



Market Efficiency Process Enhancement Task Force

July 26, 2018

Markets & Reliability Committee

- [Market Efficiency Process Enhancement](#) approved in January 2018
 - Address challenges and opportunities for improvements to the Market Efficiency process since implementing Order 1000 processes in two phases
- Phase 1 key discussion areas:
 - Benefits-to-Cost Calculation (Energy and Capacity) - **recommend partial push to phase 2**
 - Regional Targeted Market Efficiency Projects – **recommend push to phase 2**
 - Modeling of Facility Study Agreement (FSA) Generators
 - Market Efficiency Reevaluation Process – **recommend push to phase 2**
 - Interregional Market Efficiency Project Selection Process (See M-14F update)

88.9%

Make a Change

49%

Package A'

23%

Package B

30%

Package C

10%

Package D

29%

Package E

27%

Package F

- No package received majority support; majority prefer to make a change
- Major points of contention included:
 - Exclude FSAs from base case unless needed (Packages A',B,E,F) – 53% in favor
 - Project reevaluation criteria - \$20M cap (Packages A',C,E) vs. \$10M cap (Packages B,D) – Nothing above 30% in favor
 - Energy benefits calculation – simulation years, trend mechanism differences

- The task force utilized the July 5th meeting to discuss the polling results, including results from specifically polled design components
 - Below design components garnered the most support



FSA Modeling

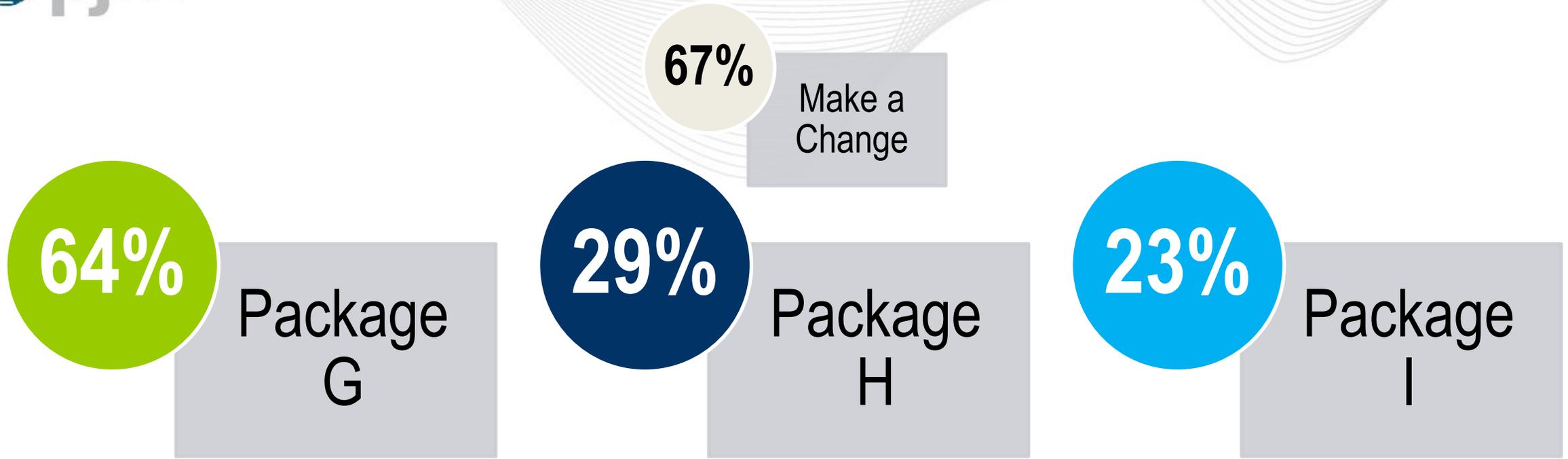
By default, exclude from the base case the FSA and Suspended ISA resources and their associated network upgrades at the time of case build. Conduct required FSA sensitivity studies to be used for proposal evaluations but not for b/c ratio test.



