PJM's Compliance Approach to Order 1920 Regional Requirements: Recap of March 13 and April 10 Materials

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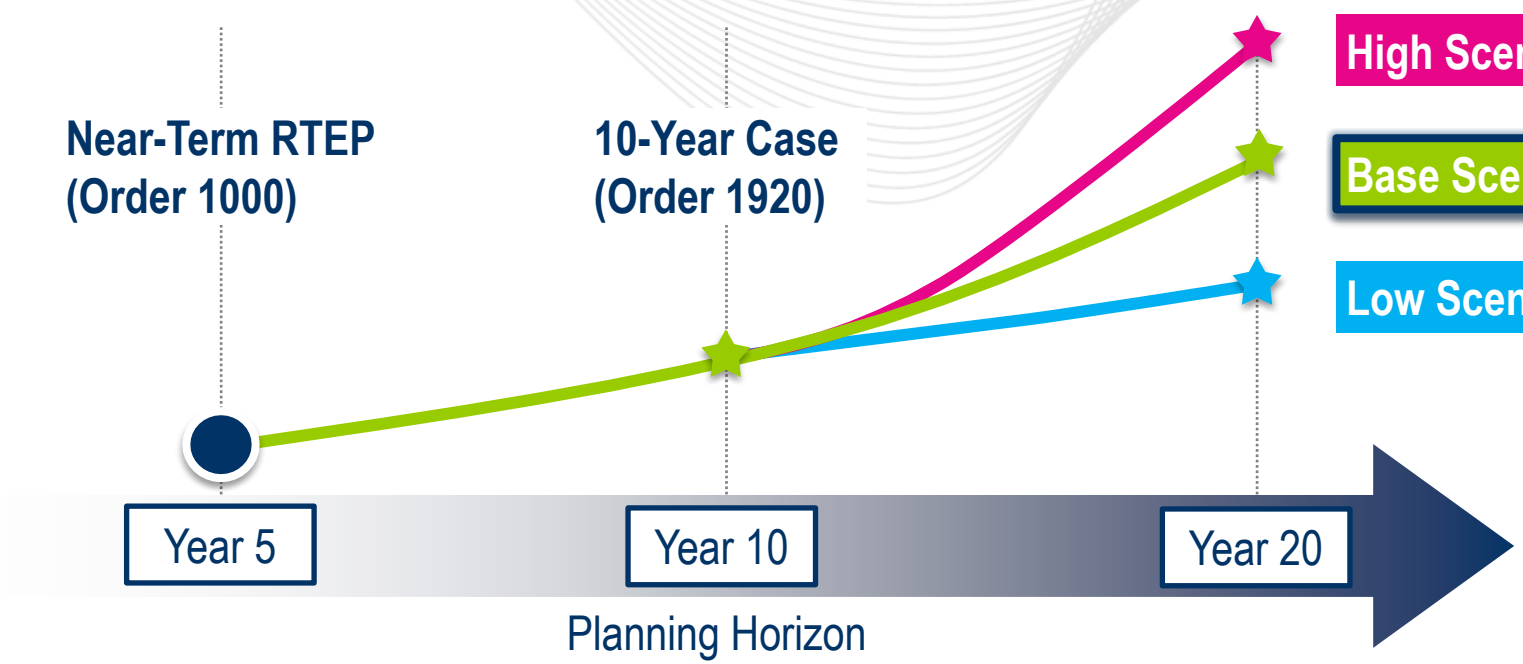
Agenda

