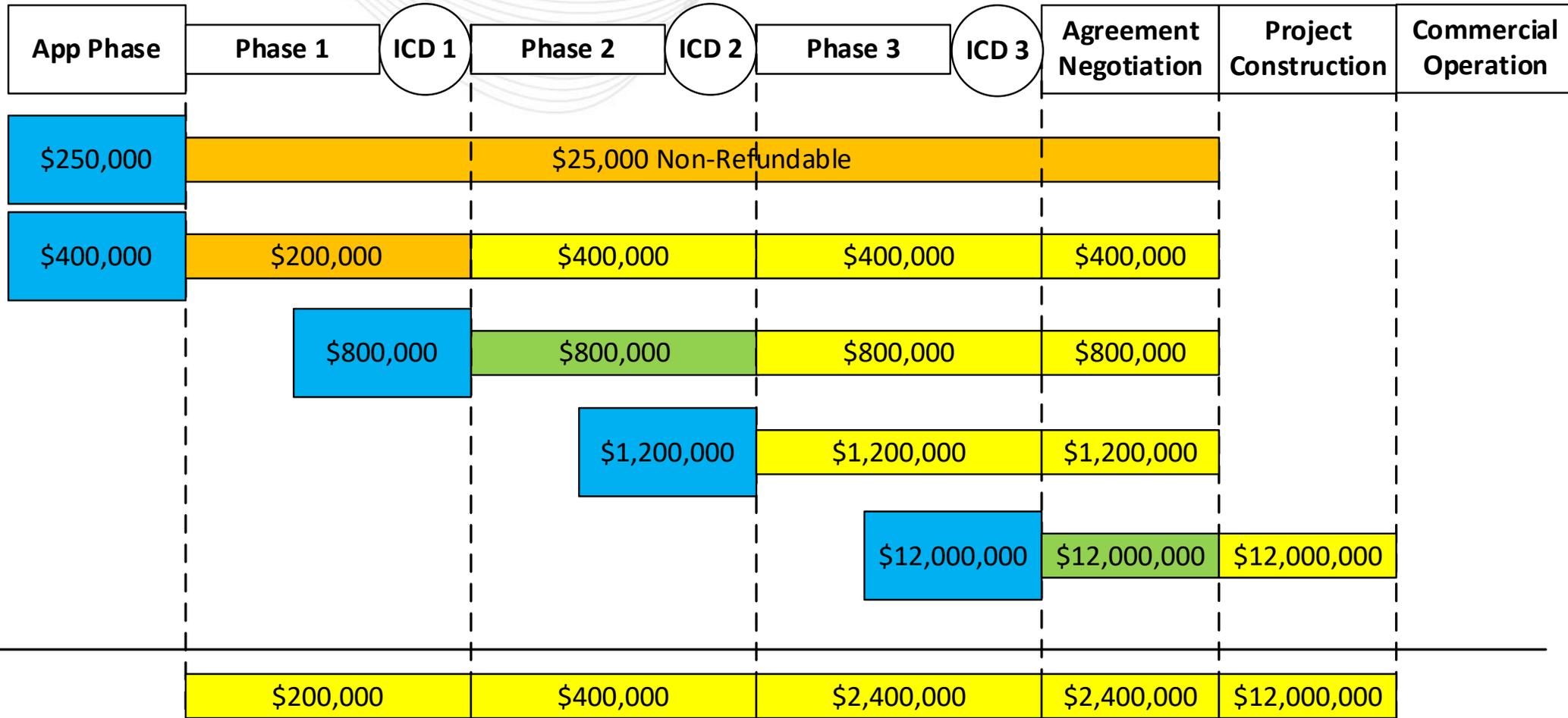
- At IC Decision 2
  - Increase in Network Upgrade costs allocated to the project of 25% or greater **and** more than \$10,000 per MW from Phase 1 study results
  
- At IC Decision 3
  - Increase in Network Upgrade costs allocated to the project of 35% or greater **and** more than \$25,000 per MW from Phase 2 study results

