

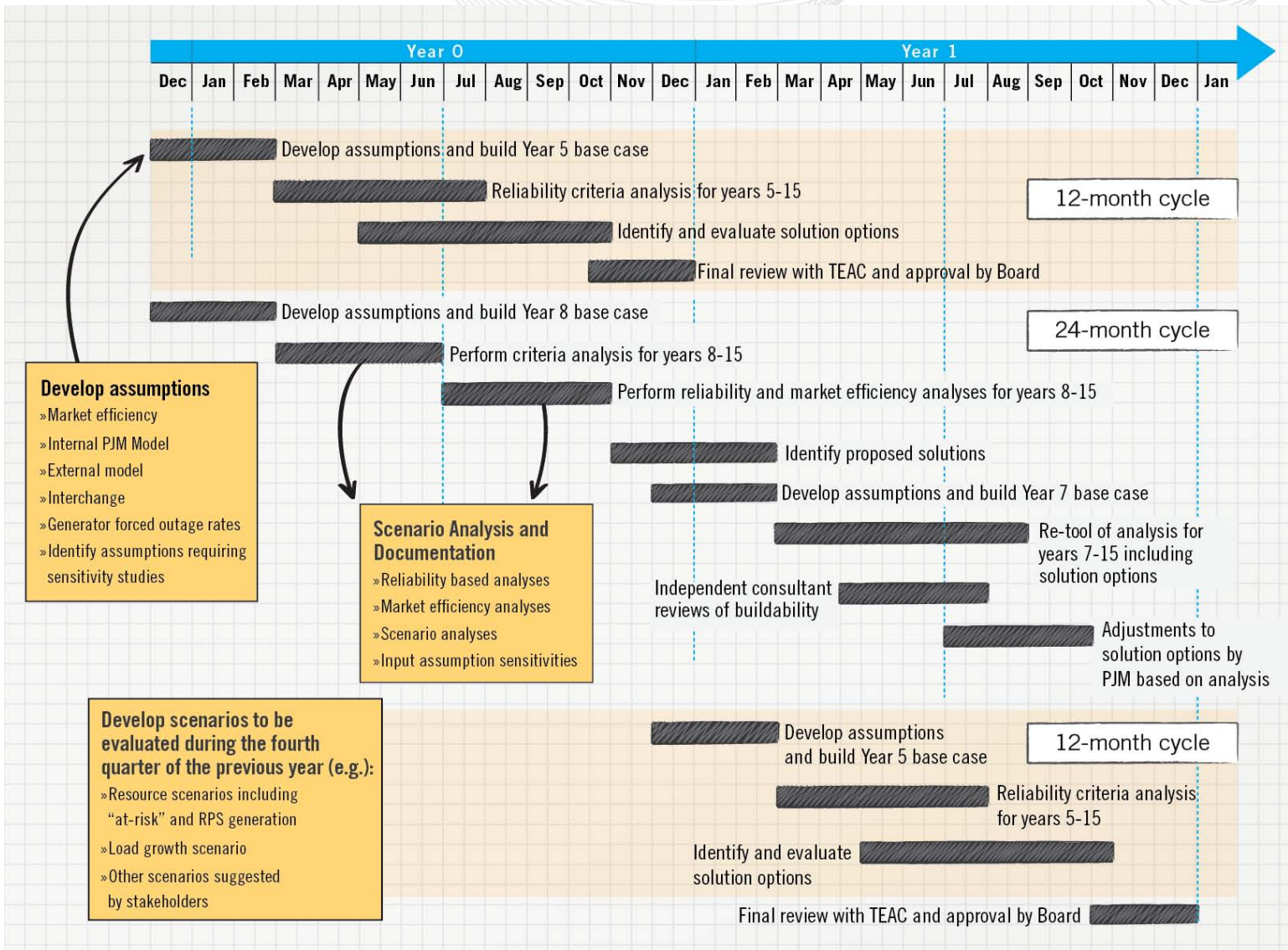
Order 1000 Compliance Strawman

Multi-Driver Issues

RPPTF
July 19, 2012

- 12-month cycle
 - Intended to examine reliability at all voltage levels over years 1-5
 - Re-examines previously approved projects based on changing conditions
 - Board approves 400 – 450 projects each year
 - Most projects are identified for years 4 and 5 of planning cycle
- 24-month cycle
 - Intended to look at higher voltage, more regional issues over years 7-15
 - Targets reliability needs in year 7 and beyond
 - Identifies market efficiency needs at all voltage levels
 - Will include analysis of public policy needs