- Topics covered in March 13 and April 10 special TEACs:
  - Scenario Framework and Factor Categories
  - Analysis and identification of LT Needs – Core and Additional
  - Benefits
  - Evaluation, Selection, and Voluntary Funding Opportunities
  - Reevaluation
  - Coordination between Interconnection and Order 1000 processes
- Detailed Materials available at:
  - https://www.pjm.com/-/media/DotCom/committees-groups/committees/teac/2025/20250313-special/item-04---compliance-approach-to-some-fo1920-ltrtp-requirements.pdf
  - https://www.pjm.com/-/media/DotCom/committees-groups/committees/teac/2025/20250410-special/item-04---fo1920-compliance-approach---additional-considerations-on-ltrtp.pdf
  - https://www.pjm.com/-/media/DotCom/committees-groups/committees/teac/2025/20250410-special/item-05---fo1920-compliance-approach--benefits.pdf
  - https://www.pjm.com/-/media/DotCom/committees-groups/committees/teac/2025/20250410-special/item-06---fo1920-compliance-approach---re-evaluation.pdf
  - https://www.pjm.com/-/media/DotCom/committees-groups/committees/teac/2025/20250410-special/item-07---fo1920-compliance-approach---interconnection-needs.pdf

Long-Term (LT) Scenario Framework and Factor Categories



- Consult with PARSEC on Factor Categories 1-3, 7
- FC 1-3 not discounted
- Best available data

- Base Scenario is most probable
  - Year-10 case in addition to required Year-20 cases
- Low and High Scenarios are bookends for transmission needs
- Extreme weather sensitivities for each scenario aligned with TPL-008 standard