- Previously proposed that the Readiness Deposit would be rolled into Security at Agreement Negotiation
- Creates concerns by mixing funds held for different purposes
- Proposal updated to separate Security funds from Readiness Deposits
  - Security to be collected in full prior to entering the Agreement Negotiation phase
  - Readiness Deposits to be treated separately and available for refund once all IC Decision Point 3 site control requirements have been met and the final is agreement executed



# Separate Treatment of Readiness Deposits and Security

**Example**  
 100 MW Project  
 \$12,000,000 Network  
 Upgrade Costs

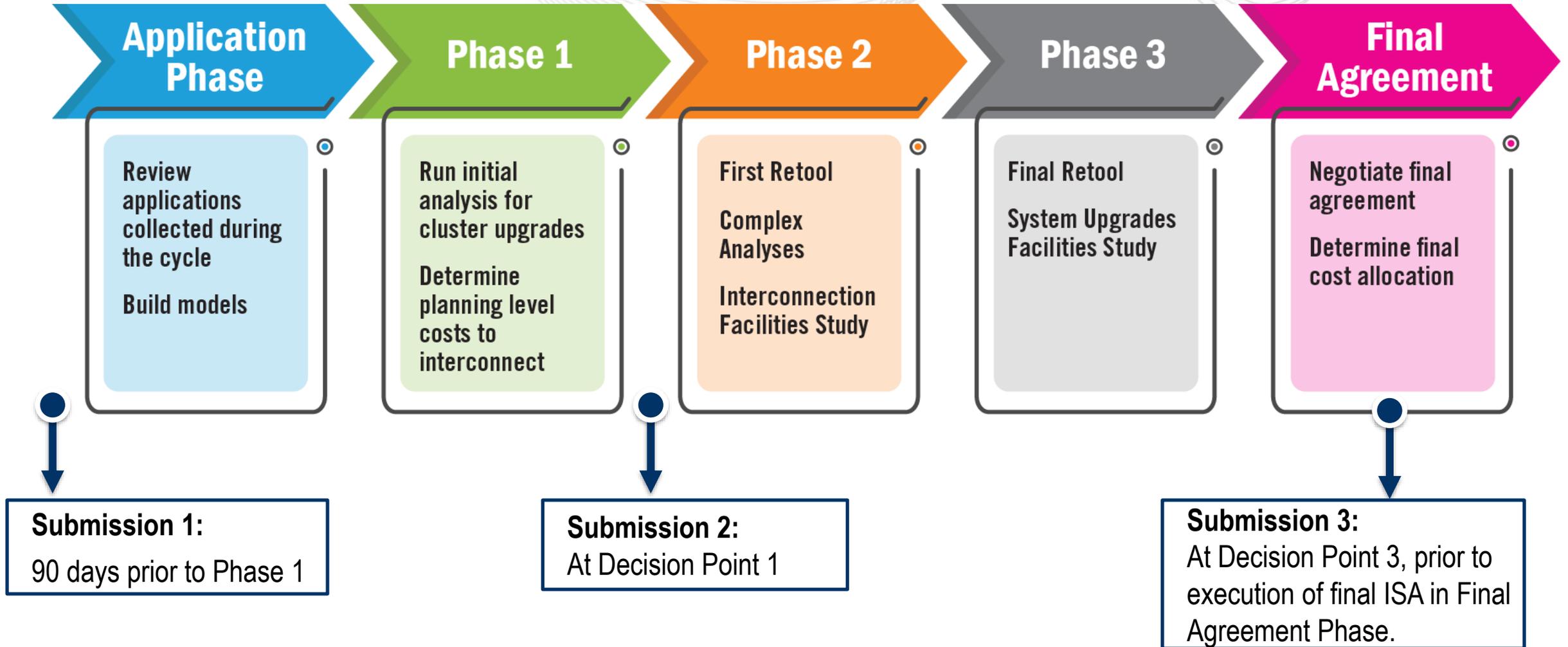


<span style="color: green;">■</span> Deposit not at risk	<span style="color: yellow;">■</span> Deposit at risk
<span style="color: orange;">■</span> Deposit partially at risk	<span style="color: blue;">■</span> Payment due

