

Base Scenario Development Mockup (Order No.1920 Scenario Development Track)

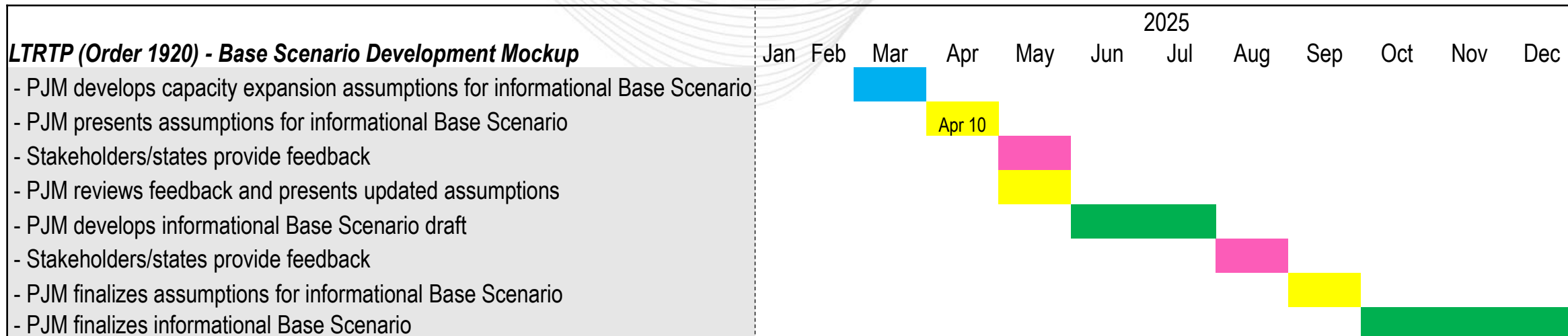
Mojgan Hedayati

Lead Engineer

Scenario Analysis & Special Studies

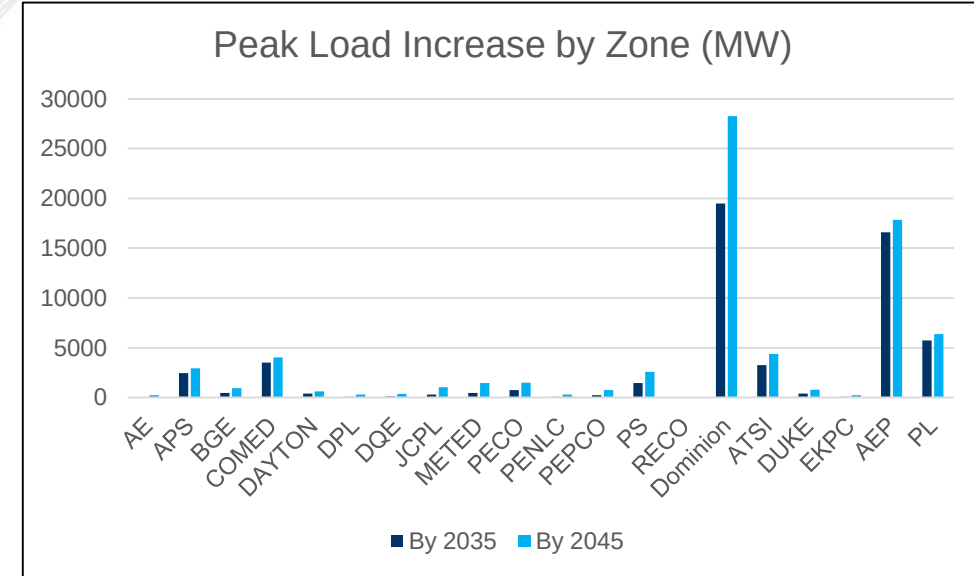
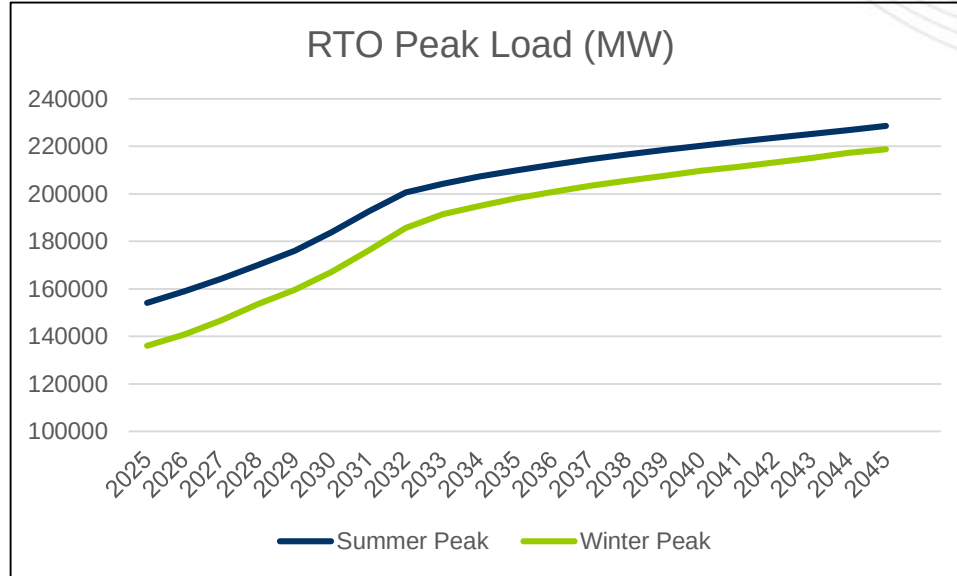
TEAC Special Session - Order 1920

