Parameter	2022 Study Modeling Assumptions	2023 Study Modeling Assumptions Set #1	2023 Study Modeling Assumptions Set #2	Basis for Assumptions
Load Forecast				
Unrestricted Peak Load Forecast	152,259 MW (2026/2027 DY)	154,275 MW (2027/2028 DY)	Same as Set #1	Forecasted Load growth per 2023 PJM Load Forecast Report, using 50/50 normalized peak.
Historical Basis for Load Model	2002-2012	TBD	Not Applicable	Set #1: Load model selection method approved at the June 6, 2023 PC meeting (see Attachment V). Set #2: Load model reflects peak load uncertainty in the most recent PJM Load Forecast
Forecast Error Factor (FEF)	Forecast Error held at 1 % for all delivery years.	Forecast Error held at 1 % for all delivery years.	Not Applicable	Set #1: Consistent with consensus gained through PJM stakeholder process. Set #2: FEF is not modeled. Model reflects peak load uncertainty in the most recent PJM Load Forecast
Monthly Load Forecast Shape	Consistent with 2022 PJM Load Forecast Report and 2020 NERC ES&D report (World area).	Consistent with 2022 PJM Load Forecast Report and 2020 NERC ES&D report (World area).	Not Applicable	Set #1: Updated data. Set #2: Model reflects monthly peak load uncertainty in the most recent PJM Load Forecast
Daily Load Forecast Shape	Standard Normal distribution and Expected Weekly Maximum (EWM) based on 5 daily peaks in week.	Standard Normal distribution and Expected Weekly Maximum (EWM) based on 5 daily peaks in week.	From each Delivery Year in period DY 2012- DY 2021	Set #1: Consistent with consensus gained through PJM stakeholder process. Set#2: ELCC model uses load shapes for period DY 2012 – DY 2021

Parameter	2022 Study Modeling Assumptions	2023 Study Modeling Assumptions Set #1	2023 Study Modeling Assumptions Set #2	Basis for Assumptions
Capacity Forecast				
Generating Unit Capacities	Coordinated with eRPM databases, EIA-411 submission, and Generation Owner review.	Coordinated with eRPM databases, EIA-411 submission, and Generation Owner review.	Same as Set #1	New RPM Market structure required coordination to new database Schema. Consistency with other PJM reporting and systems.
New Units	Generation projects in the PJM interconnection queue with a signed Interconnection Service Agreement (ISA) will be modeled in the PJM RTO at their capacity MW value.	Generation projects in the PJM interconnection queue with a signed Interconnection Service Agreement (ISA) will be modeled in the PJM RTO at their capacity MW value.	Same as Set #1	Consistent with CETO cases.
ELCC Resources (Variable, Limited-Duration, Combination Resources)	All variable (wind, solar, hydro, landfill gas) and storage-type resources (pumped hydro, batteries, hybrids, and generic limited-duration resources) will be excluded from the RRS.	All variable (wind, solar, hydro, landfill gas) and storage-type resources (pumped hydro, batteries, hybrids, and generic limited-duration resources) will be excluded from the RRS.	Same as Set #1	The capacity value of ELCC resources will be calculated with the ELCC model, which is largely consistent with the RRS.
Firm Purchases and Sales	Firm purchase and sales from and to external regions are reflected in the capacity model. External purchases reduce the World capacity and increase the PJM RTO capacity. External Sales reduce the PJM RTO capacity and increase the World capacity. This is consistent with EIA-411 Schedule 4 and reflected in RPM auctions.	Firm purchase and sales from and to external regions are reflected in the capacity model. External purchases reduce the World capacity and increase the PJM RTO capacity. External Sales reduce the PJM RTO capacity and increase the World capacity. This is consistent with EIA-411 Schedule 4 and reflected in RPM auctions.	Same as Set #1	Match EIA-411 submission and RPM auctions.