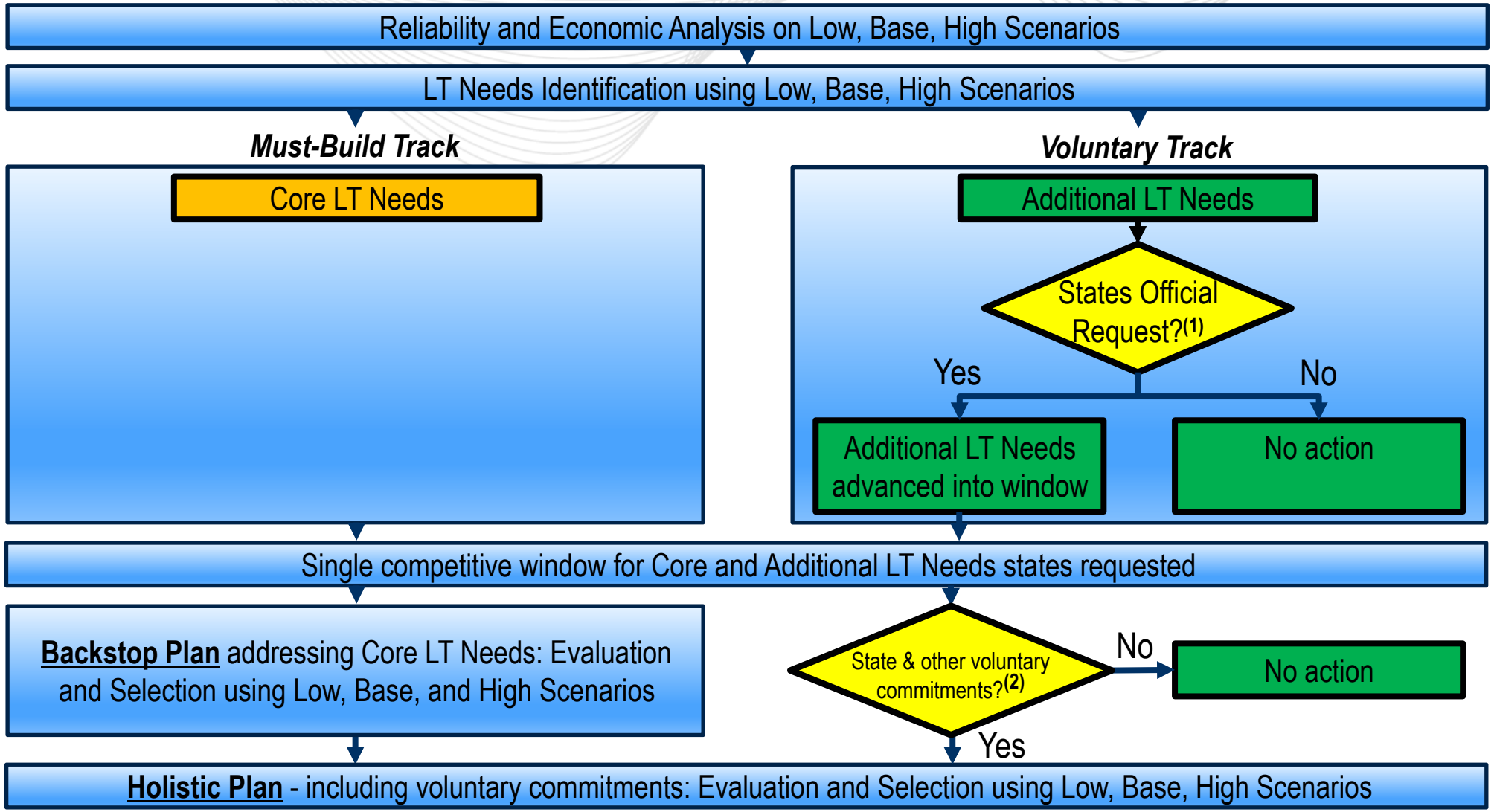
Analysis and LT Needs

- ***Analysis***: reliability and economic tests
  - Year-10 analyses integrate and inform NT and LT planning
  - Year-20 analyses simplified to identify needs requiring long-lead solutions
- ***LT Needs***: needs from the Analysis that may require long-lead solutions (6 years or more)
  - Voltage level, severity, number and geographic concentration of issues
  - Order 1920 does not require PJM to select any LT Facility
    - PJM will identify “Core” LT Needs to establish a minimum set of actionable needs
    - “Additional” LT Needs establish a supplementary set of actionable needs that the states will work with PJM on how to best address

Addressing LT Needs (Process Flow Chart)

1) These decisions can be made by a single state, by a group of states, or collectively by PARSEC – each category of project needs to have its own *ex-ante* cost allocation per Order 1920

2) States' decision to pursue Additional LT Needs and Voluntary Funding Opportunities, also for interconnection customers, per Order 1920 requirement



Order 1920 Required Benefits

- Avoided aging infrastructure replacements (1) combined with a new approach to calculate energy (3, 4, 5) and capacity related benefits (2, 6, 7) using a single, integrated production cost simulation that accounts for both normal conditions and extreme events (see appendix)
- *Advantages*: interpretability, comprehensive, no double-counting, automation/computation

Required Benefits		
1.	Avoided or deferred reliability transmission facilities and aging transmission infrastructure replacement	*Transmission*
2.	a) Reduced loss of load probability *or* b) Reduced planning reserve margin	*Capacity*
3.	Production Cost Savings	*Energy*
4.	Reduced Transmission Energy Losses	*Energy*
5.	Reduced Congestion Due to Transmission Outages	*Energy*
6.	Mitigation of Extreme Weather Events and Unexpected System Conditions	*Energy/Capacity*
7.	Capacity Cost Benefits from Reduced Peak Energy Losses	*Capacity*

Evaluation and Selection

- ***Evaluation***: sequential steps to screen and score candidate solutions

  1) Feasibility (cost and constructability); 2) Do-no-harm; 3) Projects address Core LT Needs or Additional LT Needs with commitments 4) Benefits

- ***Selection***:
  - Required in-service date vis-a-vis lead-time of the LT Solution; robustness across Scenarios/sensitivities; expandability; constructability; operational performance and flexibility; benefits and costs
  - No benefit-cost minimum threshold

- **Voluntary Funding**: states and interconnection customers can select solutions that PJM did not select
  - Address Additional LT Needs
  - Select a different solution that selected by PJM

Re-Evaluation

- Order 1920 requires re-evaluation only in these circumstances:
  1. **DELAY**s – check that the updated Projected ISD meets the up-to-date Required ISD
  2. **COST**s – Update cost and compare to a trigger value
  3. **LAW**s – PJM discretion in determination of a laws/regs with significant impact
- Point after which no re-evaluation
  1. Long-term permits/milestones
  2. 100% achieved, re-evaluation cannot proceed, 50-99% PJM discretion