April 10, 2025



- Load assumptions
- Generation and storage technologies
- Fixed and Variable costs components
 - Fixed: Capital, fixed O&M, geographic adjustments coefficients
 - Variable: Heat rates, fuel costs, variable O&M
- Financial assumptions (fixed charge rate and discount rate)
- Renewable capacity factors
- Policy assumptions (new generation and deactivations)
- Resource adequacy
- Starting resource mix
- Build limits for capacity expansion (Generation Interconnection data and siting opportunities)

- PJM's 2025 Demand forecast



- Solar PV
- Onshore Wind
- Offshore Wind
- Battery Energy Storage
- Hybrid (Solar + Battery)
- Combustion Turbine
- Combined Cycle

- Assumptions for Fixed Costs and Variable Costs based on available resources in the following order:
 - 2025 PJM Quadrennial Review (being finalized – should be published in April)
 - S&P North American Power Market Outlook (TBD, under discussion with vendor)
 - Energy Exemplar Eastern Interconnection data
 - NREL (Annual Technology Baseline) and NETL (Cost and Performance Baseline studies)
- Henry Hub natural gas price and discount rate consistent with PJM's Market Efficiency

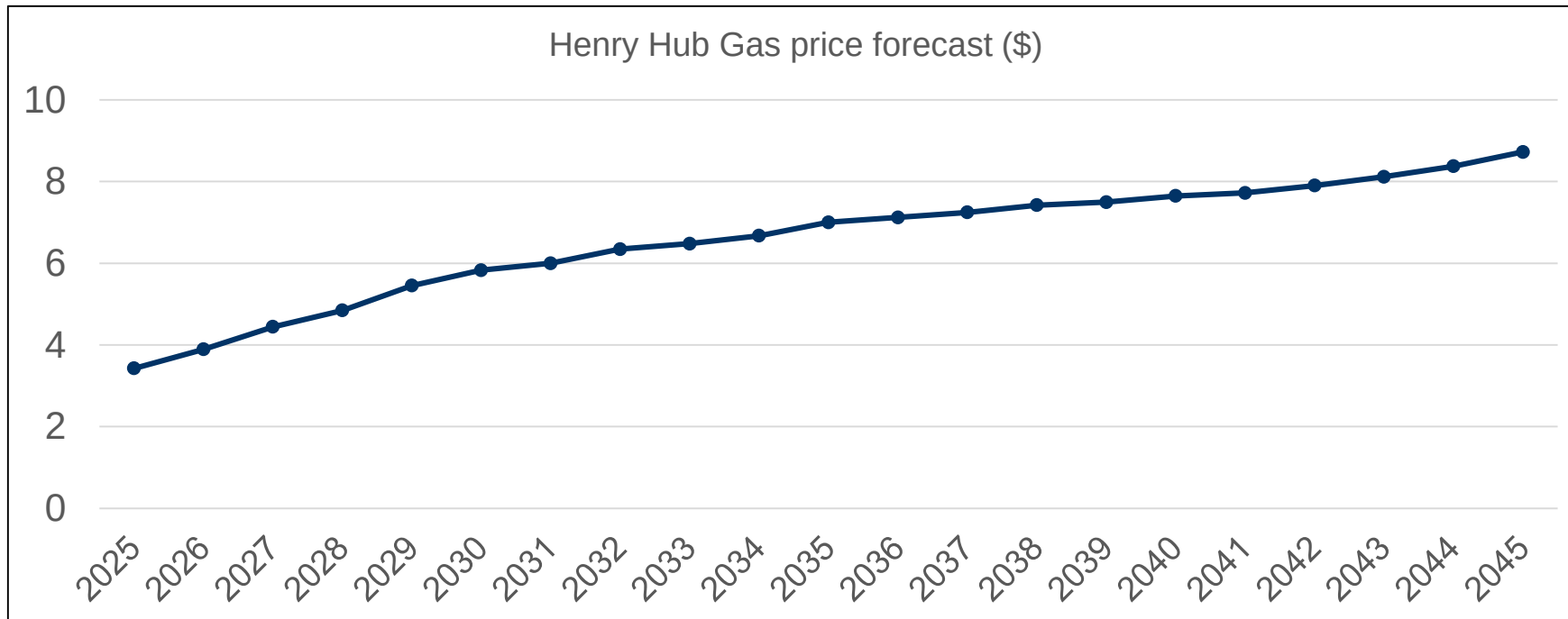
Geographic Adjustment Coefficients for Renewables