Benefit Adjustment

Energy benefits of projects that are proposed to be in service later than the RTEP year will be adjusted to account for any savings forgone due to later in-service date

- Based on the polling results the task force developed three packages – G, H, I
- [These packages](#) include a subset of Phase 1 design components including:
 - FSA modeling (3 options)
 - Benefits adjustment for in-service date (2 options)
 - Sensitivity documentation/transparency (2 options)
 - Fixed generator and transmission topology to RTEP levels for all simulated years



- Package G received majority support; majority prefer to make a change
- Major points of contention included:
 - Exclude FSAs from base case (G) vs. Scale FSA MW capability to 40% (H)
 - Benefit adjustment for in-service date
- 21 responders; 148 companies

Component	Status Quo	PJM Modification	PJM Reasoning
FSA Modeling	Consider all FSA and Suspended ISA resources at time of case build	<p>By default, exclude from the base case the FSA and Suspended ISA resources, and their associated network upgrades at time of case build.</p> <p>FSA sensitivity studies will be used for proposal evaluations, but not for B/C ratio test.</p>	Including FSAs in the Market Efficiency Base Case can result in unrealistic estimates of specific benefits for any system reinforcement due to having significantly more generation than the reserve requirement.
FSA Exception	If FSA or Suspended ISA resources are excluded from the base case at time of case build, TEAC should be notified.	If FSA or Suspended ISA resources are included in the base case at time of case build or mid-cycle update, TEAC will be notified and the assumptions will be reviewed at TEAC on an as needed basis.	In the case of including FSA or suspended ISA resources in the base case, TEAC will be notified and the assumptions will be reviewed at TEAC
Criterion to Include FSAs	Not defined. PJM practice includes all.	In case of a reserve deficiency, include FSA and Suspended ISA resources (as well as the expected network upgrades) ranked by their commercial probability, until the reserve requirement is met.	In the case of including FSA or suspended ISA resources in the base case, TEAC will be notified and the assumptions will be reviewed at TEAC

Component	Status Quo	PJM Modification	PJM Reasoning
Benefit Adjustment for In-Service Date	N/A	Energy benefits of projects that are proposed to be in service later than the RTEP year will be adjusted to account for any savings forgone due to later in-service date.	It is PJM's goal to address Market Efficiency constraints via transmission solutions by the RTEP year, and to incentivize projects that are designed and proposed to be in service by the RTEP year. Therefore, PJM will adjust energy benefits of projects that are proposed to be in service later than the RTEP year to account for any savings forgone due to later in-service date.
Sensitivities	For informational purposes only	Mandatory sensitives are conducted yearly with the inclusion of FSA units, only if FSA units are excluded from base case analysis. Sensitivities are not used to B/C ratio test but are considered when reviewing a proposals robustness and sizing. (Documents Status Quo)	Enhance Transparency

Component	Status Quo	PJM Modification	PJM Reasoning
Sensitivity Parameters	N/A	Mandatory sensitivities parameters are decided prior to beginning of window.	Enhance Transparency
Generator Retirement Plan	Aligned with simulation year	In all simulated years, generation and transmission topology are set at RTEP year level	Mitigate benefit uncertainty driven by topology and generation

Component	Status Quo	PJM Modification	PJM Reasoning
Benefit Calculation Simulation Years	RTEP-4, RTEP, RTEP+3 and RTEP+6	RTEP-2, RTEP, RTEP+2, RTEP+4. In all simulated years, generation and transmission topology are set at RTEP year level	Mitigate benefit uncertainty driven by transmission topology, generation, load and fuel prices
Trend Simulation Years	RTEP-4, RTEP, RTEP+3, RTEP+6 and RTEP+10 (as needed)	RTEP-2, RTEP, RTEP+2, RTEP+4. Linear trend replaces interpolated values between RTEP-2 and RTEP+2.	To ensure that the overall project benefits are not driven by extrapolated benefits in farther out years with higher uncertainty, a 10-year B/C ratio sensitivity will be calculated based on 10 years of annual benefit and 10 years of annual revenue requirement, starting from project in-service date, capped at RTEP+10.
Regional & Lower Voltage Benefit Calculation Period	15 years from in-service year	15 years from in-service year, capped at RTEP+15	The benefit calculation beyond RTEP year is uncertain – this proposal will cap annual benefits and annual revenue requirements for all projects at RTEP+15, regardless of their in-service date.

