

# PJM Solution Proposal Framework Changes

Jason Connell

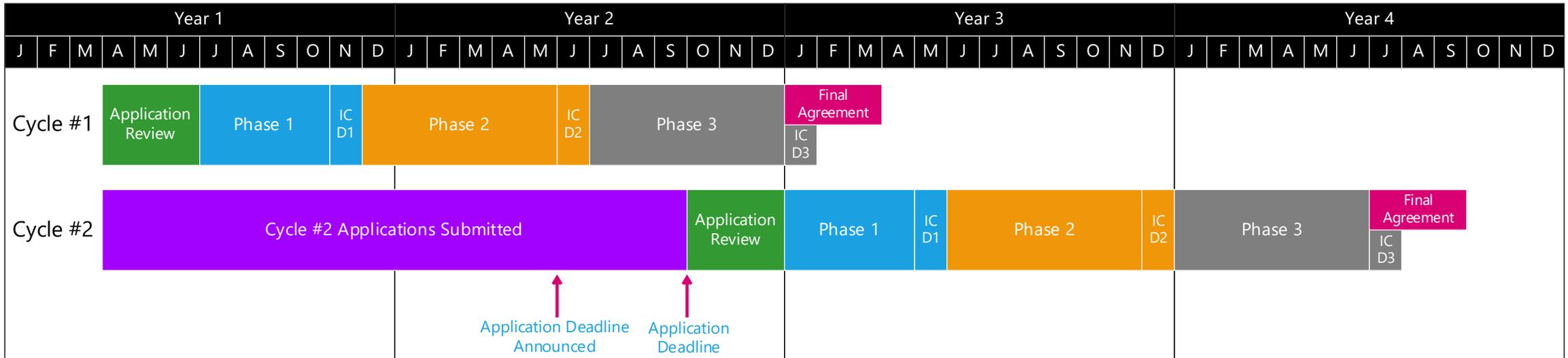
Director

Infrastructure Planning

- Model availability
  - Make the model available after the application deadline but before Phase 1 begins
  - Allow 30 days for customer review and decision inclusive of the review period
  - No penalty for withdrawal before Phase 1 begins
- Affected System Studies
  - Require a customer to enter into an Affected System Study Agreement (if applicable) by IC D2 or within 60 days upon notification from PJM, whichever is later

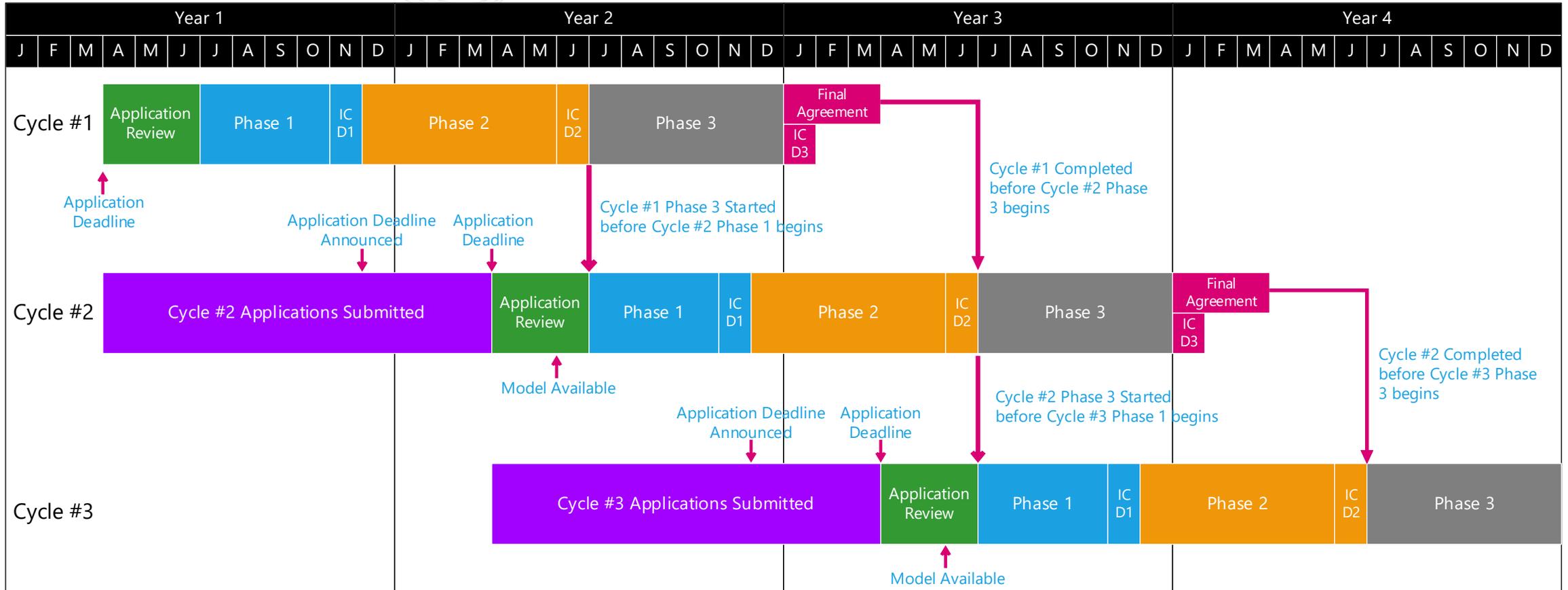
- Cycle to Cycle timing
  - Previously serialized with 18 months between application deadlines
  - Moving towards 12 months between application deadlines with overlap between Phase 3 and Phase 1
  - Added “gating” requirement so cycles do not continually stack on top of one another similar to the current process
  - Adds additional risk for customers in order to gain an application deadline roughly annually