	Solar	Onshore	Offshore	Battery	Hybrid
Delaware	1.07	1.07	1.06	1.01	1.06
DC	1.01	1.03		1.01	1.01
Illinois	1.13	1.20	1.19	1.07	1.12
Indiana	1.00	1.02		1.02	1.00
Kentucky	1.00	1.01		1.02	1.01
Maryland	1.01	1.01	1.01	1.01	1.01
Michigan (Grand Rapids)	1.00	1.00	1.00	1.00	1.00
New Jersey	1.12	1.19	1.18	1.06	1.11
North Carolina	0.99	0.99	0.99	1.00	0.99
Ohio	0.99	0.98		0.99	0.99
Pennsylvania (Philadelphia)	1.11	1.18		1.06	1.10
Pennsylvania (Scranton)	1.02	1.03		1.01	1.02
Tennessee	1.00	1.02		1.04	1.01
Virginia (Alexandria)	1.00	1.02	1.02	1.01	1.01
Virginia (Roanoke)	0.99	0.98	0.98	1.00	0.99
West Virginia	1.01	1.00		1.00	1.01

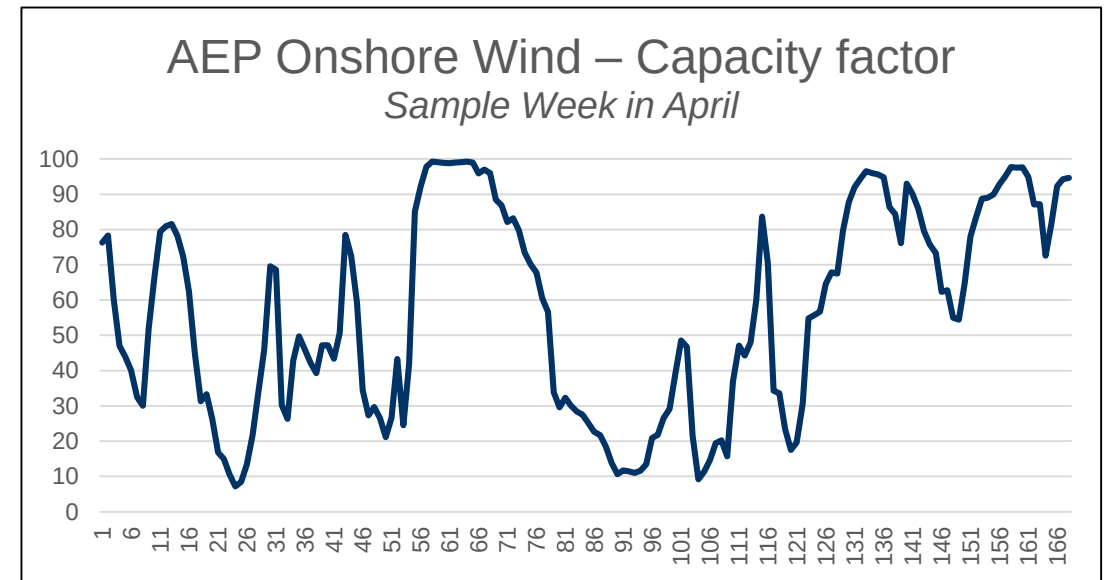
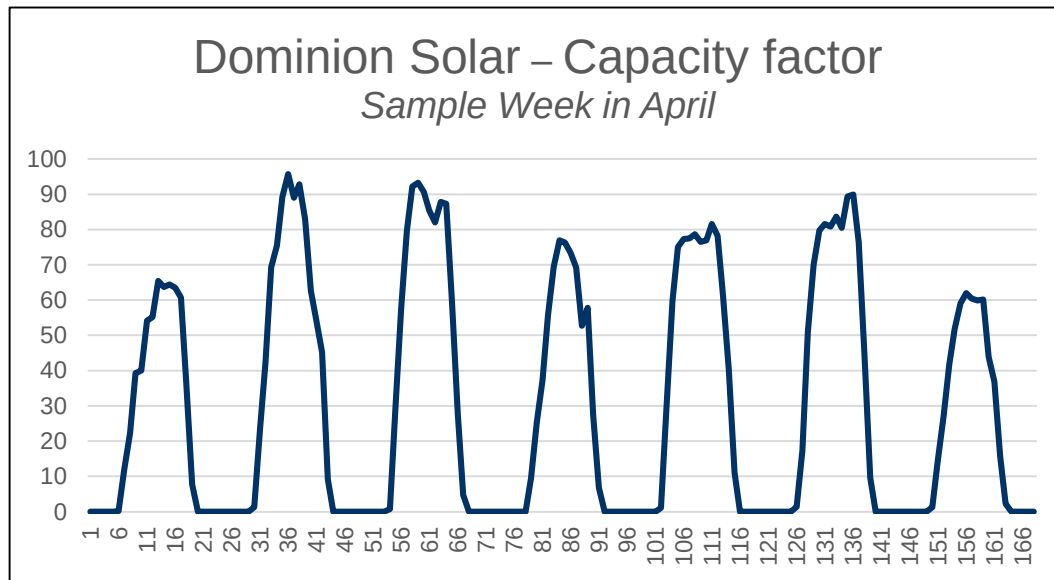
Sargent & Lundy (2024) "Capital Cost and Performance Characteristic Estimates for Utility Scale Electric Power Generating Technologies"