- Readiness Deposits from withdrawn projects (those that have not triggered the Adverse Study Results Test) will be pooled throughout the Cycle to be used to mitigate late-stage withdraws
- Late-stage withdraws defined as those that occur after Phase 3 Studies are complete
  - Withdraws at the end of the study process provide a small window for those remaining to adjust
  - Significant costs shifts may make remaining projects less viable

- Once all projects in the Cycle have made their decisions, PJM will retool incorporating all withdraws to determine what system Network Upgrades remain necessary
- Underfunded Network Upgrades will be identified
  - Forfeited RDs will be used to backfill
  - Possible that there will not be enough funds in the forfeited RD pool to mitigate all underfunding or there could be a surplus
    - Surplus forfeited RDs will be refunded to developers (pro-rata basis)
  - If after the retool no underfunded Network Upgrades are required, all forfeited RDs will be refunded

# Site Control Details



Form of Evidence	
<b>SUBMISSION #1 – APPLICATION PHASE</b>	
<b>Full Site Control:</b>	<b>Site Plan Showing:</b>
<ul style="list-style-type: none"> <li>100% Generating Facility: deed/lease/option<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>Generating site</li> <li>Interconnection Facilities</li> <li>Interconnection Switchyard (if required)</li> </ul>
<b>SUBMISSION #2 – DECISION POINT 1</b>	
<b>Partial Site Control:</b>	<b>Site Plan Showing:</b>
<ul style="list-style-type: none"> <li>100% Generating facility: deed/lease/option</li> <li>50% Interconnection Facilities: deed/lease/option/ROW</li> <li>50% Interconnection Switchyard: deed/lease/option</li> </ul>	<ul style="list-style-type: none"> <li>Generating site</li> <li>Interconnection Facilities</li> <li>Interconnection Switchyard (if required)</li> </ul>
<b>SUBMISSION #3 – DECISION POINT 3</b>	
<b>Full Site Control:</b>	<b>Site Plan Showing:</b>
<ul style="list-style-type: none"> <li>100% Generating facility: deed/lease/option</li> <li>100% Interconnection Facilities: deed/lease/option/ROW</li> <li>100% Interconnection Switchyard: deed/lease/option<sup>2</sup> (See 'NOTE' below)</li> </ul>	<ul style="list-style-type: none"> <li>Generating site</li> <li>Interconnection Facilities</li> <li>Interconnection Switchyard (if required)</li> </ul>

**NOTE:** If 100% of site control is **not obtained** by Decision Point 3, then Developer must show concrete evidence acceptable to PJM they are in negotiations to achieve 100% of all site control for a period of at least 3 years from the last day of Phase 3. PJM will add a condition precedent in the ISA tariff template requiring that within 180 days of the effective date of the ISA, 100% site control be acquired for at least 3 years from the last day of Phase 3. If 100% of site control is not obtained within 180 days of the effective date of the ISA, then the project will automatically be deemed terminated and will be withdrawn from the cycle.

<sup>1</sup> For Merchant Transmission, need site control for 100% Transmission Substation Facilities (e.g. for PAR, VFT) up front at the Application Phase. For transmission line facilities, full site control will be required at DP3. If not by DP3, then will need to be acquired within 180 days of the effective date of the ISA.

<sup>2</sup> Project Developer will need to be in compliance with Interconnection Transmission Owner's ultimate ownership requirements for the Interconnection Switchyard.