24 Month and 12 Month Planning Cycles



- Intent of 24-month cycle is to catch all “developing” reliability criteria violations before they get to short-term analysis
- 12-month cycle will catch short-term issues that result from retools and problems that “pop up” for the first time
- 24-month cycle will include analysis of reliability, market efficiency, and public policy to identify all needs on the transmission system

- **Development of assumptions**
 - Consistent with FYI Process, PJM will work with all stakeholders to develop assumptions applicable to reliability, market efficiency, and public policy analyses at the beginning of each planning cycle
 - Consistent with FYI Process and State Agreement Approach, PJM will work with states to develop and understand the specific public policy requirements of each state and their desire to have those requirements included in the assumptions applicable to RTEP public policy analyses

- Identification of need
 - Perform reliability, market efficiency, and public policy analysis over planning horizon through 24-month cycle
 - Produce needs analysis for all drivers before November, during the first 12 month period of the 24-month cycle
 - Solicit proposals during 4-month period (November – February) to resolve individual needs or combinations of needs
 - Longer-term analysis (e.g. year 10 and beyond) will provide information to the market that should allow for the development of non-transmission solutions through the interconnection process

- Evaluation of solution options
 - Solutions to reliability criteria violations must be developed, independent of market efficiency and public policy needs, to ensure that NERC standards can be met
 - Proposals will likely be developed that address individual drivers and/or combinations of drivers
 - Analysis, following proposal window, will validate needs based on updated models and evaluate effectiveness of solution options
 - Process will work to develop most effective transmission projects with respect to resolution of multiple drivers

- Multi-driver projects
 - Operating Agreement currently provides for reliability solutions coupled with market efficiency solutions
 - Reliability solutions are developed first
 - Market efficiency solutions are developed incrementally – market efficiency test (1.25 benefit/cost ratio) is applied to additional cost of market efficiency solution above cost of reliability solution
 - Future multi-driver projects could involve
 - Reliability and market efficiency
 - Reliability and public policy
 - Market efficiency and public policy
 - Reliability, market efficiency, and public policy
 - Other drivers, such as aging infrastructure or operational performance, may also be addressed

- **Prioritization of drivers will impact cost allocation**
 - Hierarchical approach
 - Reliability always comes first
 - Pick some order for other drivers
 - Identify solutions to individual drivers and stack incremental costs associated with each additional driver
 - Incremental cost goes into bucket for that driver and allocated according to rules associated with that driver
 - Equal priority approach
 - Identify solutions to individual drivers and compare to total cost of most effective multi-driver solution package
 - Pro-rate costs of individual solutions down to cost of multi-driver solution package
 - Pro-rated costs go into bucket for each driver and allocated according to rules associated with that driver

1. Two Projects Addressing Same Reliability But Different Market Efficiency at **Different** Costs

a) Project X:

- 1) Cost of **\$140M** (PV)
- 2) Addresses Reliability Violations 1-9
- 3) Provides \$75M (PV) Worth of Market Efficiency Benefit
- 4) No Single-Driver Project Relieves that \$75M of Congestion

b) Project Y:

- 1) Cost of **\$180M** (PV)
- 2) Addresses Reliability Violations 1-9
- 3) Provides \$200M (PV) Worth of Market Efficiency Benefit
- 4) No Single-Driver Project Relieves that \$200M of Congestion

2. PJM Selects Project Y Over Project X Only IF:
 - a) Ratio of Incremental Market Efficiency Benefit (Y-X) to Incremental Cost (Y-X) > 1.25
 - b) Ratio = $(\$200M - \$75M) / (\$180M - \$140M)$
 $= \$125M / \$40M = 3.125$

3. Conclusion: PJM Selects Project Y
 - a) PJM Allocates \$180M Cost of Multi-Driver Project to RTEP Drivers Based on Relative Benefits as Follows:
 - ✓ \$140M to Reliability Driver, and
 - ✓ \$40M to Market Efficiency Driver (Based on Incremental Benefit/Cost Ratio Analysis)

