

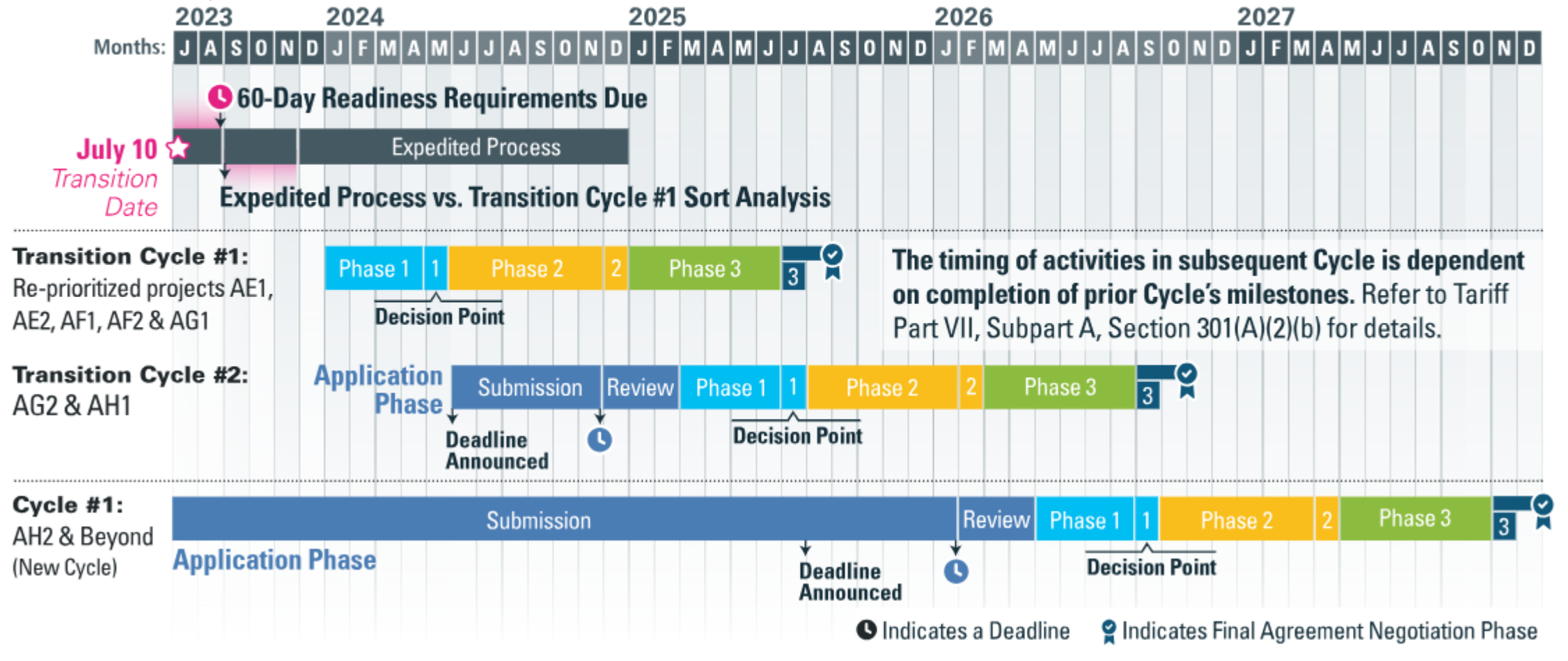
Interconnection Analysis

Transition Sorting Retool, Expedited Process, Transition Cycle 1 & Model Availability

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Interconnection Planning Analysis
Interconnection Process Subcommittee
December 21, 2023

Queues Timeline

As of 10.30.2023 4:02 p.m. EPT



Readiness Review Period

- Review of active AE1-AG1 projects for readiness requirements
- AE1-AG1 projects will address outstanding questions to fulfill readiness requirements

**Developers
Notified**
of Expedited
Process Eligibility
on Dec. 15th

Refreshed Expedited Process Retool

- TC1 projects will be lifted from Expedited Process study cases (AE1-AG1)
- Expedited Process projects will be retooled w/o TC1 projects

Sept. 2023

Oct. 2023

Nov. 2023

Dec. 2023

Jan. – Apr. 2024

Expedited Processing Eligibility (Transition Sort Retool)

- AE1-AG1 projects that have met readiness requirements will receive "Expedited Processing Eligibility Analysis" to sort projects into Expedited Process or TC1.
- Each queue will be analyzed on their own SIS study case