Component	Status Quo	PJM Modification	PJM Reasoning
Benefit Adjustment for In-Service Date	N/A	Energy benefits of projects that are proposed to be in service later than the RTEP year will be adjusted to account for any savings forgone due to later in-service date.	It is PJM's goal to address Market Efficiency constraints via transmission solutions by the RTEP year, and to incentivize projects that are designed and proposed to be in service by the RTEP year. Therefore, PJM will adjust energy benefits of projects that are proposed to be in service later than the RTEP year to account for any savings forgone due to later in-service date.
Sensitivities	For informational purposes only	Sensitivity parameters and definitions will be decided by PJM prior to the beginning of the window. PJM reserves right to add sensitivities as necessary. (Documents Status Quo)	Enhance Transparency

Component	Status Quo	PJM Modification	PJM Reasoning
FSA Modeling	Consider all FSA and Suspended ISA resources at time of case build	<p>By default, exclude from the base case the FSA and Suspended ISA resources, and their associated network upgrades at time of case build.</p> <p>FSA sensitivity studies will be used for proposal evaluations, but not for B/C ratio test.</p>	Including FSAs in the Market Efficiency Base Case can result in unrealistic estimates of specific benefits for any system reinforcement due to having significantly more generation than the reserve requirement.
FSA Exception	If FSA or Suspended ISA resources are excluded from the base case at time of case build, TEAC should be notified.	If FSA or Suspended ISA resources are included in the base case at time of case build or mid-cycle update, TEAC will be notified and the assumptions will be reviewed at TEAC on an as needed basis.	In the case of including FSA or suspended ISA resources in the base case, TEAC will be notified and the assumptions will be reviewed at TEAC
Criterion to Include FSAs	Not defined. PJM practice includes all.	In case of a reserve deficiency, include FSA and Suspended ISA resources (as well as the expected network upgrades) ranked by their commercial probability, until the reserve requirement is met.	In the case of including FSA or suspended ISA resources in the base case, TEAC will be notified and the assumptions will be reviewed at TEAC

Component	Status Quo	PJM Modification	PJM Reasoning
<p>Reevaluation Criteria</p>	<p>Costs and benefits of new economic-based enhancements or expansions shall be evaluated annually to ensure these projects continue to be economical.</p>	<p>PJM will only reevaluate projects with a capital cost of \$20M or higher. For projects with a cost less than \$20M, if project cost increases such that the B/C ratio (given the original benefits) falls below 1.25, then PJM will study the impacts of cancelling the project. PJM will stop reevaluating projects once the project completes 20% of its construction within the Engineering and Procurement status as described on PJM transmission construction status page, or once the CPCN certificate is filed, as applicable, whichever occurs first.</p>	<p>The reevaluation process is very complicated due to the large number of market efficiency projects in the RTEP, the undefined order in which the projects have to be reevaluated, and the uncertainty regarding other assumptions including transmission topology, generation, fuel costs and facility expected in-service dates.</p> <p>Utilizing a \$20M cost of capital cap reduces the number of projects to be reevaluated, and hence reduced the reevaluation complexities.</p>

- Next Meeting Scheduled for August 17th
 - Begin discussions for Phase 2
- Endorsements at August PC/MRC
 - Any potential changes will be effective for 18/19 Long Term Window
 - OA endorsement at September MC for December 1, 2018 effective date