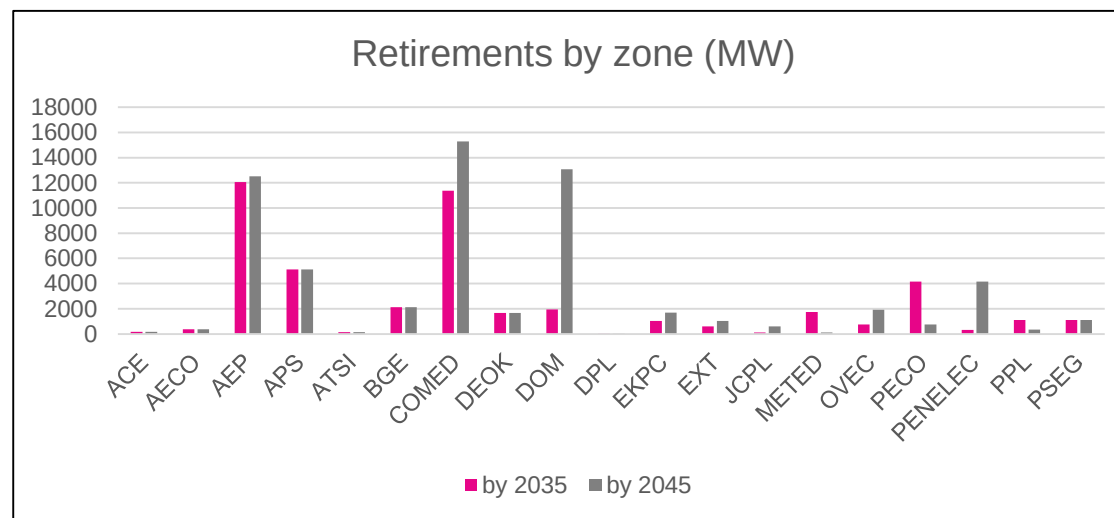
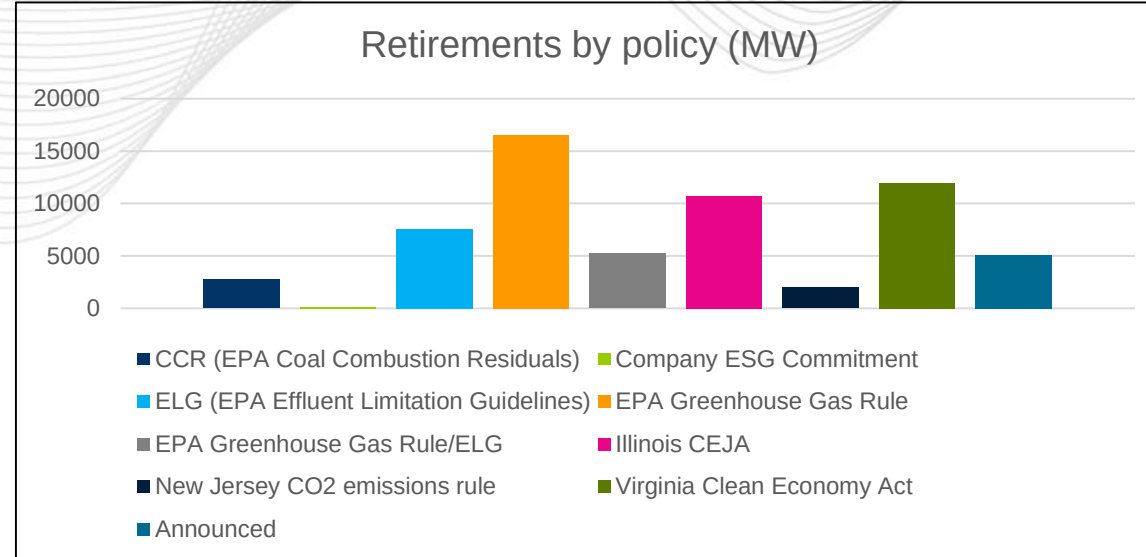
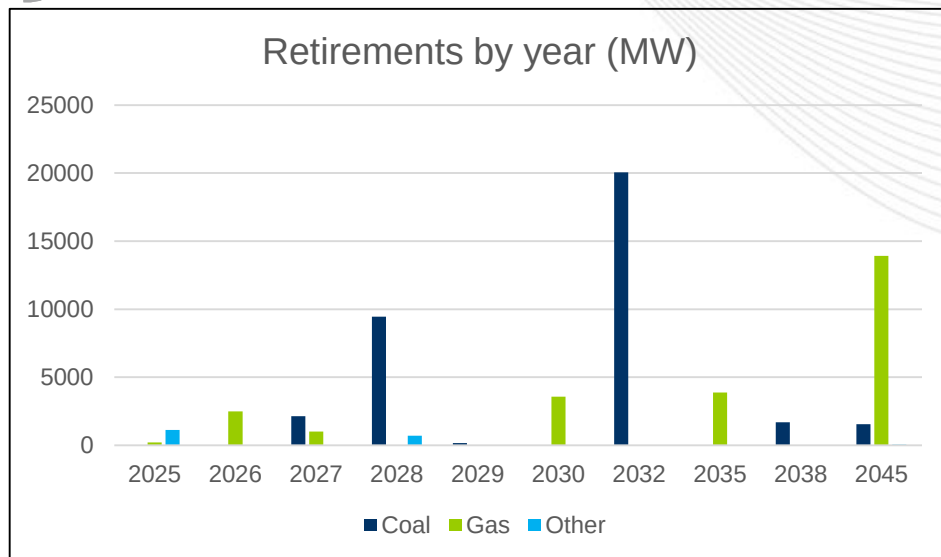
From PJM's Market efficiency:

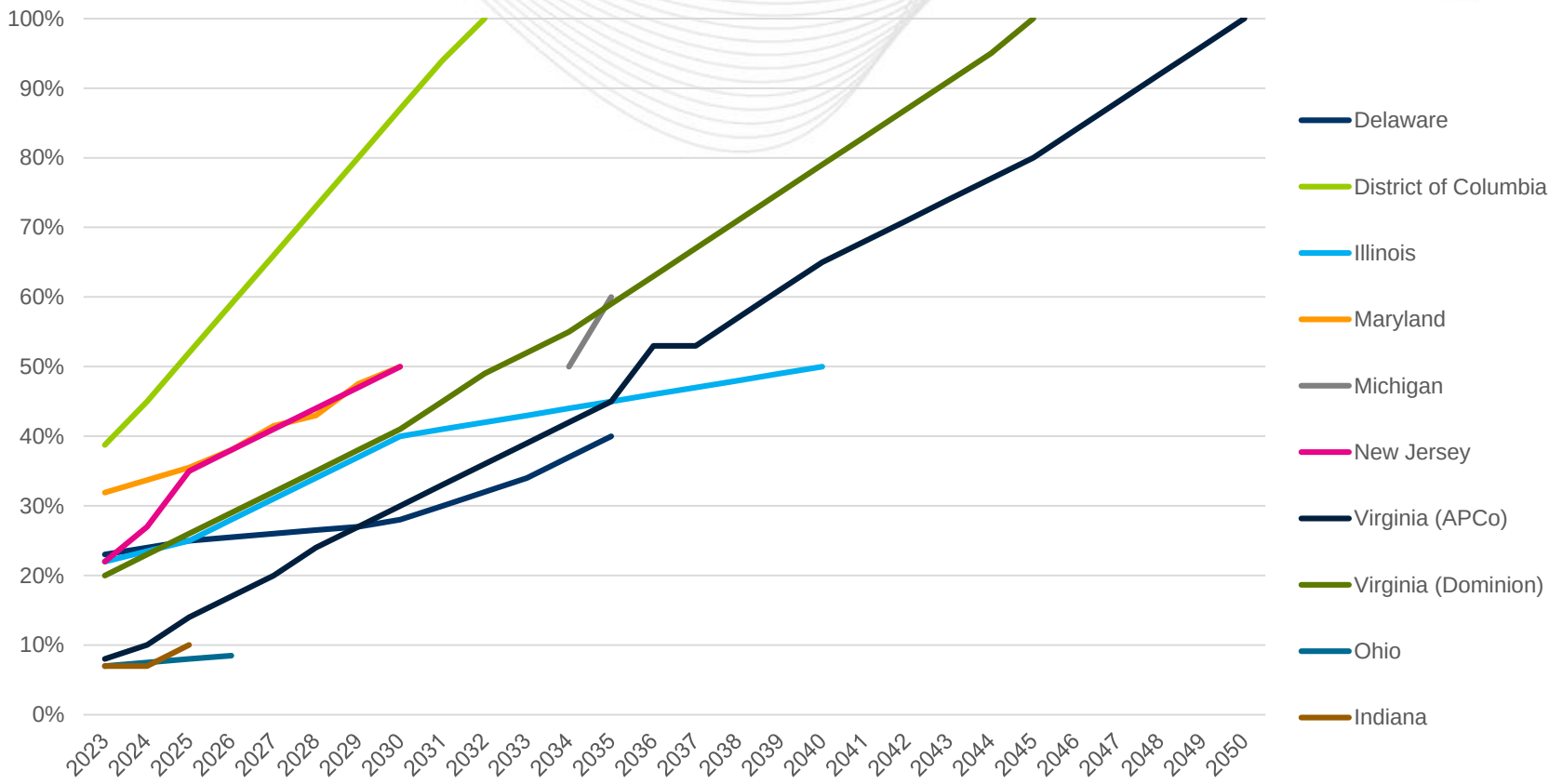
- The discount rate for this year's analysis will be 7.20%



- Use Energy Exemplar's Eastern Interconnection hourly profiles for renewable capacity factors which are defined at the zonal level