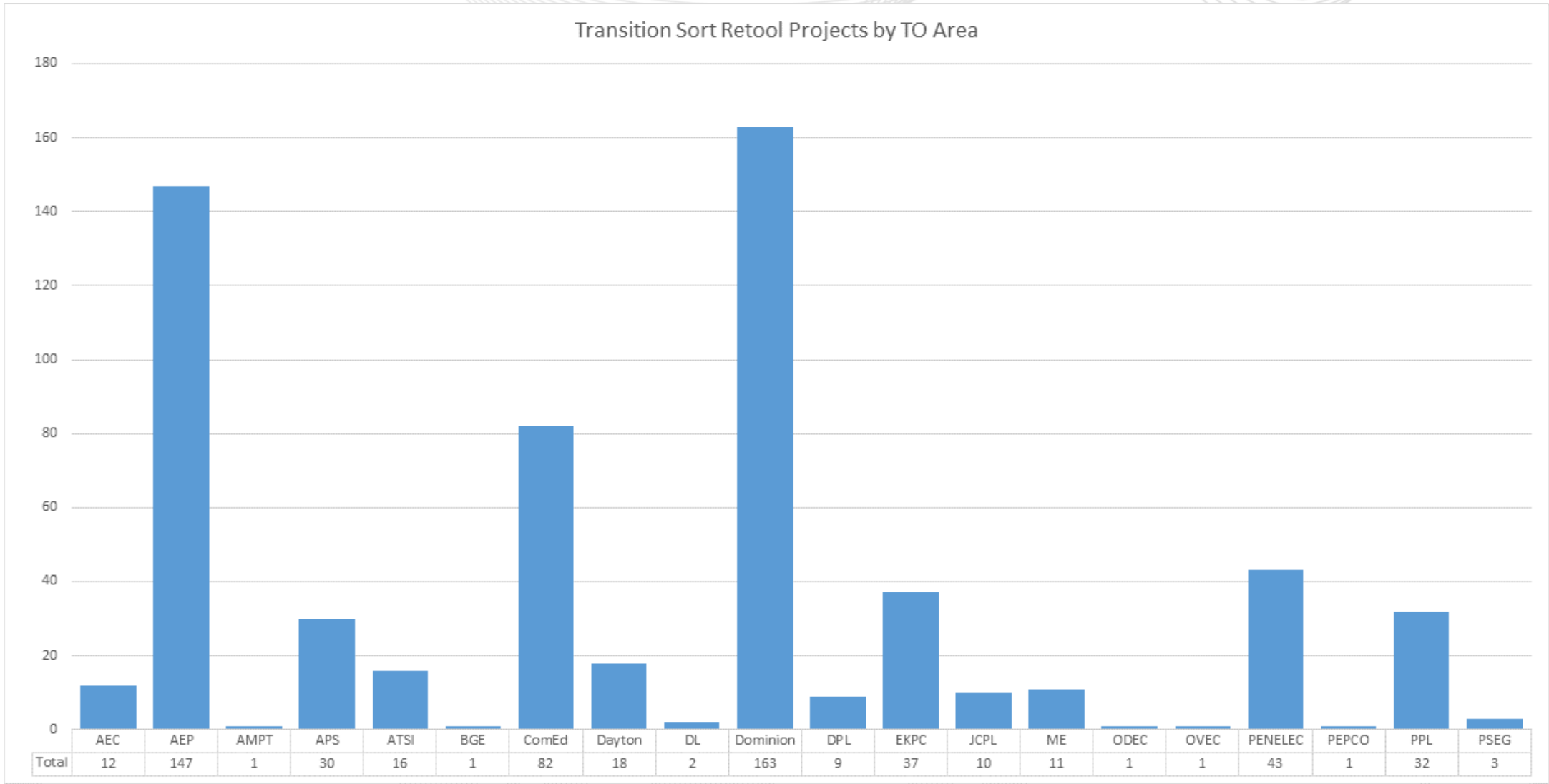
Transition Cycle #1 Analysis

Phase I analysis begins for final cohort of TC1 projects coming out of Transition Sort Retool

July–December 2023: Transition Cycle #1 Model Building (LF, SC, Stability)

- **Transition Sort Retool (Oct-Nov-Dec 2023)**
 - Serial Study Process
 - The transition sort retool is only used to determine the disposition of the Expedited Process vs. TC1 study track for projects in the AE1-AG1 queues that have met readiness eligibility requirements
 - Only Load Flow analysis is completed for the transition sort retools (SP/LL)
 - A project is not eligible for the expedited process if
 - It has cost allocation or is first-to-cause for a network upgrade that has a total estimated cost > \$5 mil
 - It is an uprate project and its base project is a TC1 project

