



Market Efficiency Update

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Market Simulation

Transmission Expansion Advisory Committee

May 11, 2021

2020/21 Long Term Window

- 2020/21 Long-Term Window started January 11, 2021 and closed on May 11, 2021
- Completed Mid-Cycle Update of Major Assumptions
- Updated Market Efficiency Economic Models (version date 04-29-2021) posted on the [Market Efficiency Secure Page](#)
 - Updated modeling data includes market efficiency base case files for all study years, PROMOD input files and sensitivities (see next slide for details)

- Updated topology to the most recent PJM reliability powerflow
 - Updated list of monitored flowgates to reflect the topology changes.
- Updated PJM generation expansion:
 - Updated ISA/FSA status; Retirements and withdrawals; Added new queue units (signed ISA as of 03/31/21).
- Updated fuel/emissions forecast
 - Using ABB-Hitachi fuel/emissions forecast, vintage Spring 2021.
- Updated demand forecast to align with 2021 PJM Load Forecast Report.
- Updated Cumberland – Juniata 230 kV and Harwood – Susquehanna 230 kV models to reflect the expected installation of DLR devices on these lines.
- Updated sensitivity scenarios to reflect above changes.

**Input Assumptions included in Appendix A*



2020/21 RTEP Market Efficiency Window Congestion Drivers

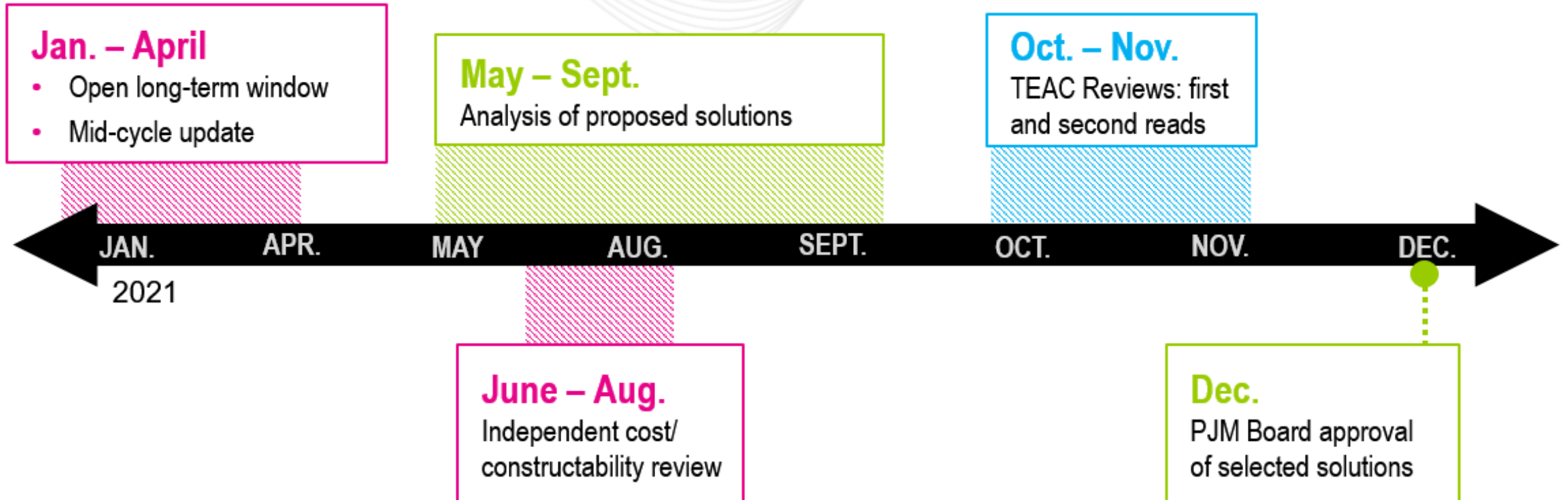
2020/21 RTEP Market Efficiency Window Eligible Energy Market Congestion Drivers (Updated 05-03-2021)				ME Base Case (Annual Congestion \$million)		ME Base Case (Hours Binding)		Line is Conductor Limited?	Conductor Ratings*	Comment	Potential Upgrades
FG#	Constraint	FROM AREA	TO AREA	2025 Simulated Year	2028 Simulated Year	2025 Simulated Year	2028 Simulated Year				
ME-3	Junction to French's Mill 138 kV	APS	APS	\$ 15.24	\$ 15.72	342	317	No	SN/SE=221/268 MVA WN/WE=250/317 MVA	Internal Flowgate	Cumberland – Juniata congestion driver may be impacted by DLR (Dynamic Link Rating) project (Expected in-service date 06/01/2021).
ME-5	Charlottesville to Proffit Rd Del Pt 230 kV	DOM	DOM	\$ 7.34	\$ 10.25	164	169	Yes		Internal Flowgate	
ME-6	Plymouth Meeting to Whitpain 230 kV	PECO	PECO	\$ 4.03	\$ 2.76	78	89	No	SN/SE=463/578 MVA WN/WE=521/639 MVA	Internal Flowgate	
ME-7	Cumberland to Juniata 230 kV	PLGRP	PLGRP	\$ 9.30	\$ 10.10	209	217	Yes		Internal Flowgate	