Site Control Term	
<b>SUBMISSION #1 – APPLICATION PHASE</b>	
<b>Full Site Control:</b> <ul style="list-style-type: none"> <li>100% Generating facility: deed/lease/option</li> </ul>	<b>Term Requirement:</b> <ul style="list-style-type: none"> <li>1 Year from Application Deadline</li> </ul>
<b>SUBMISSION #2 – DECISION POINT 1</b>	
<b>Partial Site Control:</b> <ul style="list-style-type: none"> <li>100% Generating facility: deed/lease/option</li> <li>50% Interconnection Facilities: deed/lease/option/ROW</li> <li>50% Interconnection Switchyard: deed/lease/option</li> </ul>	<b>Term Requirement:</b> <ul style="list-style-type: none"> <li>Additional 1 Year from last day of Phase 1</li> <li>1 Year from last day of Phase 1</li> <li>1 Year from last day of Phase 1</li> </ul>
<b>SUBMISSION #3 – DECISION POINT 3</b>	
<b>Full Site Control<sup>3</sup>:</b> <ul style="list-style-type: none"> <li>100% Generating facility: deed/lease/option</li> <li>100% Interconnection Facilities: deed/lease/option/ROW</li> <li>100% Interconnection Switchyard: deed/lease/option</li> </ul>	<b>Term Requirement:</b> <ul style="list-style-type: none"> <li>Additional 3 Years from last day of Phase 3</li> <li>Additional 3 Years from last day of Phase 3</li> <li>Additional 3 Years from last day of Phase 3</li> </ul>

<sup>3</sup> **NOTE: If 100% of site control is not obtained by Decision Point 3,** then Developer must show concrete evidence acceptable to PJM they are in negotiations to achieve 100% of all site control for a period of at least 3 years from the last day of Phase 3. PJM will add a condition precedent in the ISA tariff template requiring that within 180 days of the effective date of the ISA, 100% site control be acquired for at least 3 years from the last day of Phase 3. If 100% of site control is not obtained within 180 days of the effective date of the ISA, then the project will automatically be deemed terminated and will be withdrawn from the cycle.



# Officer/Authorized Representative Certifications

SUBMISSION #1 – APPLICATION PHASE			
Facility	Officer/Authorized Representative Certification <sup>4</sup>	Landowner Attestation (or County Recording)	Duration of Control
Generating Facility	Yes	At PJM's discretion if deemed necessary.	Extends for at least a one year period past the first day of PJM Cycle X relative to Interconnection Request.
SUBMISSION #2 – DECISION POINT 1			
Facility	Officer/Authorized Representative Certification	Landowner Attestation (or County Recording)	Duration of Control
Generating facility, Interconnection Facilities & Interconnection Switchyard	Yes	At PJM's discretion if deemed necessary.	Extends at least one year past the last day of PJM Cycle X, Phase 1 relative to Interconnection Request.
SUBMISSION #3 – DECISION POINT 3			
Facility	Officer/Authorized Representative Certification	Landowner Attestation (or County Recording)	Duration of Control
Generating facility, Interconnection Facilities & Interconnection Switchyard	Yes	At PJM's discretion if deemed necessary.	Extends at least 3 years past the last day of PJM Cycle X, Phase 3 relative to Interconnection Request.

**Note:** Officer/Authorized Representative Certifications (*and Landowner Attestations if PJM deems necessary*) are **in addition to** site control!

<sup>4</sup> Authorized Officer or Authorized Representative can sign.

Site Control	PJM Proposed Reform
Exclusivity	Exclusivity evidence required in deed/lease/option
Acreage requirements	Solar: 5 Acres per MW Wind: 30 acres per MW Battery Storage 0.1 acres per MW Synchronous Generator: 10 acres per facility  *PE Stamped Site Plan will be accepted
Site Sharing	<ul style="list-style-type: none"> <li>• Identification of other projects sharing site (same owner)</li> <li>• Proposed space utilization by all projects (same owner)</li> </ul>
Officer/Authorized Representative Certifications	Site control + Officer/Authorized Representative Certification +  Landowner Attestation (or County Record) (if deemed necessary by PJM)
Changes to site	No significant changes permitted (By DP1 need to solidify POI)



# PJM IPRTF ~~Package Removed~~ Non-Transition Issues Package



Clearway

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Package Removed

<b>Issue #7</b>	Project Information – Claiming CIRs
<b>Item #8</b>	POI – Shared Facility Agmt
<b>Item #19</b>	Interconnection Queue Models
<b>Item #32</b>	Interconnection Facilities – Cost/Schedule
<b>Item #36</b>	Affected Systems Study & Coordination
<b>Items #60, #61</b>	Project Modifications – Permissible Technology Advancement and Non-Permissible Technology Advancement
<b>Item #62</b>	Fuel Type Changes
<b>Item #86</b>	Suspension Provisions