Transition Sort Retool Projects by TO Area

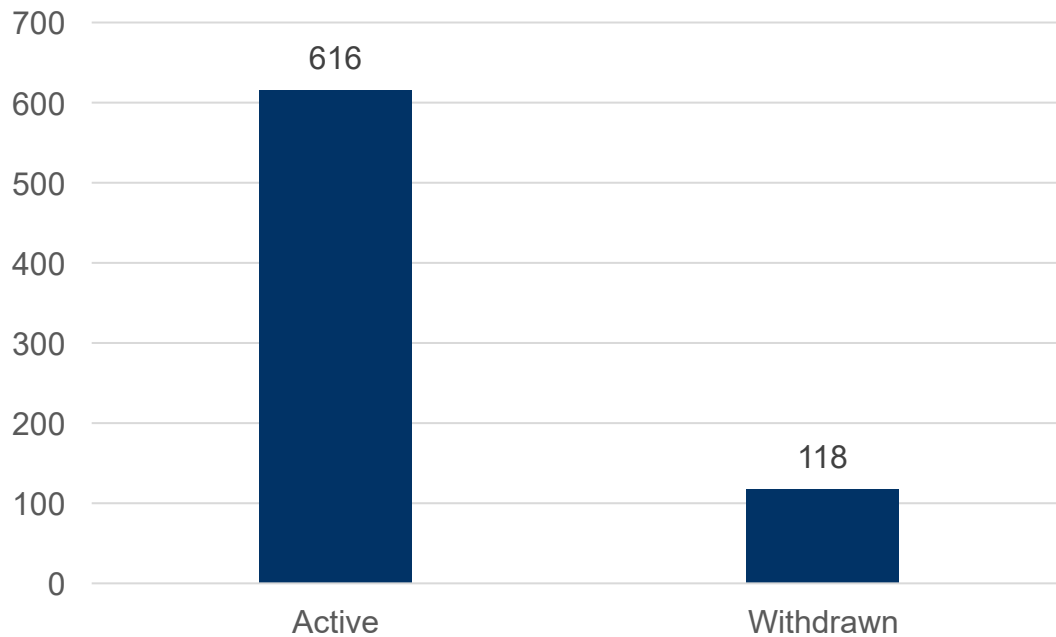


Transition Sort Retool Reports:

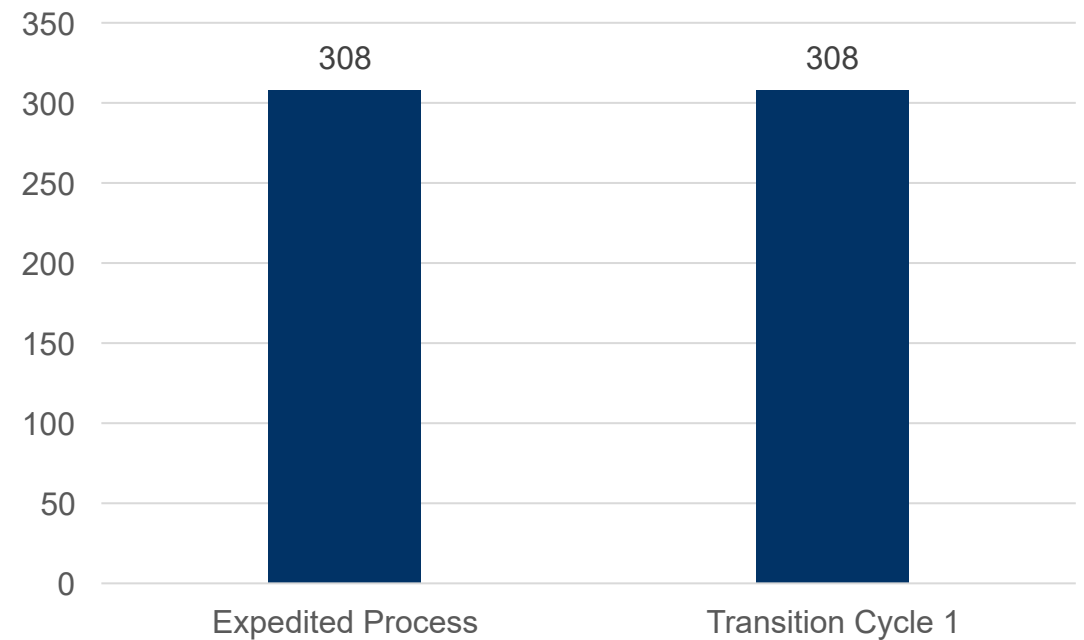
- Not meant to be a formal System Impact Study
- Purpose is to communicate whether a project is determined to be either:
 - (i) eligible for the Expedited Process or
 - (ii) reprioritized to Transition Cycle 1.
- Report will include a list of:
 - (i) the overloaded facilities identified,
 - (ii) other interconnection projects that may also contribute to the overloaded facility, and
 - (iii) the total estimated cost for any required Network Upgrades (no cost allocation provided).