# Original Timing Proposal



- Subsequent Cycle Start**
- Application deadline will be announced 120 days in advance.
  - 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 Cycle #2 will only start after Phase 3 of the previous cycle has concluded AND all Application Review period activities have concluded.

# New Timing Proposal



## Subsequent Cycle Start

- Application deadline of the subsequent cycle will be announced 120 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. Phase 3 of a subsequent cycle will only start after the prior cycle has concluded.

# CIR Transfers and Upgrade Requests

Mark Sims

Manager

Interconnection Analysis

## CIR Transfer – Transition to Proposed Interconnection Process

- Claims and associated requests to transfer CIRs by an interconnection request introduces significant uncertainty into subsequent analysis results, including interconnection customers.
- Additionally, if the interconnection request POI differs from the deactivated unit where CIRs are being claimed, the cycle results can drastically change if the interconnection request is withdrawn and the CIRs are put back at the deactivated unit's POI.
- PJM proposal:
  - POI or Electrical injection substation location of interconnection request must be same as the deactivated unit where CIRs are being claimed and transferred
  - If claiming CIRs from a deactivation unit, must be requested with Interconnection Application

# Incremental Rights

- Incremental rights may be awarded by funding transmission system upgrades which may provide specific additional transmission capability on the system
- Requested through the PJM New Services Queue
  - Usually via Merchant Transmission Request (Attachment S) or Upgrade Request (Attachment EE)



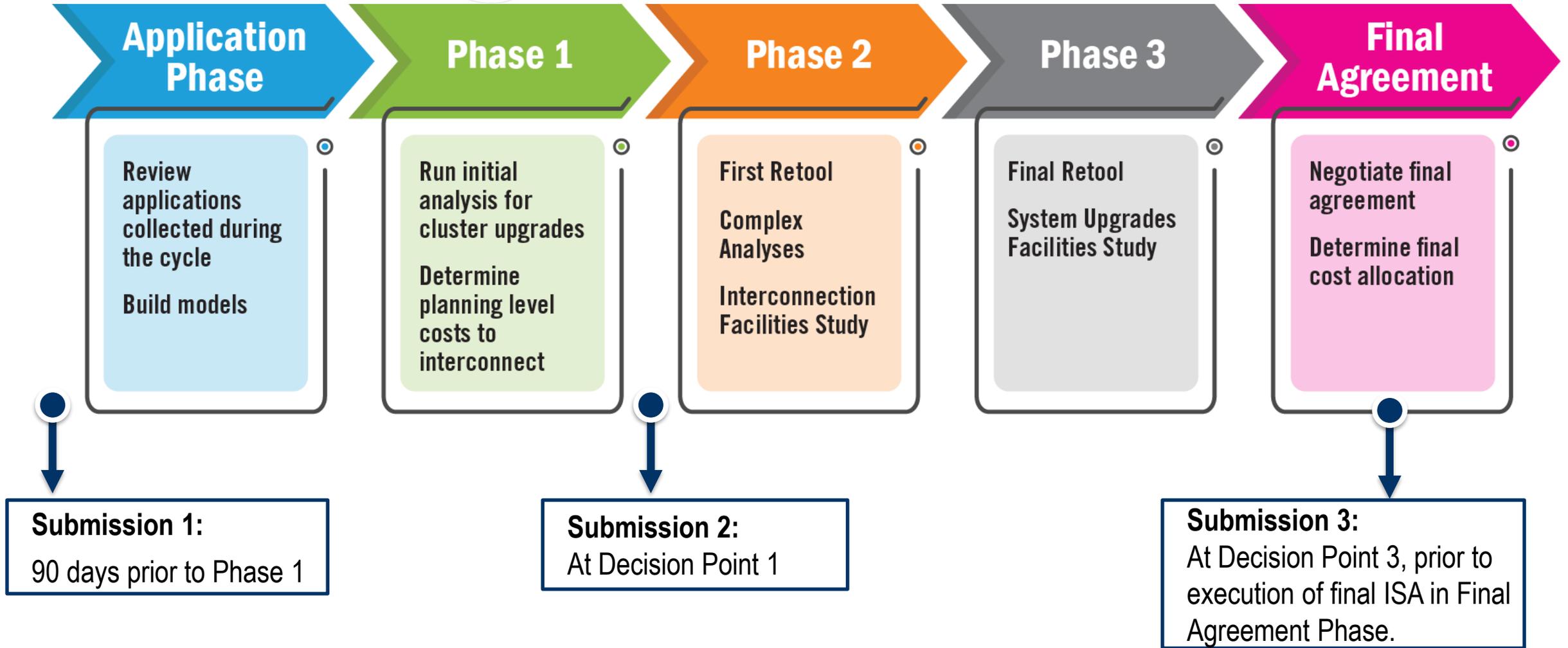
## Incremental Rights – Transition to Proposed Interconnection Process