Notes:

* ME-1, ME-2, ME-4, ME-8, ME-9, and ME-10 constraints no longer eligible congestion drivers (updates to the model significantly decreased forecasted congestion).

** Conductor ratings provided by TOs for congestion drivers that are limited by station equipment.

*** Cumberland – Juniata congestion driver may be impacted by DLR (Dynamic Link Rating) projects (Expected in-service date 06/01/2021).



Appendix A

2020/21 Long Term Window

Market Efficiency Input Assumptions

Mid-Cycle Update

PJM Peak Demand and Energy Forecast

Load Forecast	2021	2025	2028	2031	2035
Peak (MW)	149,224	151,928	152,971	153,759	154,620
Energy (GWh)	780,068	794,760	802,993	806,729	815,394

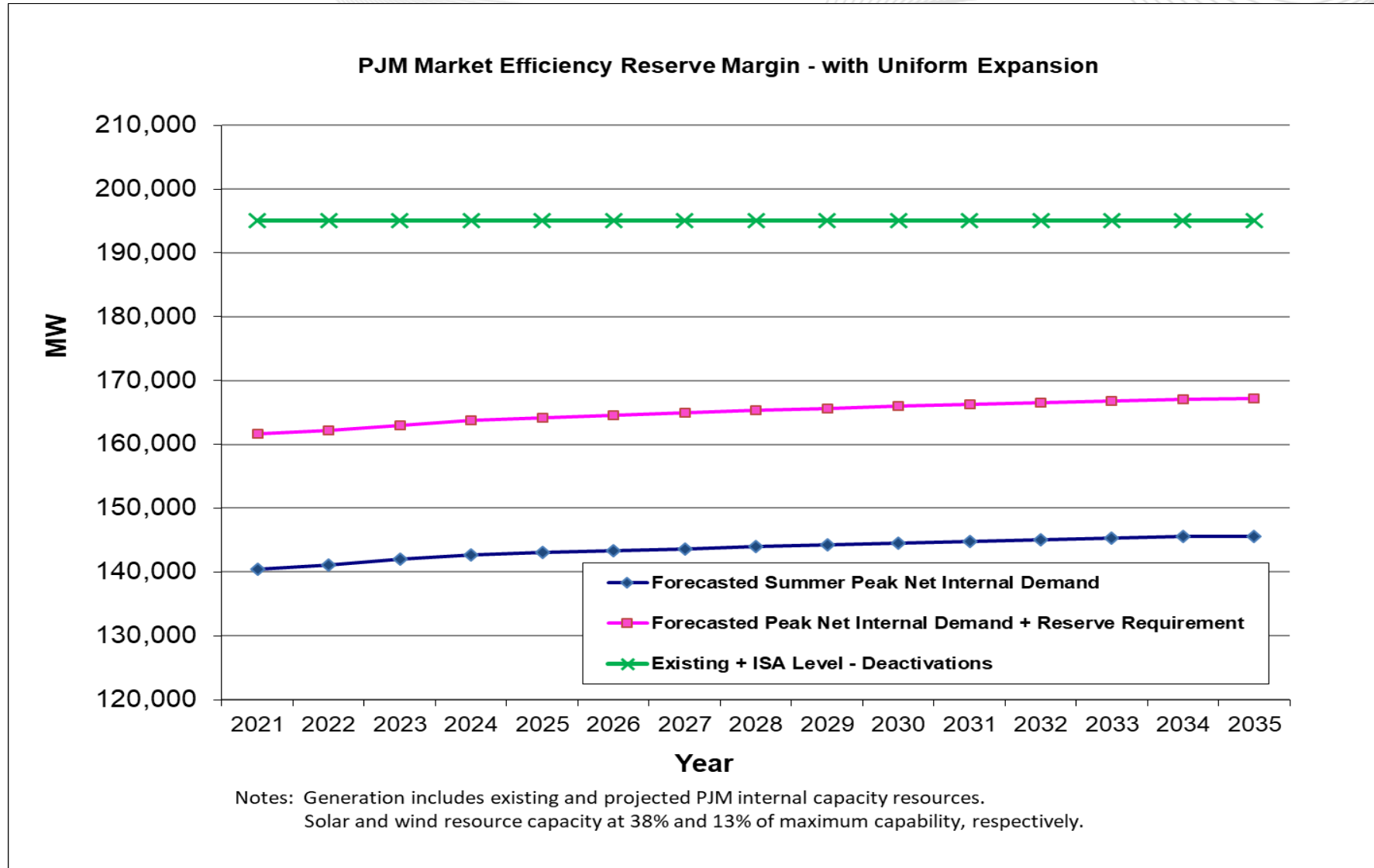
Notes:

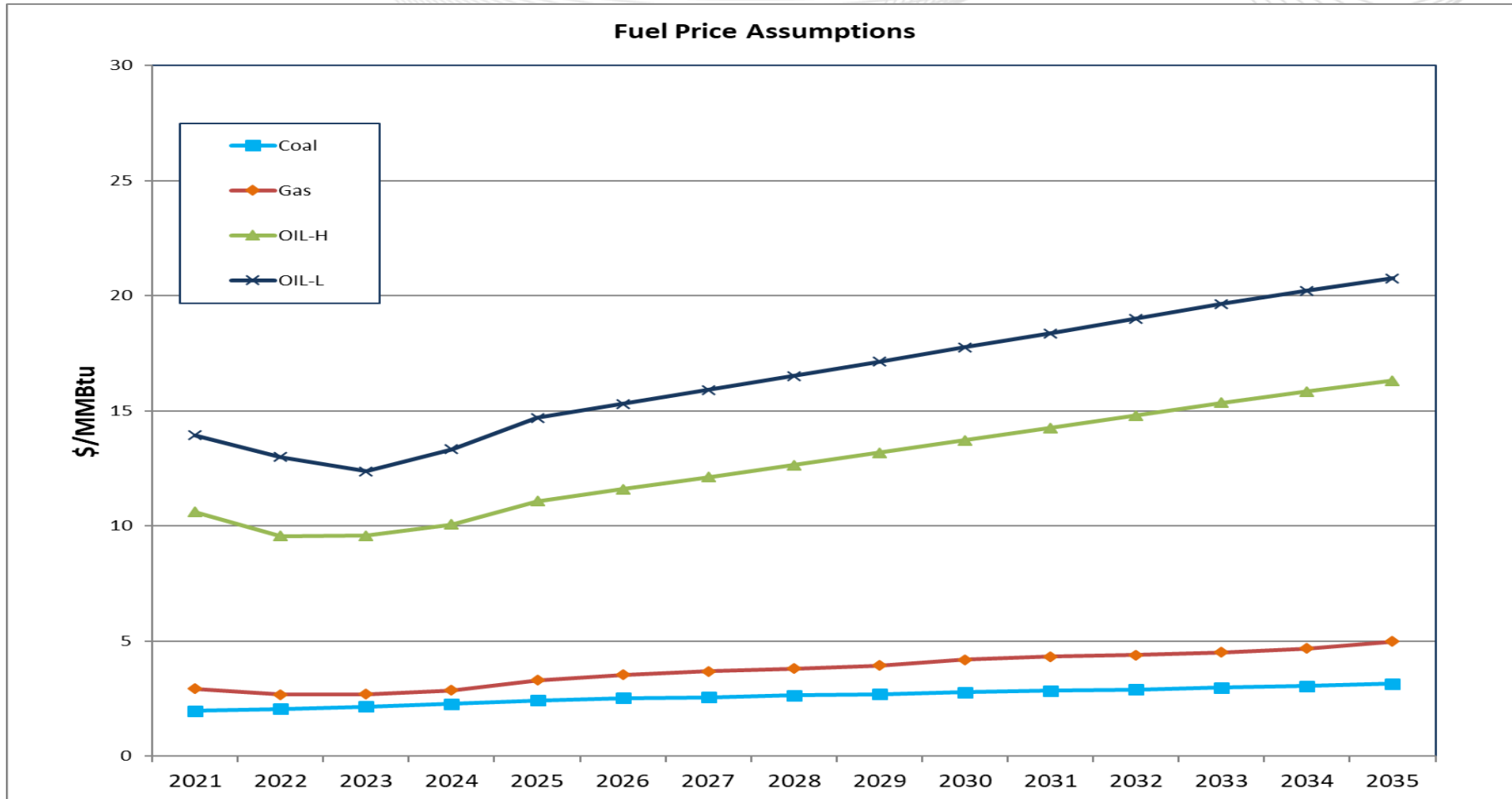
1. Peak and energy values from the January 2021 PJM Load Forecast Report Table B-1 and Table E-1, respectively.
2. Model inputs are at the zonal level. To the extent zonal load shapes create different diversity, modeled PJM peak load may vary.