- Transition Sort Retool Reports and FAQ are available on: [PJM.com>planning>Service Requests> Expedited Process/TC1 Classification](https://www.pjm.com/planning/Service-Requests/Expedited-Process/TC1-Classification)

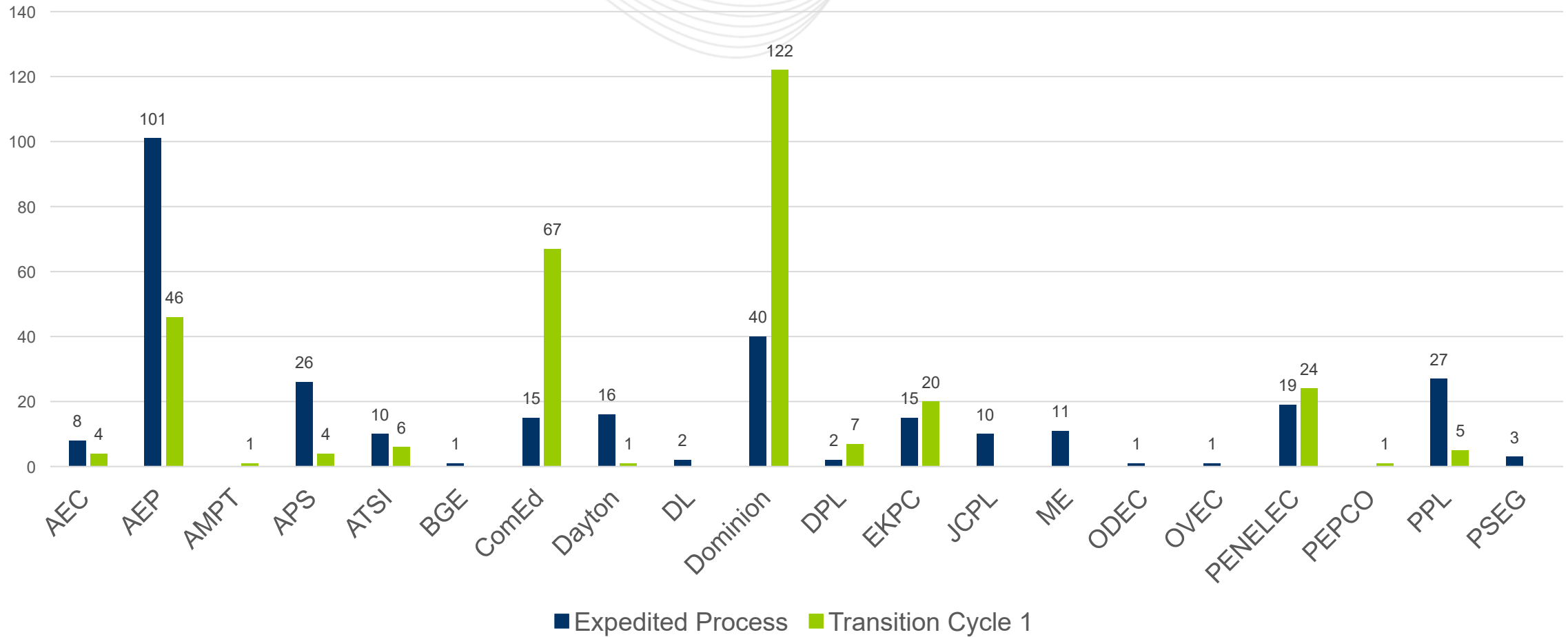
Active/ Withdrawn projects



Expedited Process/TC1 Disposition



Expedited Process/TC1 Disposition



- **Refreshed Expedited Process Retool (Dec 2023 start – parallel with TC1)**
 - Serial Study Process and Cost Allocation
 - Now that Expedited Process & TC1 tracks are determined, the TC1 projects are lifted from the AE1-AG1 cases to run the Expedited Process analysis
 - Load Flow, Short Circuit, and Stability will be completed for Expedited Process eligible projects during retool
 - Based on final SIS analysis results (LF/SC/Stability) and Facility studies (by TOs), any projects that do receive cost allocation for network upgrades > \$ 5mil will shift to TC1 (Includes TO analysis results)
 - Expedited Process projects will receive SIS report after all analysis is completed, followed by Facilities Study Report (if required) and final GIA/WMPA.