- There has been a small number of requests for these incremental rights. In addition, most of the requests are by merchant transmission interconnection customers (Att. S) and Upgrade Request (Att. EE) customers
- PJM present proposal:
  - Remove the eligibility of generators, controllable merchant transmission customers, and LTF customers funding network upgrades to support their requested service to receive these incremental rights.
    - With no queue priority among a group of service requests in a given cycle, issue arises between merchant transmission interconnection/Upgrade Request customers and generators needing the same upgrade on who receives the incremental rights to the upgrade.
    - Also introduces cost uncertainty onto the generators as it would be unclear if the merchant transmission interconnection/Upgrade Request project is moving forward and will build the upgrade while all projects are still under study.
  - IARRs, ICTRs, IDRs can still be requested by merchant transmission interconnection customers (Att. S) and Upgrade Request (Att. EE) customers as currently applicable
  - Remove IATCRRs
  - Attachment EE – separate path with goal to complete processing of these requests in ~ 1 year
    - The requested upgrade scope cannot be part of an already executed ISA or UCSA

# Site Control Proposal

Lisa Krizenoskas  
Sr. Lead Engineer  
Interconnection Projects

# Site Control: Submission Timing



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 5 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 5 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 5 Years from last day of Phase 3</li> <li>Additional 5 Years from last day of Phase 3</li> <li>Additional 5 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 5 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 5 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 5 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	<p>Solar: 5 Acres per MW            Wind: 30 acres per MW            Battery Storage 0.1 acres per MW            Synchronous Generator: 10 acres per facility</p> <p>*PE Stamped Site Plan will be accepted</p>
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	<p>Site control + Officer/Authorized Representative Certification +            Landowner Attestation (or County Record)            (if deemed necessary by PJM)</p>
Changes to site	<p>No significant changes permitted            (By DP1 need to solidify POI)</p>