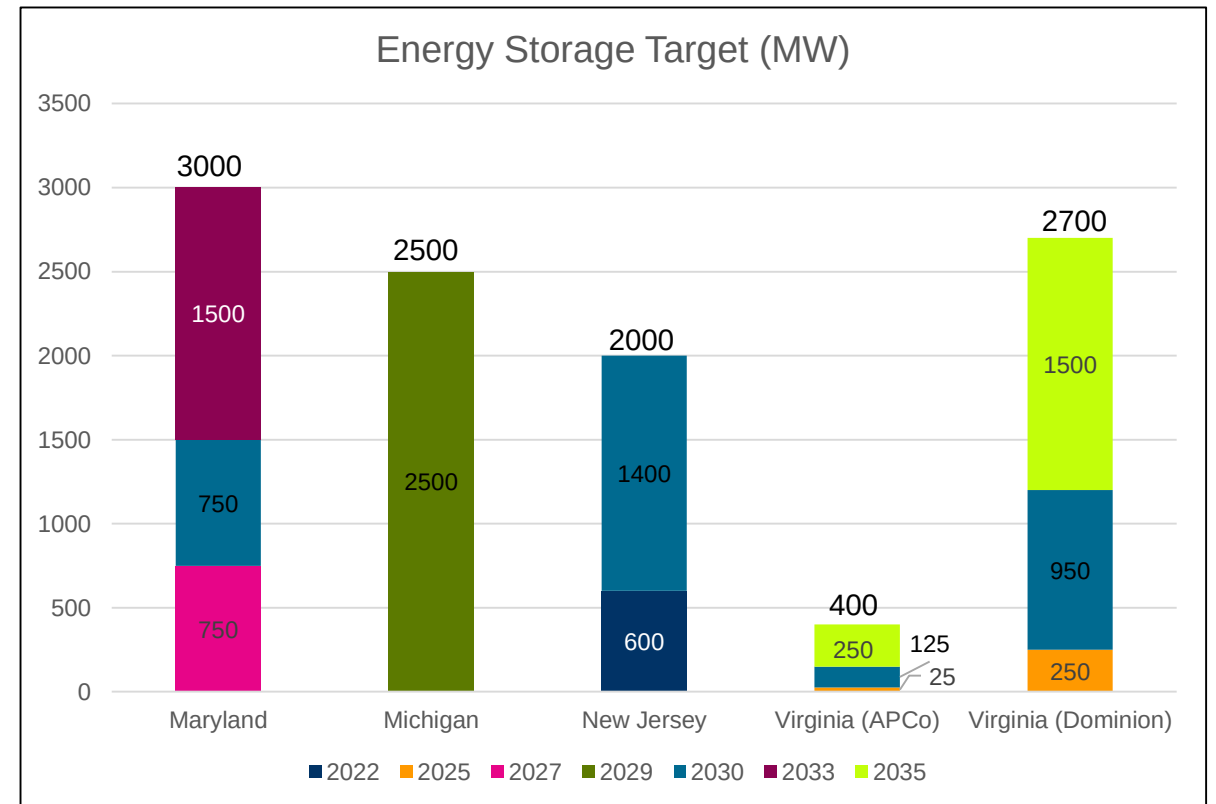
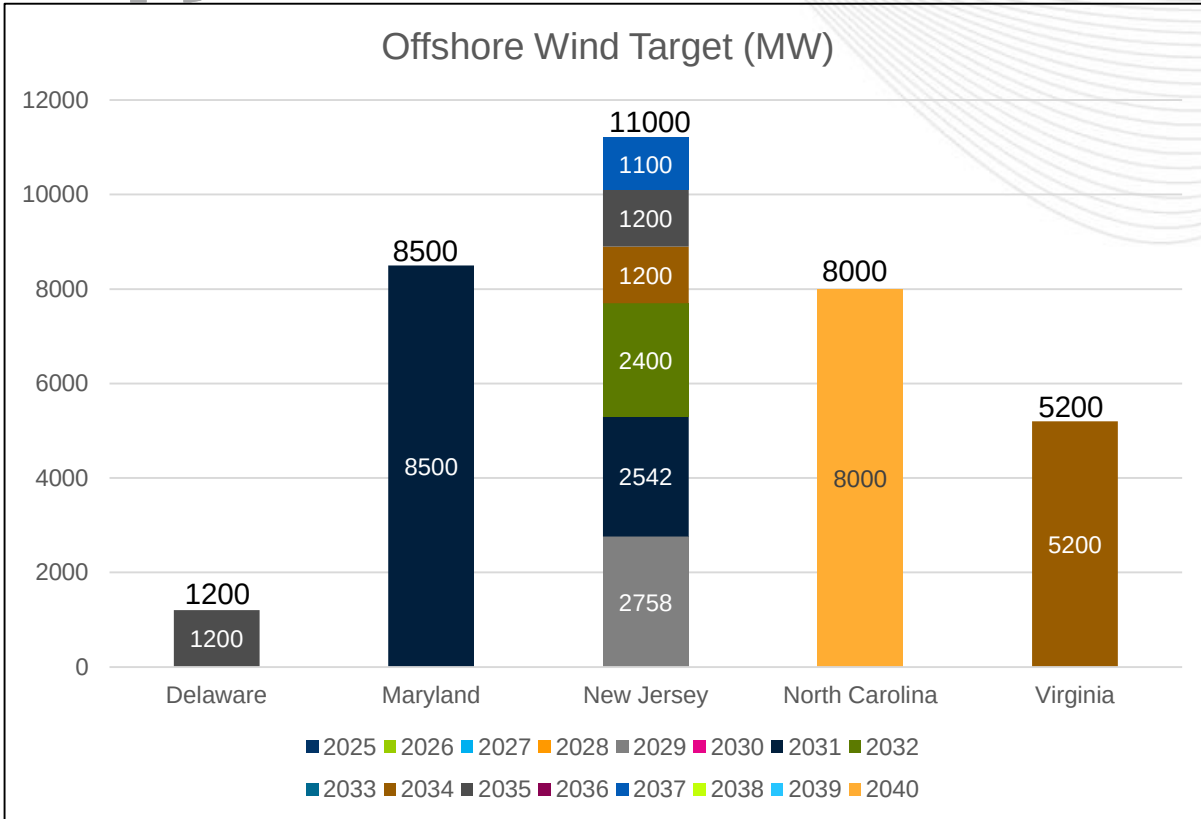