## Issue #7 – Project Information – Claiming CIRs

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Status Quo: as part of Application, IC to provide MWs requested for CIR and Energy, site plan, single line

PJM Proposal: Any claiming of CIRs from deactivating units must be concurrent with the application

Clearway Proposal: With respect to claiming CIRs from deactivated units or repowers, CIRs should be able to be claimed via Necessary Study Agreement (evaluation), and Scope Change by the original interconnection customers, provided there is an agreement in place that there won't be duplication of the CIRs in the model or on the system at any time. A new interconnection application should not be necessary.

Package Removed

# Issue #8 – Application Requirements - POI – Shared Facility Agreement

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Status Quo: Shared Facility Agreement is not required as part of Application

PJM Proposal: Shared Facilities agreement provided up front if behind an existing POI

Clearway Proposal: New requests behind an existing POI should only require a simplified consent agreement prior to Phase 1 that does NOT need detailed shared facilities agreement. Draft Shared Facilities Agreement can be requested prior to ISA execution.

Package Removed

# Issue #19 – Feasibility Study - Interconnection Queue Models

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Status Quo: Uses most recently completed RTEP case (e.g. AG1 uses 2024 RTEP)

PJM Proposal: Preserve status quo

Clearway Proposal: Consolidated planning model should be used for generation interconnection studies. If there is a new overload identified in the RTEP case, cost for such overload should not be assigned to Interconnection Customers. The baseline reliability upgrades should be included in the model.

Package Removed

## Issue #32 – SIS Requirements - Interconnection Facilities – Cost/Schedule

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Status Quo: Attachment Facilities and physical interconnection scope, cost, and schedule - planning level estimate

PJM Proposal: Transmission Owner to perform Facilities Study for Interconnection Facilities

Clearway Proposal: IF cost and schedule should be binding or at least binding to +/- 15% accuracy to provide IC cost and timing certainty. If cost exceeds the cost estimates from Phase 1 by more than 15%, TO need to provide detailed reasons behind that, and have some cost share responsibilities for the increased cost beyond the 15% of the original estimate.

Package Removed

# Issue #36 – SIS Requirements - Affected Systems Study & Coordination

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Status Quo: PJM performs a high-level evaluation and coordinates modeling and other information with the neighboring potentially affected system, the neighboring system responds to PJM with the outcome of any affected system requirements

PJM Proposal: Preserve status quo

Clearway Proposal: PJM to commit to a timeline for completion of Affected System study – proposed timeline below. Queue reform needs to address coordinated planning process with affected systems

Proposed Timeline:

- Scoping Meeting – PJM identifies potential Affected Systems
- Phase 1 - PJM should have indication of potential impact of Affected Systems by the end of Phase 1 study
- Phase 2 - PJM provide finalized Affected System Study Report at the end of Phase 2 Study

# Issues #60 and 61 – IC Decision 1 - Project Modifications – Permissible Technology Advancement and Non-Permissible Technology Advancement

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## Status Quo:

- Permissible Technology Advancement: Allowed before execution of FSA
- Non-Permissible Technology Advancement: Allowed before execution of FSA; Studied for material modification within 30 calendar days

## PJM Proposal:

- Permissible Technology Advancement: Allowed before the start of Phase 3 at either Interconnection Decision 1 or 2
- Non-Permissible Technology Advancement: Allowed before the start of Phase 3 at either Interconnection Decision 1 or 2

Clearway Proposal: Equipment changes should be allowed if no material impact

Package Removed

# Issue #62 – Project Modifications - Fuel Type Changes

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Status Quo: Studied for material modification

PJM Proposal: Not permitted

Clearway Proposal:

Preserve status quo, with detail below

- Single Fuel: Wind/solar -> battery, vice versa. Similarly, would like to have some flexibility - at a minimum, want it to be studied for material modification.
- Mixed Fuel: Wind + battery, solar + battery --> maintain the same capacity (interconnection service level), allow flexibility to adjust MW sizes among the technology - prior to certain interconnection milestones; still evaluate them for material modifications. Pre-wire a path for fast tracking the evaluation. Allow ICs to submit their evaluations to support PJM's fast-track evaluations. Establish what automatically constitutes materials
- Fuel adjustments (MFO reduction in either fuel type) in the MFO in hybrid facilities should be allowed with no restriction as long as it has no adverse impact on the other competing projects or on the system

## Issue #86 – ICSA - Suspension Provisions

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Status Quo: 1 year or 3 years if not material to other projects

PJM Proposal: Not permitted. Issues outside of the customer's control will be dealt with using the ISA/CSA milestones

Clearway Proposal: Suspension for 3 years is allowed for DA or non-shared network upgrades. Shared upgrades must be funded during suspension period. Suspension request to be evaluated under an MMA to ensure no impact to other prior or later queued projects. Adjustments to COD should be allowed subject to MMA evaluation but should be limited to a set timeline (for example, 7 years from queue entrance)

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THANK YOU

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# ORR PJM Queue Reform New Interconnection Process

*Items worthy of discussion beyond the “Transition” topic*

11/18/21



# Suspension Rights Are Important Systemic Shock Absorber

- We understand PJM's interest in removing suspension rights from the Solution.
- As ICs advance pre-construction tasks, at-times, there are non-Force Majeure events that challenge the Sec 6 milestone dates in the ISA.
- Such non-Force Majeure project delays can be project specific or can impact GWs of projects. Examples include:
  - New policy or regulatory actions that impact suppliers or financial markets (ex. Trump ban on bulk power system equipment from China, change in tax law that creates broad delay in tax equity markets, FERC challenges or pending rule changes, etc.)
  - Financial crisis that broadly impact/freeze/delay capital markets
  - OEM issues (ex. Serial defect in equipment, supplier bankruptcy, etc.)
- Historically, ICs have utilized their 12 months of suspension rights to address such project delays, and such rights have been key to manage project finance risk.

# IC Rights to modify Sec 6 milestone dates

- Going forward, in-lieu of suspension rights, ORR proposes express rights that the IC shall have to modify the Sec 6 ISA milestone dates to address these real-world issues that are outside of a project's control.
- This approach has significant benefits vs. ICs individually negotiating such key terms with PJM in hundreds of ISAs as has been suggested as an alternative to 1-year of suspension rights
- In-lieu of suspension rights, it is critical for ISAs to include these secure delay rights (at ICs sole discretion) at any point in time from ISA execution up-to and including COD milestone.

# Site Control

- Projects must have sufficient site control (from an ENG perspective) to initiate the study process. However, is PJM's discretion needed on "100% site control" beyond the engineering feasibility that is included in the initial application (i.e. 5 acres/MWac for SAT Solar)?
- We would like to discuss PJM's proposal for SIS & Facilities Study site control requirements:
  - Provide 50% of site control for customer interconnection facilities and interconnection switchyard (if applicable) & 100% of site control for generation facility site (SIS)
  - Customer to provide 100% of site control for generating site, customer interconnection facilities, and interconnection switchyard (if applicable). If the customer is unable to provide the aforementioned, a requirement to produce this evidence within 6 months of the execution of the ISA will be included in the final agreement (Facilities)
- Also, with regards to Site Control, there was previous discussion on the remaining tenor for Site Control needed at various stages (we believe 5 years was previously discussed). ORR would like to further discuss this within the stakeholder group.

# Project Site Move

- Provided that relocating the POI facilities a short distance up or down a circuit (i.e. 1,000 to 2,000 feet) does not impact any of the powerflow and stability considerations, ORR would advocate for flexibility on POI facility relocations throughout the process. We do not believe it is appropriate for a POI to be relocated outside of the two substation endpoints being studied, but having a degree of flexibility on the final POI location can enable more project CODs and support good community relations.
- PJM has proposed “Permitted on adjacent parcels of land only where site control has previously been provided with the application.”
- ORR has proposed “Permitted provided the relocation does not change the POI circuit endpoints and there is not any change to the powerflow or stability considerations.”