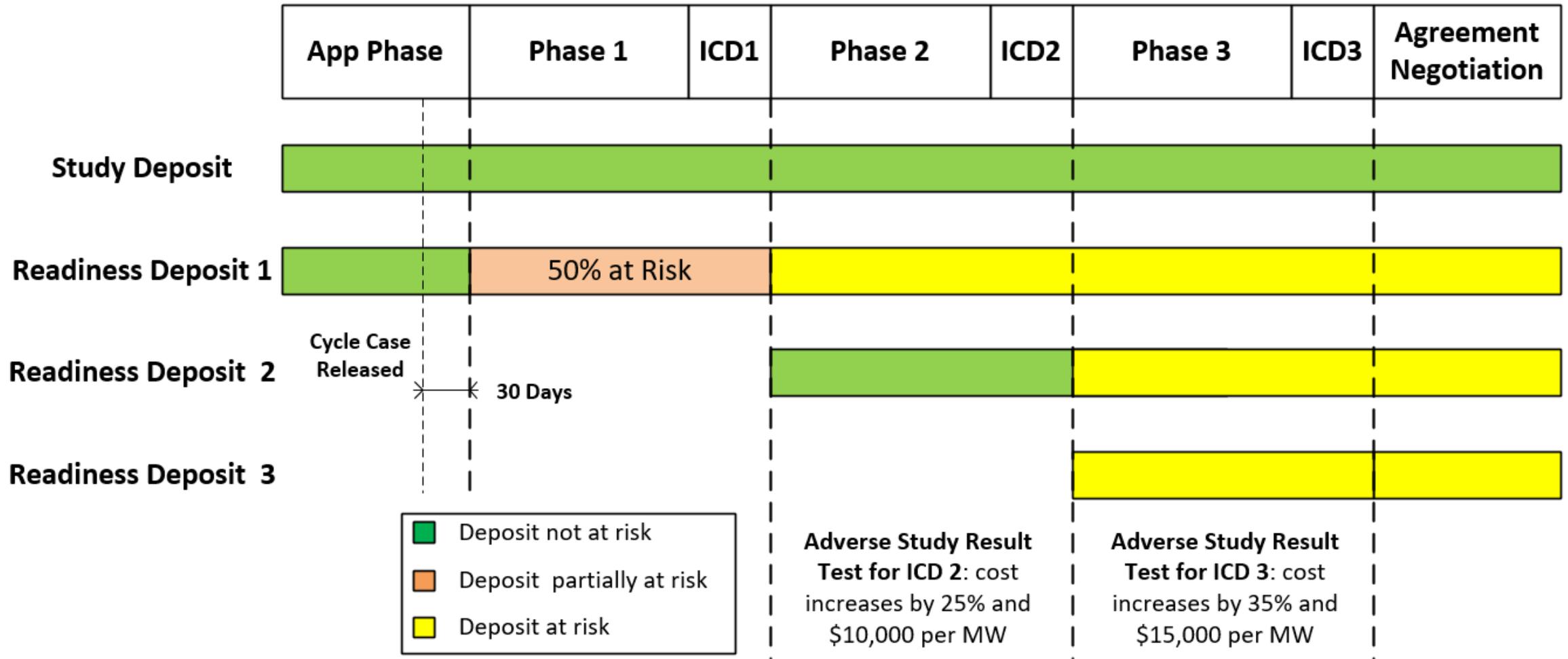
# Study and Readiness Deposit Proposal

Jason Shoemaker  
Manager  
Interconnection Projects

- Proposal adjustments
  - Model posting prior to Phase 1 start
  - Security at risk during the agreement negotiation phase