Demand Resource	2021	2025	2028	2031	2035
Demand Resource (MW)	8,779	8,910	8,947	8,982	9,022

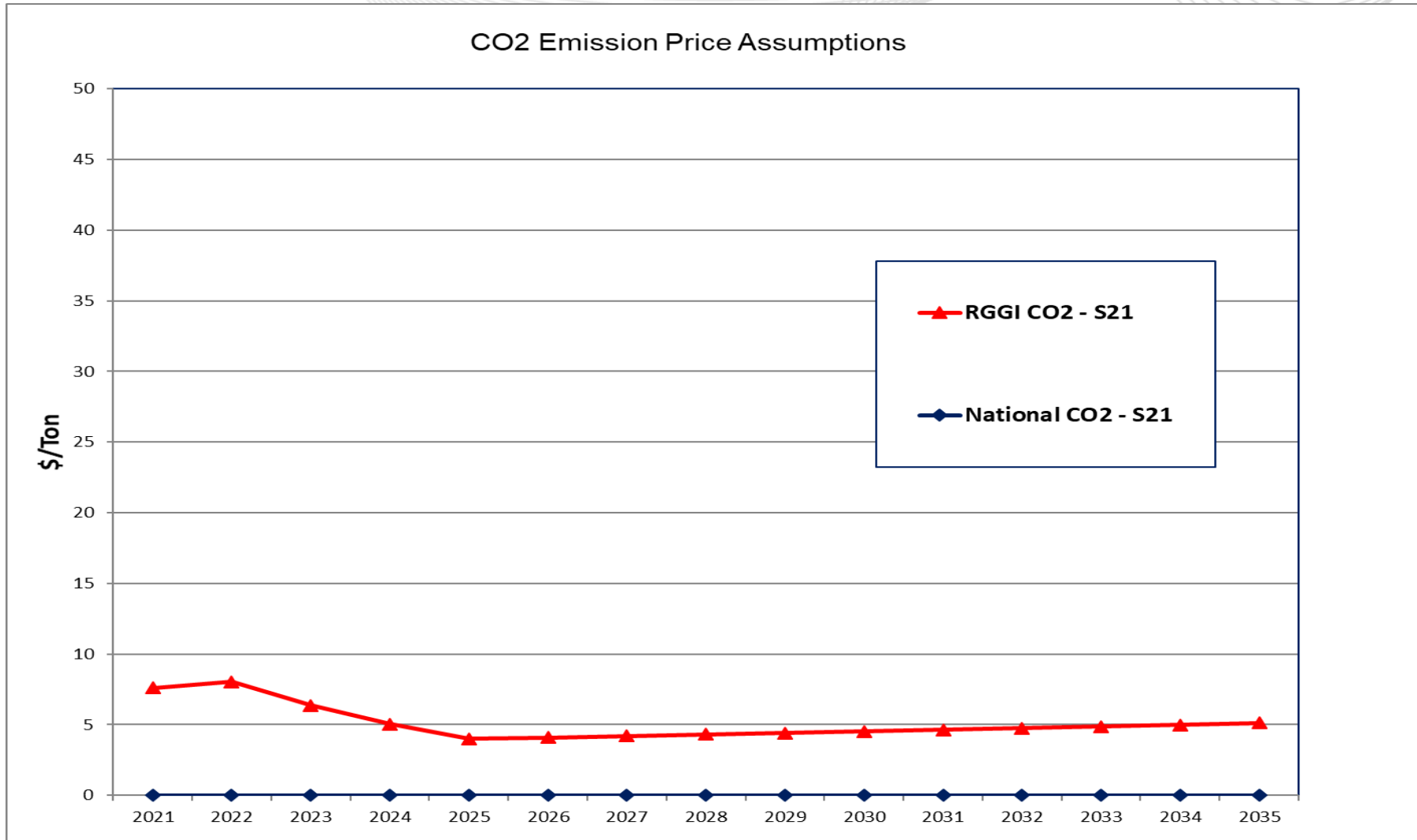
Note:

1. Values from the January 2021 PJM Load Forecast Report Table B-7.

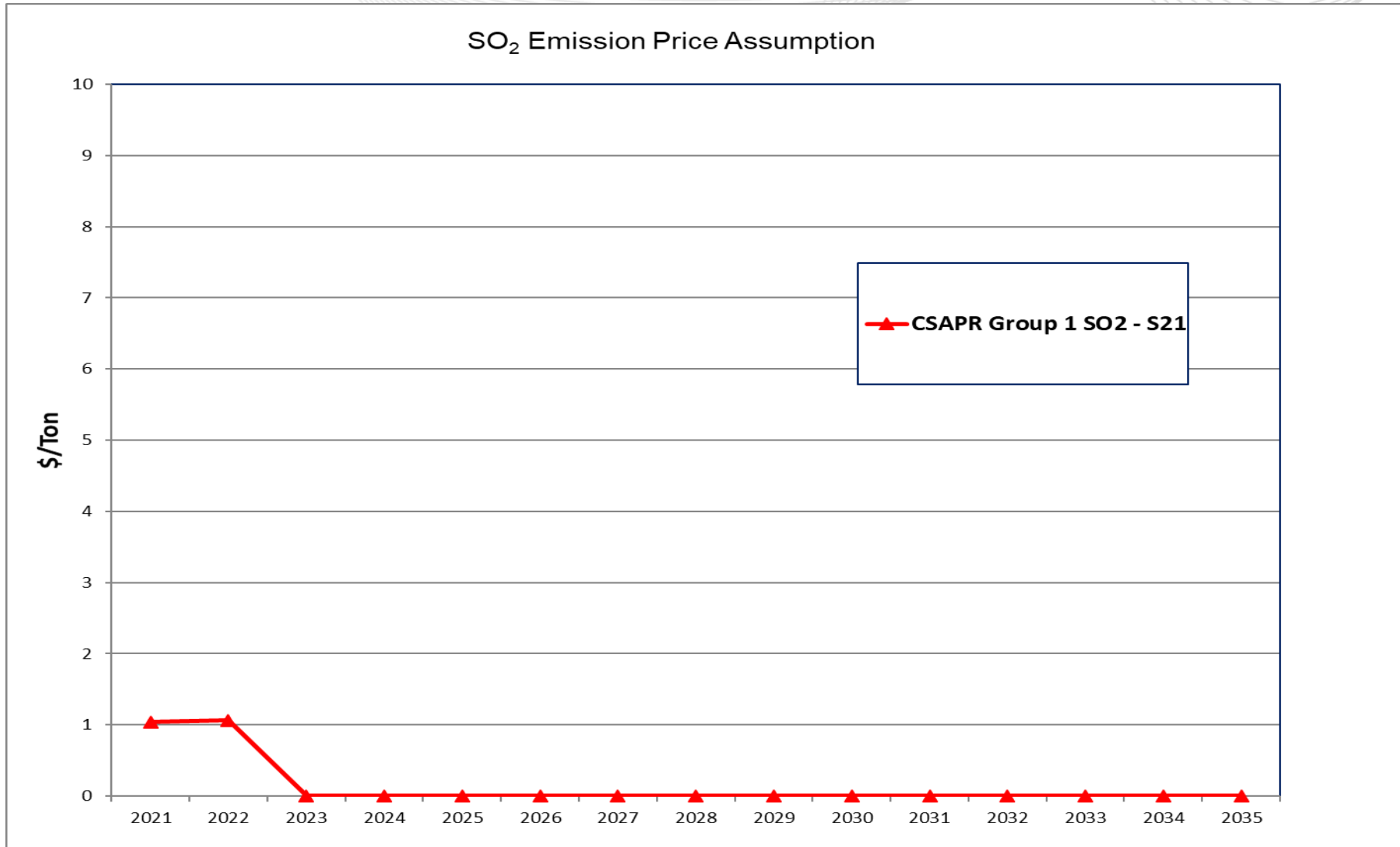


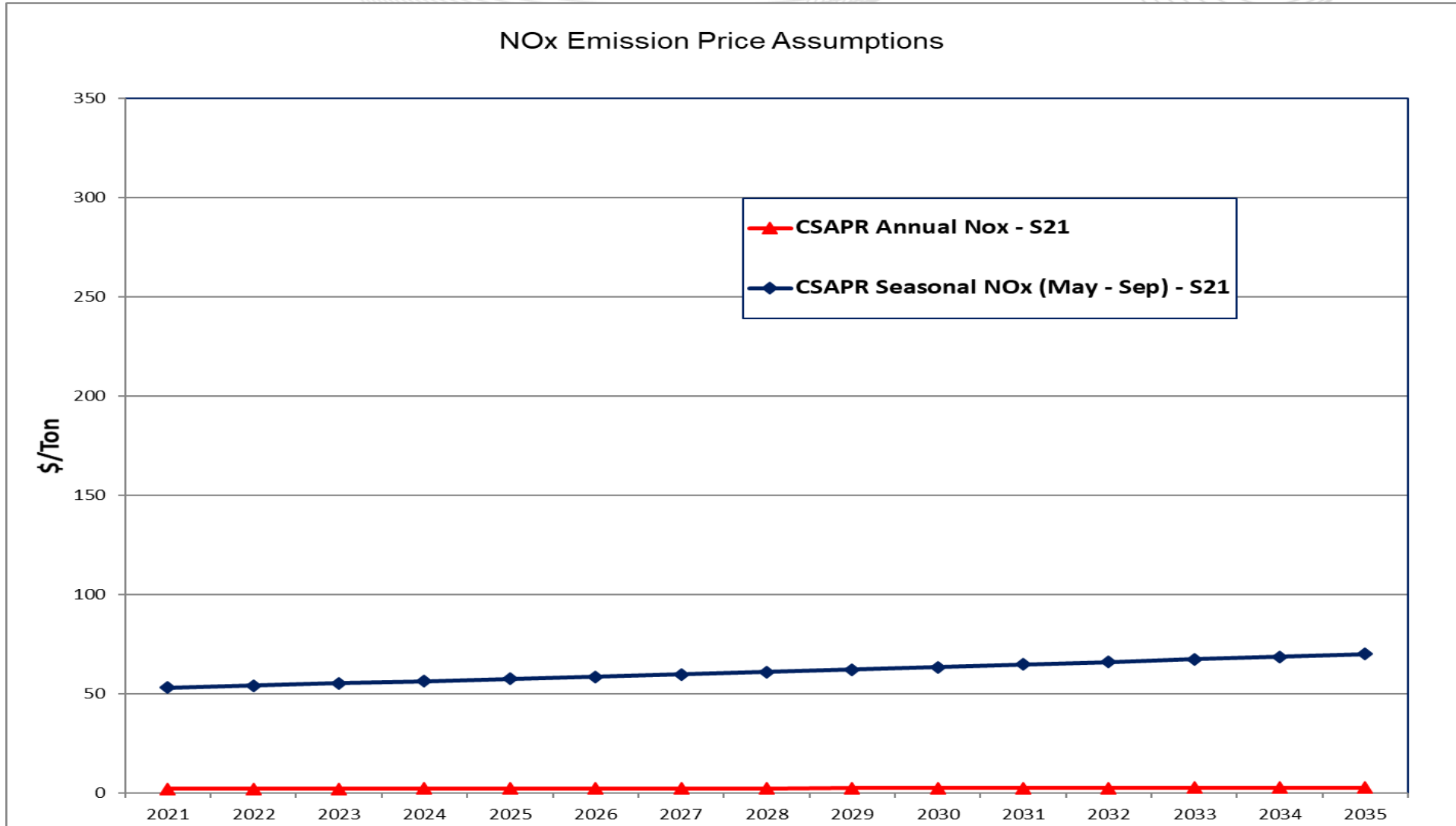


Notes:
 Coal – Annual average of PJM unit burner-tip prices
 Gas – Annual average Henry Hub price
 Oil-H, Oil-L – Annual average prices



Note: Base assumption of MD, DE, NJ and VA units assigned to RGGI price.





- Financial parameters based on the Transmission Cost Information Center spreadsheet (2/22/2021 version) (<https://www.pjm.com/planning/project-construction>)
 - Discount Rate: 7.26%
 - Levelized Annual Carrying Charge Rate: 11.81%

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