Parameter	2022 Study Modeling Assumptions	2023 Study Modeling Assumptions Set #1	2023 Study Modeling Assumptions Set #2	Basis for Assumptions
Retirements	Coordinated with PJM Operations, Transmission Planning models and PJM web site: http://www.pjm.com/planning/generation-retirements.aspx . Consistent with forecast reserve margin graph.	Coordinated with PJM Operations, Transmission Planning models and PJM web site: https://pjm.com/planning/services-requests/gen-deactivations. Consistent with forecast reserve margin graph.	Same as Set #1	Updated data available on PJM's web site, but model data frozen in May 2023.
Planned and Operating Treatment of Generation	All generators that have been demonstrated to be deliverable will be modeled as PJM capacity resources in the PJM study area. External capacity resources will be modeled as internal to PJM if they meet the following requirements: 1.Firm Transmission service to the PJM border 2.Firm ATC reservation into PJM 3.Letter of non-recallability from the native control zone Assuming that these requirements are fully satisfied, the following comments apply: •Only PJM's "owned" share of generation will be modeled in PJM. Any generation located within PJM that serves World load with a firm commitment will be modeled in the World. •Firm capacity purchases will be modeled as generation located within PJM. Firm capacity sales will be modeled by decreasing PJM generation by the full amount of the sale. •Non-firm sales and purchases will not be modeled. The general rule is that any generation that is recallable by another control area does not qualify as PJM capacity and therefore will not be modeled in the PJM Area. •Generation projects in the PJM interconnection queue with a signed Interconnection Service Agreement (ISA) will be modeled in the PJM RTO at their capacity MW value.	All generators (other than ELCC resources) that have been demonstrated to be deliverable will be modeled as PJM capacity resources in the PJM study area. External capacity resources will be modeled as internal to PJM if they meet the following requirements: 1.Firm Transmission service to the PJM border 2.Firm ATC reservation into PJM 3.Letter of non-recallability from the native control zone Assuming that these requirements are fully satisfied, the following comments apply: •Only PJM's "owned" share of generation will be modeled in PJM. Any generation located within PJM that serves World load with a firm commitment will be modeled in the World. •Firm capacity purchases will be modeled as generation located within PJM. Firm capacity sales will be modeled by decreasing PJM generation by the full amount of the sale. •Non-firm sales and purchases will not be modeled. The general rule is that any generation that is recallable by another control area does not qualify as PJM capacity and therefore will not be modeled in the PJM Area. •Generation projects in the PJM interconnection queue with a signed Interconnection Service Agreement (ISA) will be modeled in the PJM RTO at their capacity MW value.	Same as Set #1	Consistency with other PJM reporting and systems.

Parameter	2022 Study Modeling Assumptions	2023 Study Modeling Assumptions Set #1	2023 Study Modeling Assumptions Set #2	Basis for Assumptions
Unit Operational Factors				
Forced and Partial Outage Rates	5-year (2017-21) GADS data. (Those units with less than five years data will use class average representative data.).	5-year (2018-22) GADS data. (Those units with less than five years data will use class average representative data.).	5-year (2018-22) GADS data. (Those units with less than five years data will use class average representative data.). In addition, Mean Time to Failure (MTF) and Mean Time to Repair (MTR) are estimated for each unit consistent with the 2018-2022 period	Set #1: Most recent 5-year period. Use PJM RTO unit fleet to form class average values. Set #2: Most recent 5-year period. Use PJM RTO unit fleet to form class average values. Hourly model requires MTF and MTR metrics
Planned Outages	Based on eGADS data, History of Planned Outage Factor for units.	Based on eGADS data, History of Planned Outage Factor for units.	Same as Set #1	Updated schedules.
Summer Planned Outage Maintenance	In review of recent Summer periods, no Planned outages have occurred.	In review of recent Summer periods, no Planned outages have occurred.	Same as Set #1	Review of historic 2018 to 2022 unit operational data for PJM RTO footprint.