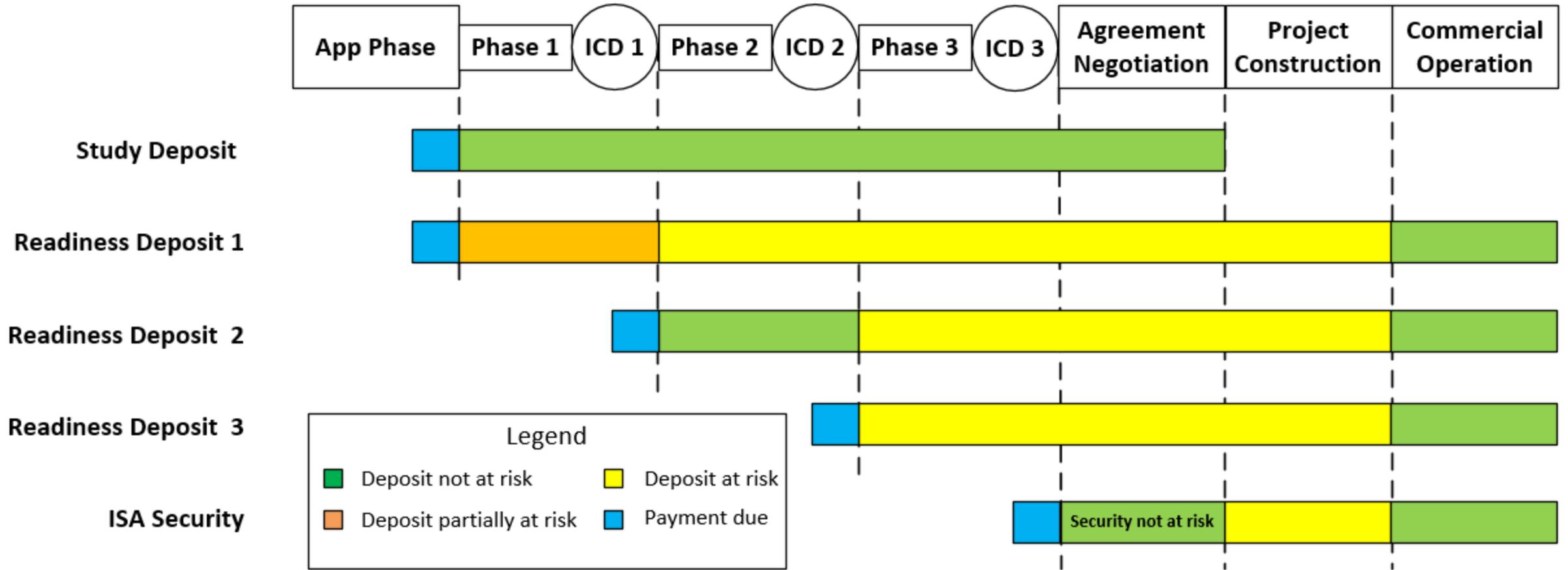
# Study and Readiness Deposit Timeline

Model Posting Prior to Phase 1



# Study and Readiness Deposit Timeline

Security Treatment During Agreement Negotiation Phase



**Presenters:**

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## Member Hotline

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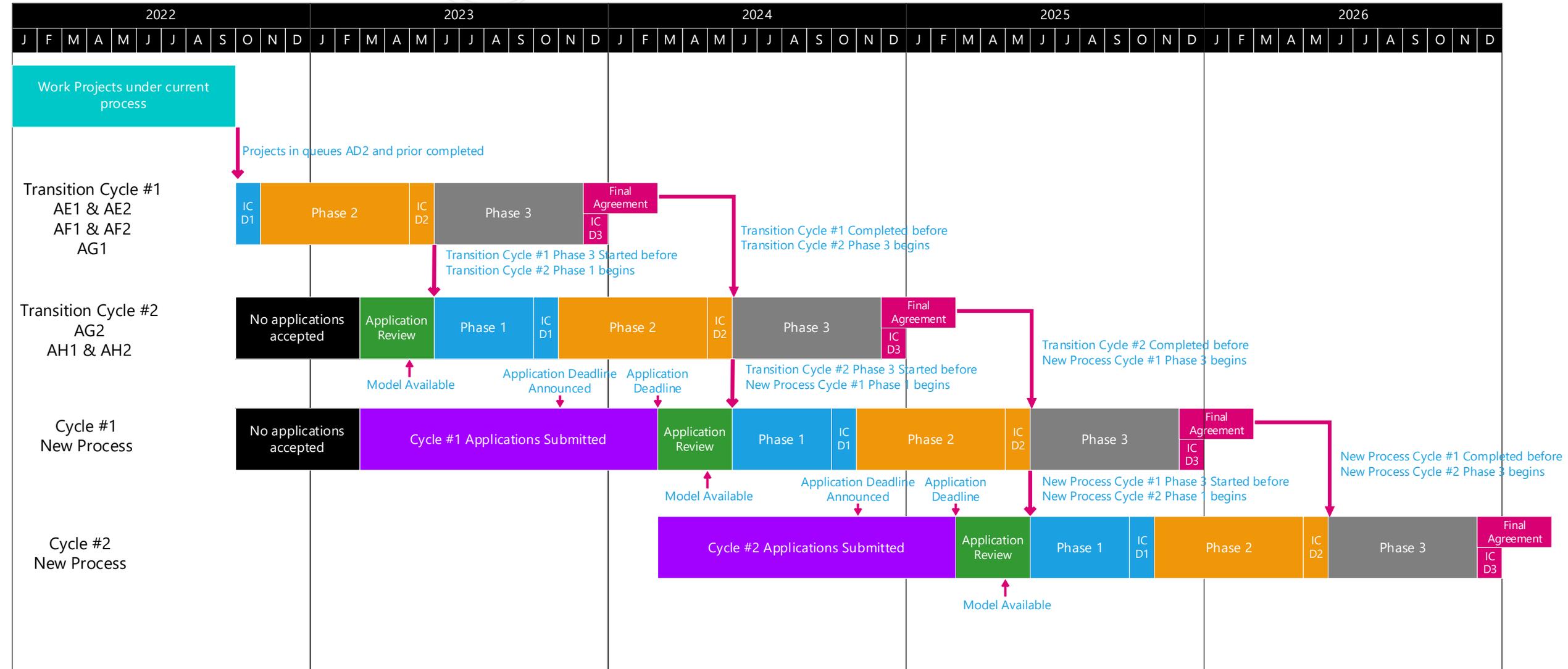
# PJM Transition Option