*PJM will model the geographic and technology eligibility rules for RPS Policies

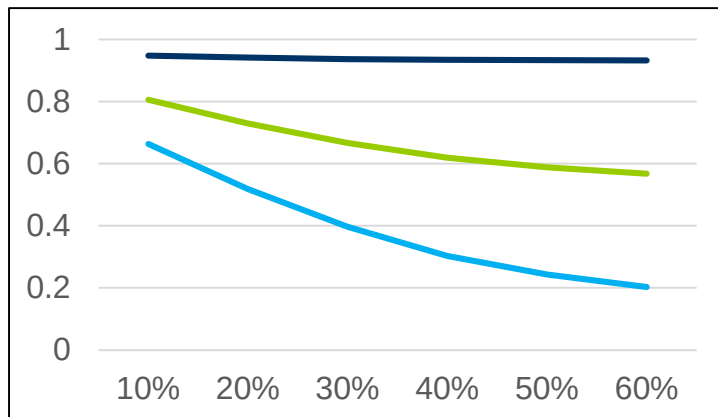
Offshore and Energy Storage Targets



- Enforce the 1-in-10 resource adequacy constraint in the model
 - Resource specific targets will not be considered in satisfying this constraint
- Set ELCC-based capacity constraints to obtain resource adequate expansion (see next slide for ELCC curves)

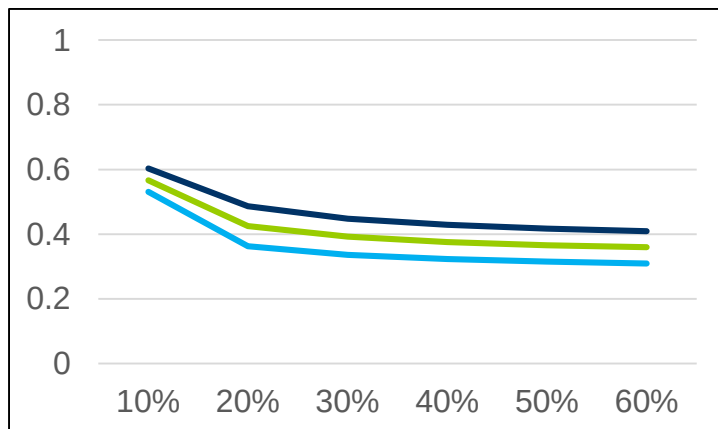
Battery

Summer



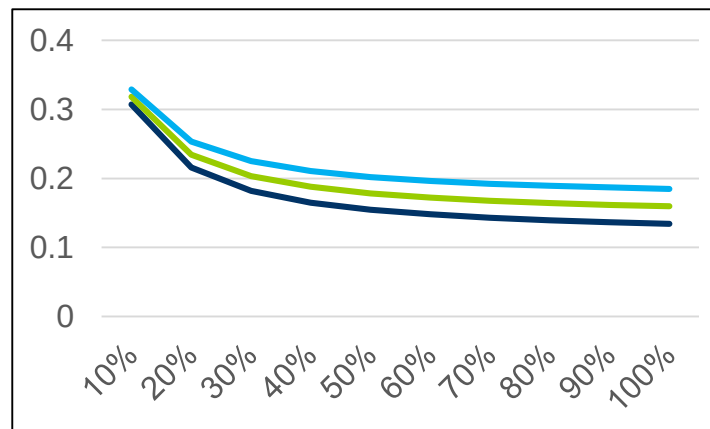
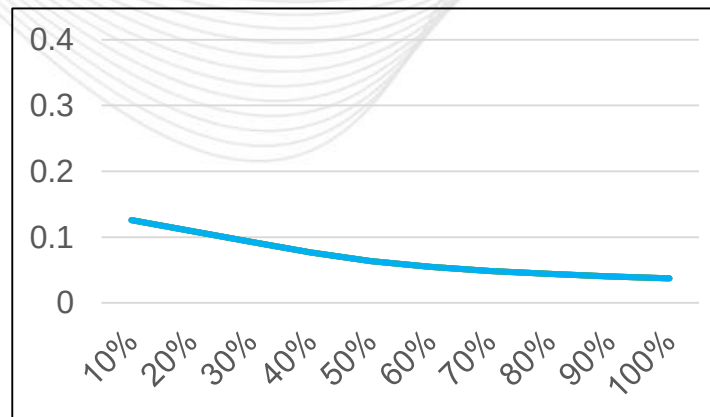
— Battery Low — Battery Medium — Battery High