Gas Turbines, Fossil, Nuclear Ambient Derate	Ambient Derate includes several categories of units. Based on analysis of the Summer Verification Test data from the last 3 summers, 2,500 MW out on planned outage over summer peak was confirmed to be the best value to use at this time. This analysis was performed early 2016 under the auspices of the RAAS.	Ambient Derate includes several categories of units. Based on analysis of the Summer Verification Test data from the last 3 summers, 2,500 MW out on planned outage over summer peak was confirmed to be the best value to use at this time. This analysis was performed early 2016 under the auspices of the RAAS.	Same as Set #1	Operational history and Operations Staff experience indicates unit derates during extreme ambient conditions. Summer Verification Test data confirms this hypothesis.
Generator Performance	For each week of the year, except the winter peak week, the PRISM model uses each generating unit's capacity, forced outage rate, and planned maintenance outages to develop a cumulative capacity outage probability table. For the winter peak week, the cumulative capacity outage probability table is created using historical actual (DY 2007/08 – DY 2021/22) RTO-aggregate outage data (data from DY 2013/14 will be dropped and replaced with data from DY 2014/15).	For each week of the year, except the winter peak week, the PRISM model uses each generating unit's capacity, forced outage rate, and planned maintenance outages to develop a cumulative capacity outage probability table. For the winter peak week, the cumulative capacity outage probability table is created using historical actual (DY 2007/08 – DY 2022/23) RTO-aggregate outage data.	Same as Set #1	New methodology to develop winter peak week capacity model to better account for the risk caused by the large volume of concurrent outages observed historically during the winter peak week.

Parameter	2022 Study Modeling Assumptions	2023 Study Modeling Assumptions Set #1	2023 Study Modeling Assumptions Set #2	Basis for Assumptions
Class Average Statistics	PJM RTO fleet Class Average values. 73 categories based on unit type, size and primary fuel.	PJM RTO fleet Class Average values. 73 categories based on unit type, size and primary fuel.	Same as Set #1	PJM RTO values have a sufficient population of data for most of the categories. The values are more consistent with planning experience.
Uncommitted Resources	Behind the meter generation (BTMG) is not included in the capacity model because such resources cannot be capacity resources. The impact of behind the meter generation (BTMG) is reflected on the load side.	Behind the meter generation (BTMG) is not included in the capacity model because such resources cannot be capacity resources. The impact of behind the meter generation (BTMG) is reflected on the load side.	Same as Set #1	Consistency with other PJM reporting and systems.
Generation Owner Review	Generation Owner review and sign-off of capacity model.	Generation Owner review and sign-off of capacity model.	Same as Set #1	Annual review to insure data integrity of principal modeling parameters.
Load Management and Energy Efficiency				
Load Management and Energy Efficiency	**PJM RTO load management modeled per the January 2022 PJM Load Forecast Report (Table B7)**	PJM RTO load management modeled per the January 2023 PJM Load Forecast Report (Table B7)	Same as Set #1	Model latest load management and energy efficiency data. Based on Manual 19, Section 3 for PJM Load Forecast Model.
Emergency Operating Procedures	IRM reported for Emergency Operating Procedures that include invoking load management but before invoking Voltage reductions.	IRM reported for Emergency Operating Procedures that include invoking load management but before invoking Voltage reductions.	Same as Set #1	Consistent reporting across historic values.
Transmission System				
Interface Limits	The Capacity Benefit Margin (CBM) is an input value used to reflect the amount of transmission import capability reserved to reduce the IRM. This value is 3,500 MW.	The Capacity Benefit Margin (CBM) is an input value used to reflect the amount of transmission import capability reserved to reduce the IRM. This value is 3,500 MW. See main assumptions document for CBOT calculation.	Not Applicable. See main assumptions document for CBOT calculation.	Set #1: Reliability Assurance Agreement, Schedule 4, Capacity Benefit Margin definition. Set #2: Model only includes PJM region