Jason Connell  
Director  
Infrastructure Planning

- AD2 and prior projects (126) – Remain in current process
- Transition Cycle #1
  - AE1 and AE2 projects (250) & AF1 and AF2 projects (454) & AG1 projects (422)
  - Start in IC Decision #1 after providing retool results.
  - Require to post RD #2 and meet site control requirements to enter Phase 2.
- Transition Cycle #2
  - AG2 projects (654) & AH1 & AH2 projects (630+)
  - Start in Application Review and provide load flow model
  - Require to post RD #1 and meet site control requirements to enter Phase 1
- New Process Cycle #1
  - Begin accepting applications and start new process

- Allows PJM to continue to work oldest projects under existing rules (i.e. projects that were submitted in the 2017/2018 time frame)
- Allows to transition to the new process by accepting applications within 1 year of effective date
- Creates a period of time where PJM does not accept new applications in order to update tools

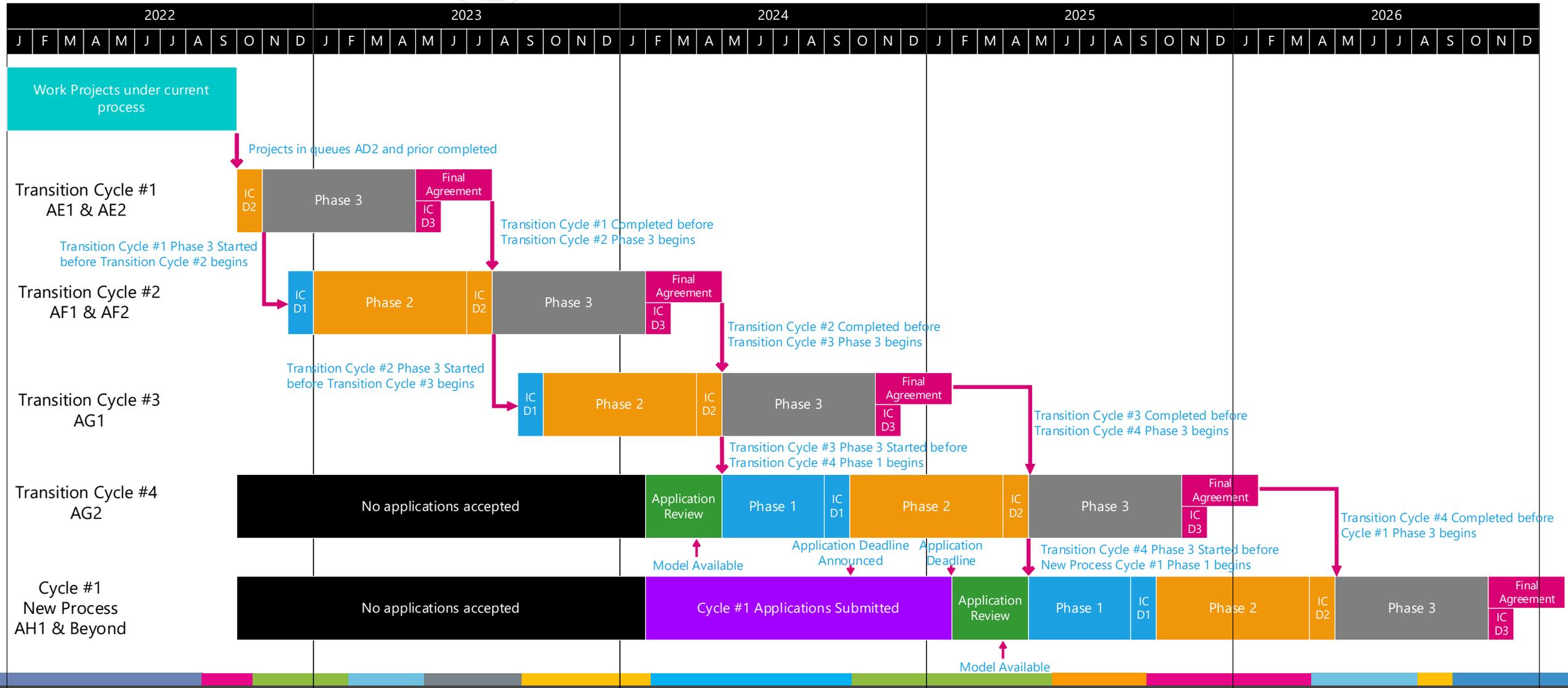
# PJM Transition Option



- AD2 and prior projects (126) – Remain in current process
- Transition Cycle #1 - AE1 and AE2 projects (250)
  - Start in IC Decision #2 after providing retool results.
  - Require to post RD #3 and meet site control requirements to enter Phase 3.
- Transition Cycle #2 - AF1 and AF2 projects (454)
  - Start in IC Decision #1 after providing retool results.
  - Require to post RD #2 and meet site control requirements to enter Phase 2.
- Transition Cycle #3 - AG1 projects (422)
  - Start in IC Decision #1 after providing retool results.
  - Require to post RD #2 and meet site control requirements to enter Phase 2.
- Transition Cycle #4 - AG2 projects (654)
  - Start in Application Review and provide load flow model