Interconnection and Order 1000 Processes

- Order 1920 requires PJM to evaluate for selection in Order 1000 processes certain needs identified through the interconnection process
  - current (in last seven years), repeated (at least twice within 5 years), significant (at least $30 mil. and 200kV), unaddressed (projects withdrew and upgrade not in existing GIA)
- PJM to post these needs in the Order 1000 reliability window along with reliability criteria violations
- PJM will evaluate for selection solutions that address reliability-driven criteria violations along with the identified interconnection-related transmission needs

Appendix

Order 1920 Required Seven Factor Categories (*Recap*)

Required Factor Categories
1. Laws and regulations affecting future resource mix and demand
2. Laws and regulations on decarbonization and electrification
3. Integrated Resource Plans and expected supply obligations for LSEs
4. Trends in technology and fuel costs within and outside of the electricity supply industry, including shifts toward electrification of buildings and transportation
5. Retirements
6. Generation interconnection requests and withdrawals
7. Utility commitments and other public policy goals

Examples of Core LT Needs and Additional LT Needs

***Core LT Needs*: identified through reliability tests (e.g. generation deliverability) and associated with:**	
Load Forecast	Examples: • Electrification targets • DER targets • Data centers
Deactivations (announced and anticipated policy-driven deactivations)	Examples: • EPA Coal Combustion Residuals • Illinois CEJA
Generation up to 1-in-10 resource adequacy target criteria, with consideration of policies affecting new generation, except resource-specific targets*	Examples, *if needed to meet up to the 1-in-10 reliability criteria*: • Delaware 28% RPS target by 2030 • Maryland 14.5% RPS solar carve-out by 2030

***Additional LT Needs*: any LT Need that is not Core**	
Stand-alone economic needs	Examples: • Significant congestion on a high voltage line • Significant curtailments
Generation above 1-in-10 resource adequacy target criteria	Examples: • Least-economic policy driven generation above 1-in-10 (e.g., if states' RPS are such to drive generation above 1-in-10) • Virginia's OSW target of 5.2 GW by 2034 • Michigan's storage target of 2.5 GW by 2029

* Unless resources have GIA, WMPA or completed SAA. Currently these resource-specific targets correspond to "State Energy Storage Targets" and "State Offshore Wind Targets" tabs of the State Policies Workbook.

Benefits 2, 6, 7: New Approach

Identification Of Critical Events
(e.g. through PJM resource adequacy tool*)

Normal Conditions
8760 hours

Extreme Weather Conditions, e.g., 1000 hours, probability weight corresponding to 1-in-10 criteria