- **Transition Cycle #1 (2024-2025)**

- Anticipated to start January 2024
- Contains AE1-AG1 projects that were not eligible for the Expedited Process
- Cluster study approach under reformed process
- Studied on 2027 RTEP base case
- Load Flow analysis will be completed for SP/LL using legacy GenDeliv test
- Short Circuit and Stability analyses will be completed using cluster study methodology



Model Availability and Study Approach



Load Flow Model Details & Target Availability

- Transition Sort Retool Models (Post #1) -
 - Models will be built on SIS Impact Models and consist of active AE1-AG1 projects before sorting
 - AE1/AE2 – Posted
 - AF1/AF2 – Posted
 - AG1 – Posted
- Refreshed Expedited Process Models (Post #2) - January
 - Models will be built on SIS Impact Models and only consist of AE1-AG1 Expedited Process projects only, all TC#1 projects are removed from these models
- Transition Cycle #1 Model Post - January 2024
 - Model will be built on 2027 RTEP Model and consist of active AE1-AG1 projects

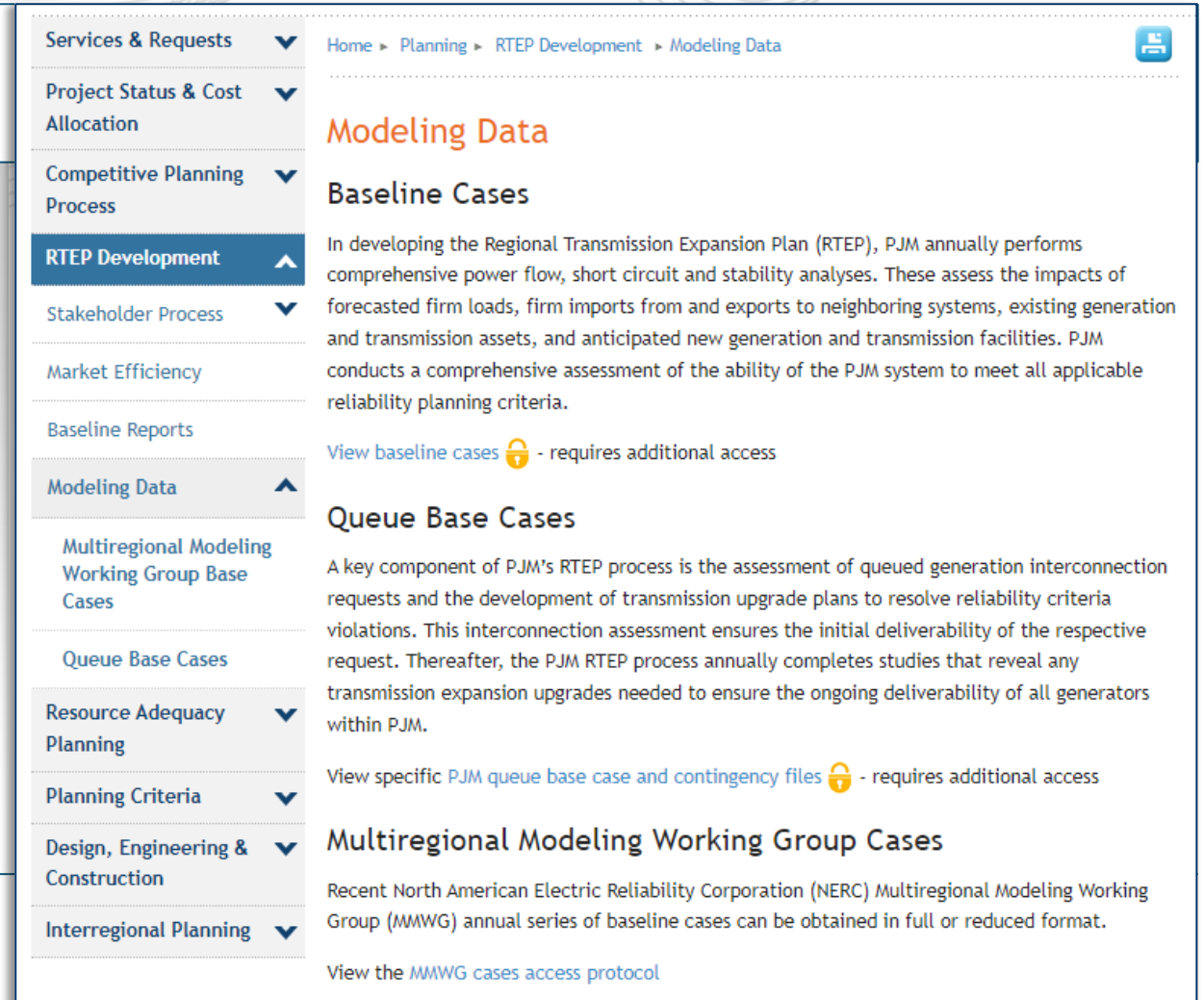
Availability:

- **AE1/AE2/AF1/AF2/AG1 cases and files will be posted to PJM website – Cell Access Required**
- **TC1 case and files will be posted to the PJM Website – Cell Access Required**

PJM WILL...