  - Require to post RD #1 and meet site control requirements to enter Phase 1
- New Process Cycle #1 - AH1 & Beyond projects (630+)
  - Start in Application Review and provide load flow model
  - Require to post RD #1 and meet site control requirements to enter Phase 1

- Allows PJM to continue to work oldest projects under existing rules (i.e. projects that were submitted in the 2017/2018 time frame)
- Allows to transition to the new process by accepting applications within 3 years of effective date
- Segments existing projects more granularly to smooth processing of retools and Facilities studies
  - Allows existing queues to be processed on their current base cases which alleviates case transition issues
- Creates a longer period of time where PJM does not accept new applications in order to update tools

# PJM Alternate Transition Option



A decorative graphic of thin, overlapping wavy lines in a light gray color is positioned at the top of the slide, above the main title.

# 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
- Proposed solution is still a work in progress as details still need to be further developed

# Guiding Principles for PJM's Proposed Solution

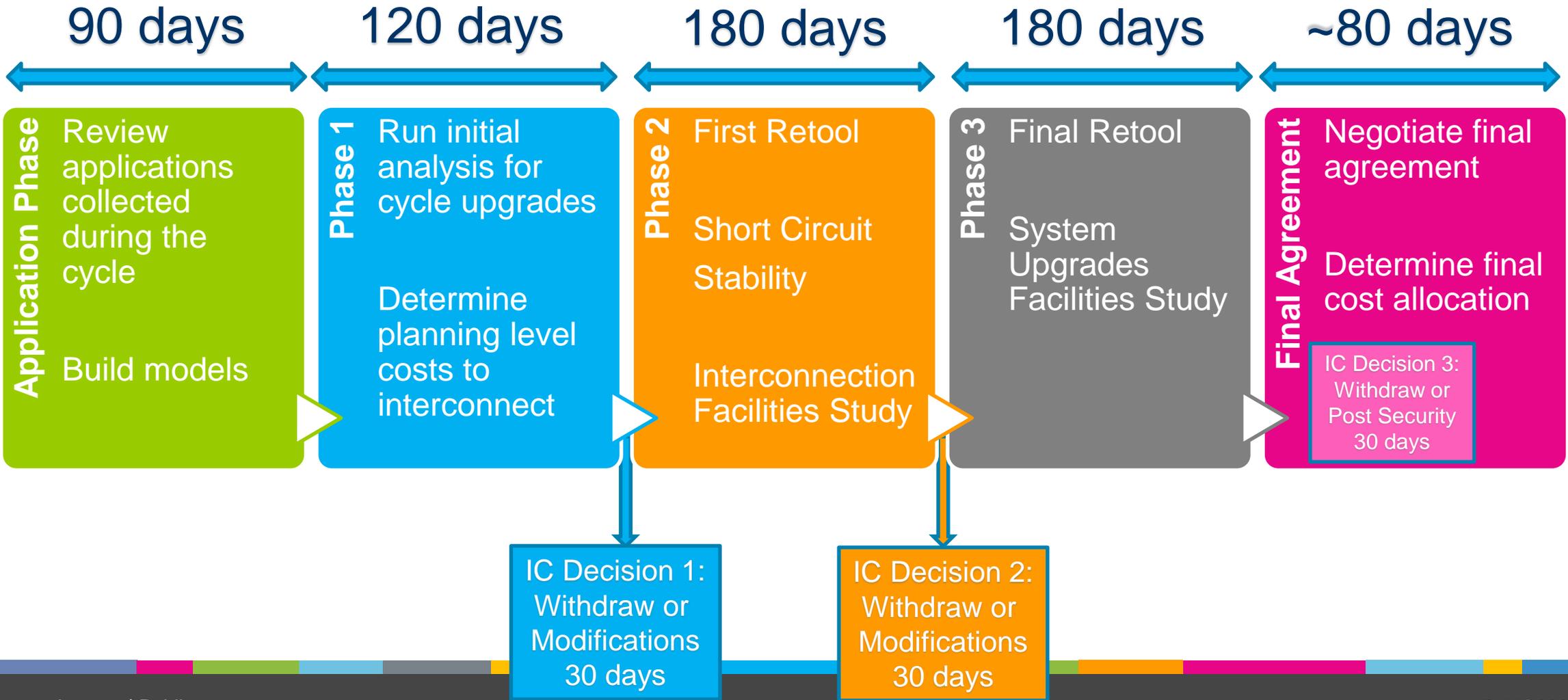
- Ideal timing not to exceed 2 years
- Cost and study construct should be cluster/cycle based and convert from first in/first out processing to first ready/first out processing
  - Readiness demonstrated by site control and financial milestones
- Subsequent cycle management should be assessed based on 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 first receive their interconnection agreement from the Transmission Owner / Distribution Provider prior to coming to PJM