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Thank you

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**RWE**

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**PJM IPRTF – RWE Proposal**

**RWE Renewables Americas**

**10/29/2021**

# Interconnection Process Main Goals for Interconnection Customers (“IC”)

## Predictable schedule and COD



- Long process that can take five years or more from queue entry to Commercial Operation.
- Need to align this schedule with permitting, procurement, financing, construction etc.
- Firm deadlines with offtake and to be eligible for tax credits.

## Economic Upgrades and Budget



- A project cannot fully know its network upgrades and costs at queue entry.
- However, we expect clear, fair and reasonable cost allocation and cost causation rules.
- If upgrades bring other benefits (public policy support, economic or reliability benefits) cost allocation rules should reflect that.

## Quality Interconnection Product and Service



- Studies need to be replicable.
- Projects need to be identified and with minimal congestion.
- Network upgrades to be identified and interconnection.
- Uncertainty in signing an I

# PJM Proposal

## RWE acknowledges PJM's proposal gives a very solid starting point

- RWE is mostly supportive to the PJM proposal. The cluster construct addresses many of the stakeholder concerns and is a step in the right direction.
- Our input is focused on incremental improvements in several areas, in order to increase certainty:
  1. Site Control language alignment
  2. Affected Systems studies coordination
  3. ISA execution timeline
  4. Study methodology and coordination
  5. Public Policy and SAA alignment

## Improvement Area 1



# Site Control Requirements need alignment with Transmission Owner input and consistency on term requirements

**Current PJM proposal:** *At IC Decision 1, provide 50% of site control for customer interconnection facilities and interconnection switchyard (if applicable) and provide 100% of site control for generation facility site. At Decision Point 3 the lease terms need to be additional 5 years from the last day of Phase 3.*

### Proposed RWE Improvements:

- Interconnection Facilities 50% should be moved at IC Decision Point 2 (TO input may not be available at Decision Point 1).
- Adjust lease term requirement to 3 years\* from last day of Phase 3. The 3-year\* duration is consistent with current PJM requirements.
- Needs further clarification on what changes are permitted vs. not permitted.
- RWE strongly opposes the idea of security or cash deposits in lieu of site control.

\*Considering two-year timeline for completing queue studies

## Improvement Area 2



### Affected Systems study coordination remains a major area of concern

**Current PJM proposal:** *During Phase 2 PJM will alert the customer whether they are required to enter into an Affected System Study Agreement with the neighboring entity. At Decision Point 2, Customer provides evidence of entering into an Affected System Study Agreement with a neighboring entity if required by this decision point or within 60 days of being notified by PJM, whichever is greater. At Phase 3, Final Affected system study results.*

#### Proposed RWE Improvements:

- Current PJM proposal puts the burden of affected systems on the Interconnection Customer and the timeline is highly uncertain. ICs to put high money at risk at Decision Points 1 and 2 without understanding the affected system risks.
- We advocate a similar process to what MISO does, where, by Decision Point 2 the RTO/ISO coordinates and obtains the appropriate Affected Studies.
- There is not an easy fix, but we would like to see PJM discussing its reform with neighbors before filing with FERC, and where possible, align to existing processes.

## Improvement Area 3



ISA Execution Timeline. Status Quo is the preferred option.

**Current PJM proposal:** *IC needs to execute the Interconnection Service Agreement 15 business days from issuance.*

### Proposed RWE Improvements:

- Interconnection Customers need enough time for Developers' Boards to approve once final ISA agreement is tendered for execution.
- RWE advocates for the Status Quo (60 days).
- As an option PJM could keep the 60 days and make the Transmission Owner execution concurrent within that period.