- Post cases to PJM.com once prepared to share.

Files are CEI and require completing a PJM CEI Request Form.



The screenshot shows a web page with a navigation menu on the left and content on the right. The navigation menu includes: Services & Requests, Project Status & Cost Allocation, Competitive Planning Process, RTEP Development (highlighted), Stakeholder Process, Market Efficiency, Baseline Reports, Modeling Data (highlighted), Multiregional Modeling Working Group Base Cases, Queue Base Cases, Resource Adequacy Planning, Planning Criteria, Design, Engineering & Construction, and Interregional Planning. The main content area shows a breadcrumb trail: Home > Planning > RTEP Development > Modeling Data. Below this, there are sections for 'Modeling Data', 'Baseline Cases', 'Queue Base Cases', and 'Multiregional Modeling Working Group Cases', each with a brief description and a link to view cases, some of which require additional access.

Services & Requests ▾

Project Status & Cost Allocation ▾

Competitive Planning Process ▾

RTEP Development ▲

Stakeholder Process ▾

Market Efficiency

Baseline Reports

Modeling Data ▲

Multiregional Modeling Working Group Base Cases

Queue Base Cases

Resource Adequacy Planning ▾

Planning Criteria ▾

Design, Engineering & Construction ▾

Interregional Planning ▾

Home > Planning > RTEP Development > Modeling Data

Modeling Data

Baseline Cases

In developing the Regional Transmission Expansion Plan (RTEP), PJM annually performs comprehensive power flow, short circuit and stability analyses. These assess the impacts of forecasted firm loads, firm imports from and exports to neighboring systems, existing generation and transmission assets, and anticipated new generation and transmission facilities. PJM conducts a comprehensive assessment of the ability of the PJM system to meet all applicable reliability planning criteria.

[View baseline cases](#) 🔒 - requires additional access

Queue Base Cases

A key component of PJM's RTEP process is the assessment of queued generation interconnection requests and the development of transmission upgrade plans to resolve reliability criteria violations. This interconnection assessment ensures the initial deliverability of the respective request. Thereafter, the PJM RTEP process annually completes studies that reveal any transmission expansion upgrades needed to ensure the ongoing deliverability of all generators within PJM.

[View specific PJM queue base case and contingency files](#) 🔒 - requires additional access

Multiregional Modeling Working Group Cases

Recent North American Electric Reliability Corporation (NERC) Multiregional Modeling Working Group (MMWG) annual series of baseline cases can be obtained in full or reduced format.

[View the MMWG cases access protocol](#)



Load Flow High-Level Case Assumptions

Cycle	RTEP Base Model	Analysis Tools & Methodology
TC1	2027	Transition Cycle #1 will be performed using TARA GenDeliv under the current generation deliverability procedure for Summer Peak Analysis, and Light Load will use PJM's Legacy Tool.
TC2	2028	Transition Cycle #2 and beyond will be performed using TARA GenDeliv under the new generation deliverability procedure.
Cycle 1	TBD	

New Generation Deliverability Procedure Refer to Manual 14B, Attachment C.3

Category	Study	Type of Analysis		RTEP Base Case Year		Study Approach	Generator Deliverability Method	Cost Allocation		
Expedited Process	Transition Sort Retool¹ <u>Purpose:</u> Determine Expedited Process vs. TC1	Load Flow ²		AE1/AE2	2022	Serial	Legacy GD	Serial		
				AF1/AF2	2023					
				AG1	2024					
	Refreshed Expedited Process Retool³ <u>Reason:</u> Lift TC1 projects from model	Load Flow ²		AE1/AE2	2022	Serial	Legacy GD	Serial		
				Short Circuit					AF1/AF2	2023
				Stability ⁴					AG1	2024
Transition Cycles	Transition Cycle 1	Load Flow	Phases 1-3	New AE1-AG1	2027	Cluster	Legacy GD	Cluster		
		Short Circuit	Phases 2-3							
		Stability	Phases 2-3							
	Transition Cycle 2⁵	Load Flow	Phases 1-3	New AG2-AH1	2028 (anticipated)	Cluster	New GD ⁶	Cluster		
		Short Circuit	Phases 2-3							
		Stability	Phases 2-3							
New Cycle	Cycle 1	Load Flow	Phases 1-3	AH2 +	TBD	Cluster	New GD ⁶	Cluster		
		Short Circuit	Phases 2-3							
		Stability	Phases 2-3							

¹ The transition sort retool is only used to determine the disposition of the Expedited Process vs. TC1 study track for projects in the AE1-AG1 queues