# Guiding Principles for PJM's Proposed Solution

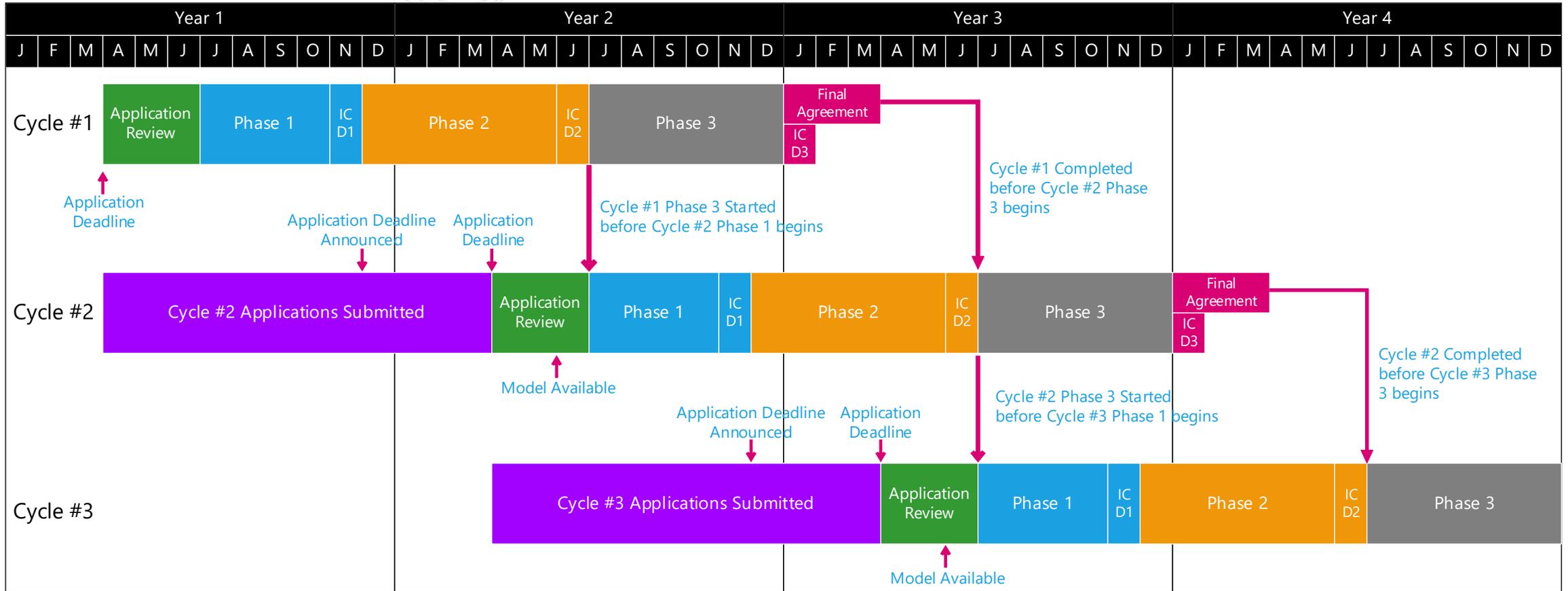
- Remove incremental financial rights for generators for simplification and due to removal of first-to-cause construct
- Remove other generation interconnection request forms (Attachments Y & BB) for simplification
- Remove or reduce scope of pre-application process
- Make project changes predictable 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

# New Framework Overview

Total time per cycle – 710 days



# New Framework Timeline Example



## Subsequent Cycle Start

- Application deadline of the subsequent cycle will be announced 120 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. 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:
  - Decide whether direct connection network upgrades will be subject to Option to Build
  - 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
  - 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)
  - 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:
  - 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 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 will be handled with milestone extensions for issues outside of the developer's control
- 15 business days to execute once tendered

# Application Type Comparison