Winter



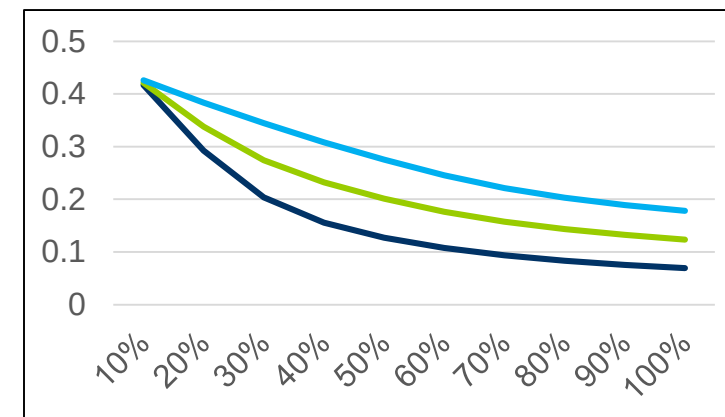
percent of nameplate to annual peak load

Onshore



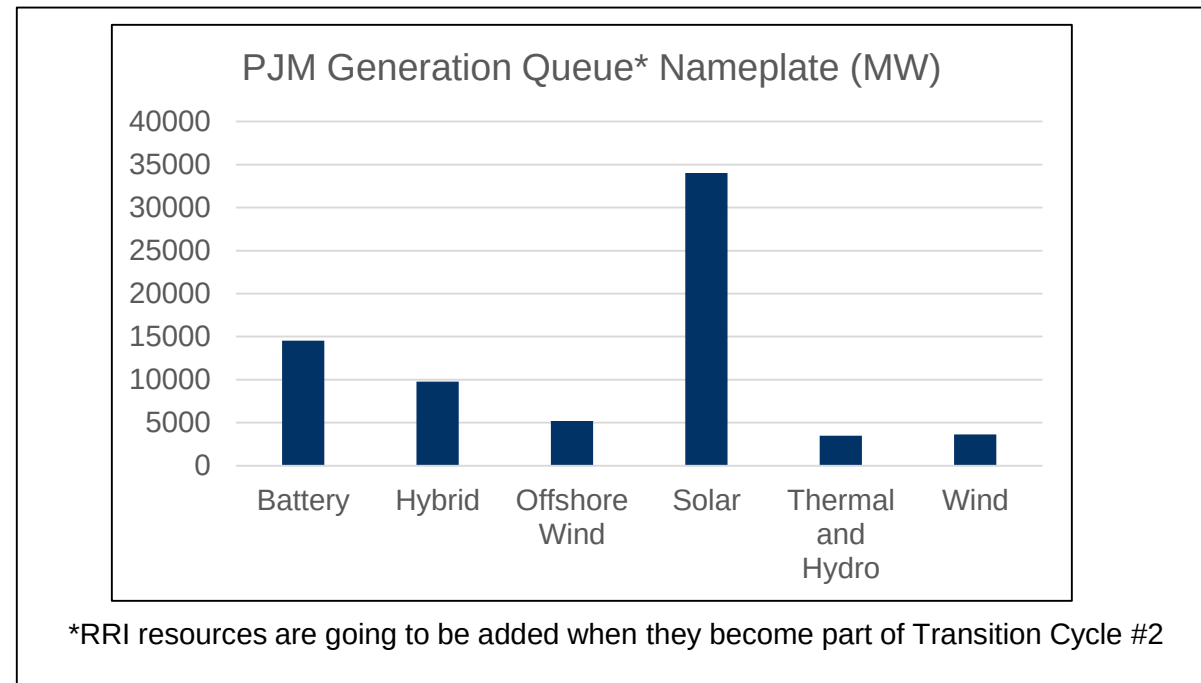
percent of nameplate to annual peak load

Solar



- Solar winter ELCC set to 0
- Hybrid: solar ELCC + 0.5 battery ELCC
- Offshore: 1.7 × onshore ELCC
- CC and CT: 0.95 summer, 0.85 winter
- Coal: 0.87
- Nuclear: 0.99

- Starting resource mix: Consistent with 2025 RTEP model-year 2030 (Existing generation, GIA/ISA generation, Suspended ISA generation, Fast Lane Queue, CVOW and Chesterfield plants)
- The build limits through year 7 are based on the PJM's generation interconnection queue
- After year 7, the model is allowed to build beyond the queue (earlier, if the queue is insufficient)



Presenter:

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Member Hotline

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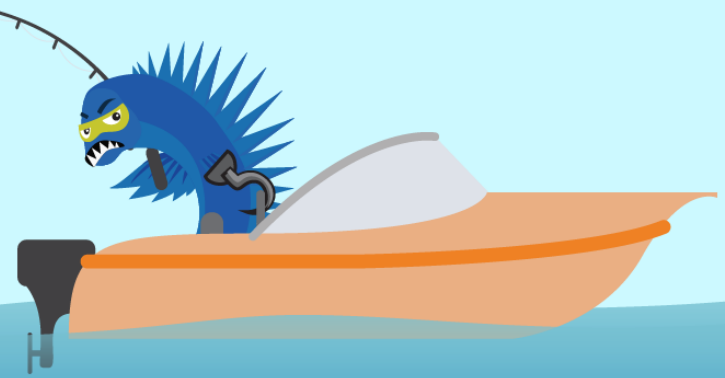
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