² Load Flow studies will be run on both summer peak and light load model conditions

³ PJM M14H, Appendix I.3.4, **Expedited Process Rules** will apply for the Refreshed Expedited Process Analysis

- **Short Circuit / Stability Analysis:** If a short circuit, stability analysis, or sag study is completed during the expedited process, and it is determined that a reinforcement project is required that has an estimated Network Upgrade cost greater than \$5,000,000, the project will be removed from the Expedited Process and shifted to Transition Cycle #1
- **Facilities Study Estimates:** If it is determined during the Facilities Study that the cost of a Network Upgrade is now estimated to be greater than \$5,000,000, the project will be removed from the Expedited Process and shifted to Transition Cycle #1
- **Until the Project Developer receives a draft GIA, they are subject to being shifted to TC1 for any of the reasons above**
- **GIA:** Projects in the Expedited Process will have their Facilities Studies completed, and will be tendered an interconnection-related service agreement pursuant to Tariff, Part IX

⁴ PJM will apply updated model conditions to stability studies not yet performed at this stage. Stability will not be re-run if a project already received results

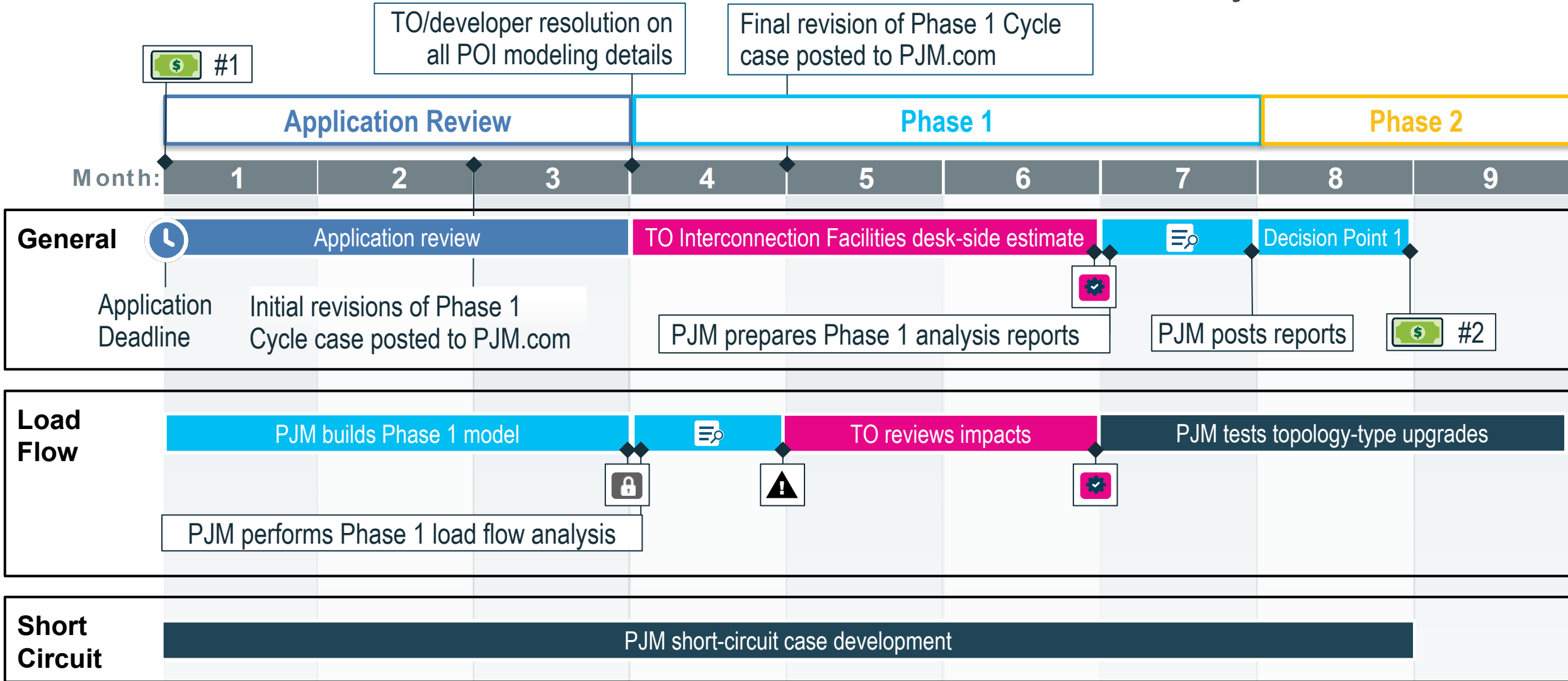
⁵ Load Flow studies are projected to be run on Summer Peak, Winter Peak, and Light Load models starting with Transition Cycle 2 and beyond