Benefits 3-5

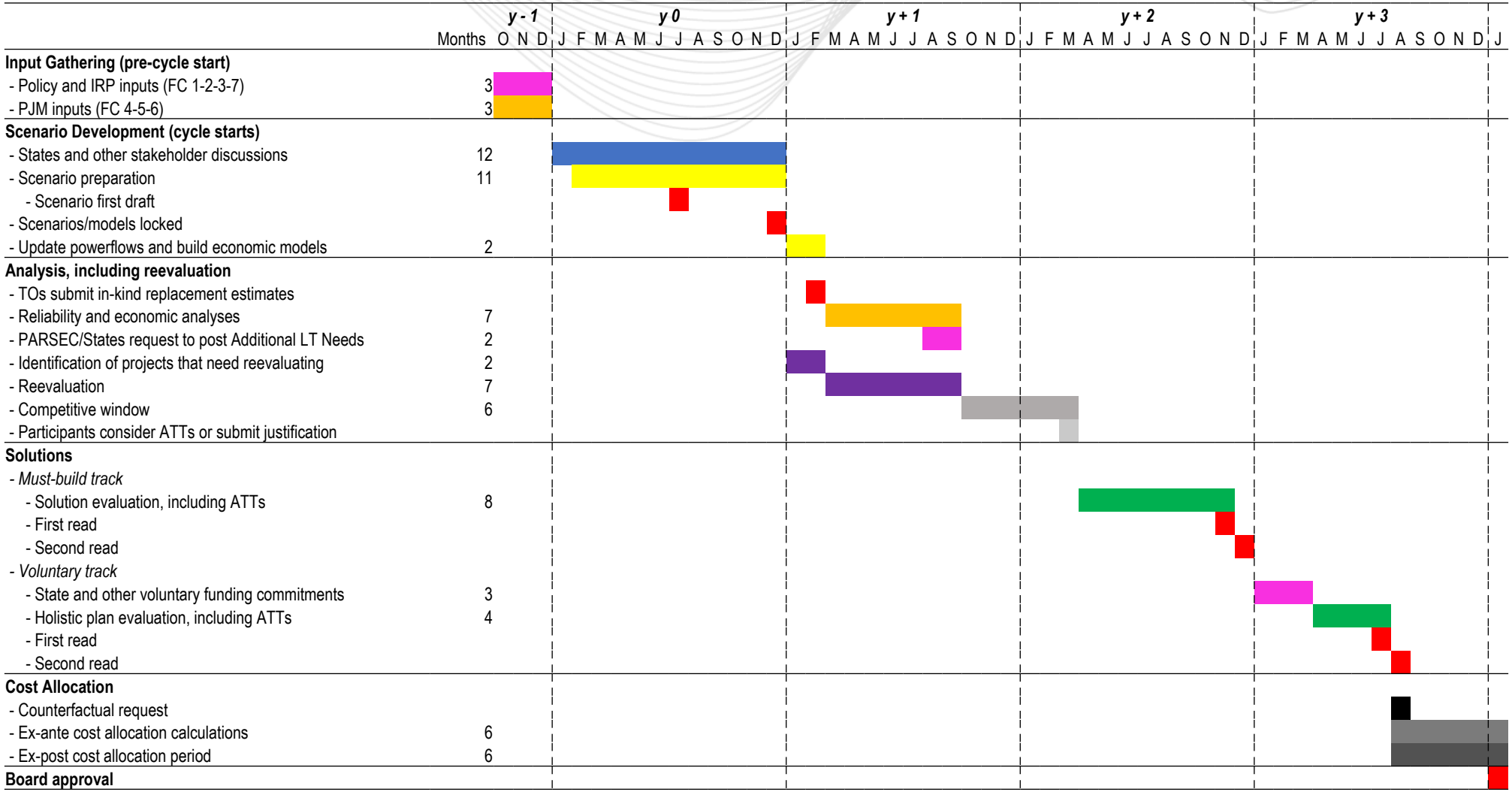
3. Adjusted Production Cost Savings
4. Savings from reduced energy losses
5. Reduced congestion from transmission outages

Benefits 2-6-7

2. Reduced load shedding
6. Mitigation of extreme events
7. Capacity benefits of reduced energy losses

* e.g., Event 1 load from PV2 (2/2015) and performance from PV1 (1/2014); Event 2 is load from PV1 and performance from Winter Storm Elliott

LTRTP Cycle



Scenario Development, Detailed Stakeholder Process

	Months
Input gathering from states, local authorities, and tribes	3
- PJM gathers policy inputs from states, local authorities, federal-recognized tribes	3
Initial assumption discussion with states and other stakeholders	4
- PJM develops assumptions for Base/Low/High Scenarios	2
- States and other stakeholders provide feedback on assumption	
- PJM reviews feedback and presents updated assumptions	
- PARSEC requests at most one additional scenario	
PJM develops LT Scenarios *draft* and continue to gather feedback	
- PJM develops and presents Base/Low/High Scenarios draft	3
- Stakeholders/states provide feedback	
- PJM reviews feedback and presents updated scenario assumptions	
PJM finalizes LT Scenarios	3
- PJM finalizes capacity expansion for Base/Low/High Scenarios	2
- PJM presents finalized Scenarios