## Improvement Area 4



**Cluster Study Methodology should be further discussed, and energy deliverability outlet issues properly addressed.**

**Current PJM proposal:** *Status Quo in the latest Matrix. New Generation Deliverability criteria being discussed in the Planning Committee.*

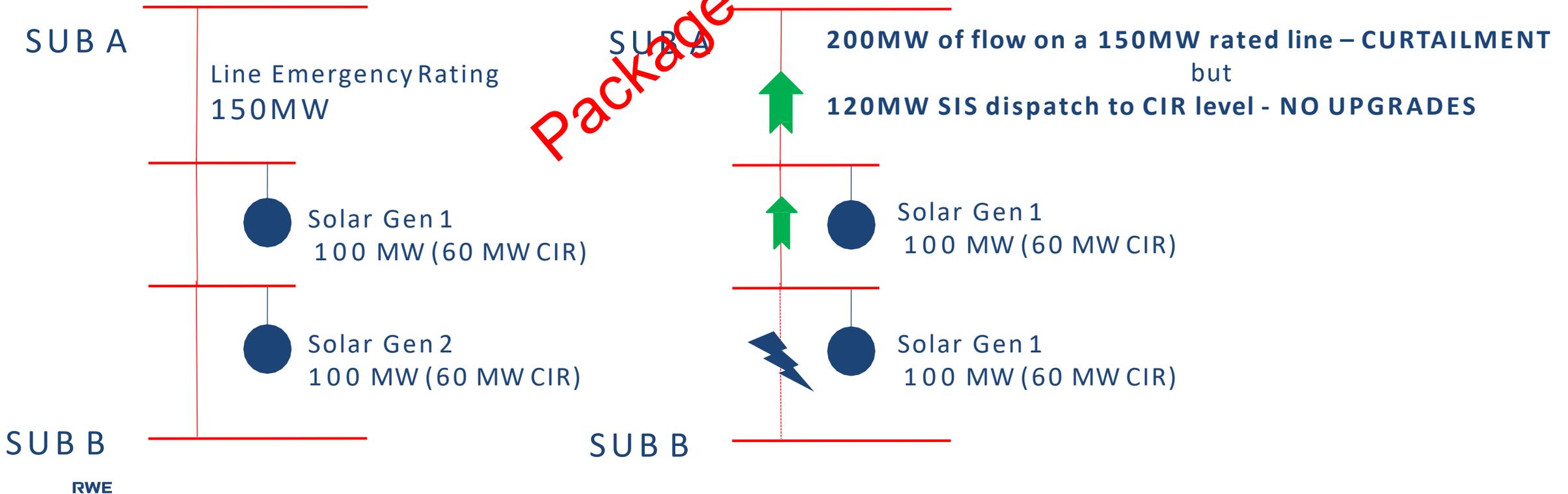
### **Proposed RWE Improvements:**

- RWE would like to understand what the cost implications of the new Generation Deliverability criteria are, as well as understand when PJM would apply it once approved.
- With the current analytical methodology, there is a concern that some necessary outlet network upgrades in solar generation pockets are not being identified (see next slide).
- PJM does provide energy deliverability information on its System Impact Study. At a minimum, we would like to see this information being provided to Interconnection Customers at each Decision Point.

# Summer Peak Study Methodology

Current dispatch methodology to CIR levels may create congestion problems on solar generation pockets

- PJM's Summer Peak study dispatched solar at CIR level and solar is not ramped up on Generation result is that outlet upgrades to address N-1 violations at full energy level are not identified in the SIS.



## Improvement Area 5



# Queue reform and Public Policy alignment should be further explored in the IPRTF packages

**Current PJM proposal:** *Not discussed in the IPRTF*

### Proposed RWE Improvements:

- Clarify geographical and electrical definition of the study clusters during package discussion.
- RWE would like to understand PJM's approach to coordinate study clusters with Public Policy and/or State Agreement Approach initiatives.
- Specific questions remain on
  - Modeling of SAA upgrades once approved
  - Impact on existing queued projects
  - Eligibility of new network upgrades identified in a cluster to be designated as Public Policy and/or be considered under a SAA.

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# RWE

## Thank you

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