⁶ The new Generator Deliverability procedure was endorsed at the January 2023 MRC and is outlined in M14B

- **AE1-AG1 projects that are determined to be classified as TC1 will have the opportunity to submit updated dynamic model data to PJM prior to TC1/DP1 in accordance with the *PJM Dynamic Model Development Guidelines*.**
- PJM will reach out to TC1 Project Developers via Pardot Announcement once they are able to submit updated data.
- Project Developers will need to follow the Dynamic Model Development Guidelines document posted on PJM.com (<https://www.pjm.com/-/media/planning/services-requests/pjm-dynamic-model-development-guidelines.ashx>)

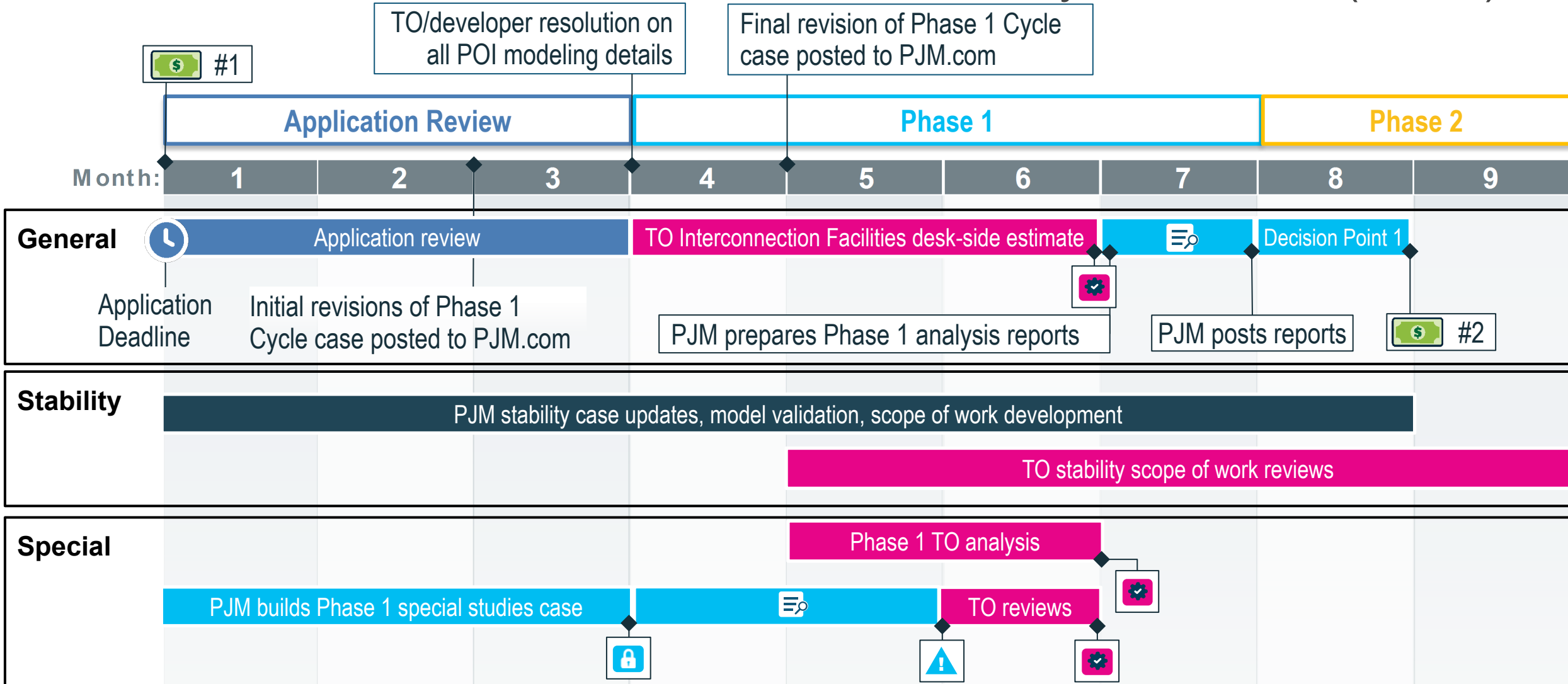
Phase 1 Analysis

Phase 1 Analysis Timeline



- Transmission Owner (TO) deliverable/milestone
- PJM analysis
- Start or end of a task
- Readiness Deposit
- Violations sent
- Case locked

Phase 1 Analysis Timeline (cont'd)



- Transmission Owner (TO) deliverable/milestone
- PJM analysis
- Start or end of a task
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- Violations sent
- Case locked

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