1. Two Projects Addressing Same Reliability But Different Public Policy at **Different** Costs
 - a) Project X:
 - 1) Cost of **\$150M**
 - 2) Addresses Reliability Violations 1-9
 - 3) Does NOT Address Public Policy Specified in State Agreement
 - 4) Single-Driver Project Addresses Public Policy for \$100M
 - b) Project Y:
 - 1) Cost of **\$200M**
 - 2) Addresses Reliability Violations 1-9
 - 3) Does Address Public Policy Specified in State Agreement
 - 4) Single-Driver Project Addresses Public Policy for \$100M

2. PJM Selects Project Y Over Project X and Single-Driver Public Policy Project, Since:
 - a) Project Y Displaces \$100M Single-Driver Project at Incremental Cost of \$50M Over Project X
 - b) PJM Allocates \$200M Cost of Multi-Driver Project to RTEP Drivers Based on Relative Benefits as Follows:
 - ✓ \$150M to Reliability Driver, and
 - ✓ \$50M to Public Policy (State Agreement) Driver

1. PJM **Evaluates** Proposed Projects to Determine which Planning Criteria Violations they Resolve and Needs they Address; e.g., PJM Confirms:
 - a) Project A Resolves Reliability Violations 1-5 (\$100M)
 - b) Project B Resolves Reliability Violations 6-9 (\$25M)
 - c) Project C Resolves Market Efficiency Violations (\$50M)
 - d) Project D Replaces Interconnection Upgrades (\$25M)
 - e) Project E Addresses Public Policy Needs (\$50M)
 - f) Project F Resolves Reliability Violations 1-8, Market Efficiency Violations, Interconnection Upgrades, and Public Policy Needs (\$190M)

1. (Continued)

- g) In Process of Evaluating Project F, PJM Determines that Project G is Needed to Resolve Reliability Violation 9 (\$10M)
- h) In Addition, PJM Does Not Identify any More Efficient and Cost-Effective Single-Driver Alternatives to Projects A thru E, Therefore, Multi-Driver Alternative Project F (Along With Project G) Can Be Evaluated Head-To-Head Against Those Single-Driver Alternatives (A thru E)
- i) Should Note that Interconnection Portion of Multi-Driver Project F or Single-Driver Project D will be Allocated to Interconnection Customers on “But-For” Basis

1. PJM **Selects** Most Efficient and Cost-Effective Projects that Resolve Transmission Planning Criteria Violations and Address Transmission Needs; e.g., PJM Selects:
 - a) Project F Resolves Reliability Violations 1-8, Market Efficiency Violations, Interconnection Upgrades, and Public Policy Needs (\$190M)
 - b) Project G Resolves Reliability Violation 9 (\$10M)

2. PJM Allocates M-D Project Benefits to Drivers Based on Costs of Replaced S-D Projects

	<u>Single-D</u>	<u>Multi-D</u>	<u>Allocated</u>
✓ Reliability (A)	(\$100M)		(\$80M)
✓ Reliability (B)	(\$25M)		(\$20M)
✓ Market Efficiency (C)	(\$50M)		(\$40M)
✓ Interconnection (D)	(\$25M)	(\$20M)	
✓ Public Policy (E)	(\$50M)		(\$40M)
✓ Selected Project F		(\$190M)	
✓ Selected Project G		(\$10M)	
TOTALS	(\$250M)	(\$200M)	(\$200M)

1. Two Projects Addressing Same Reliability But Different Public Policy at **Different** Costs
 - a) Project X:
 - 1) Cost of **\$150M**
 - 2) Addresses Reliability Violations 1-9
 - 3) Does NOT Address Public Policy Specified in State Agreement
 - 4) Single-Driver Project Addresses Public Policy for \$100M
 - b) Project Y:
 - 1) Cost of **\$200M**
 - 2) Addresses Reliability Violations 1-9
 - 3) Does Address Public Policy Specified in State Agreement
 - 4) Single-Driver Project Addresses Public Policy for \$100M

2. PJM Selects Project Y Over Project X and Single-Driver Public Policy Project, Since:
- a) Project Y Displaces \$100M Single-Driver Project at Incremental Cost of \$50M Over Project X
 - b) PJM Allocates \$200M Cost of Multi-Driver Project to RTEP Drivers Based on Relative Benefits as Follows:
 - ✓ \$120M to Reliability Driver, and
(\$200M x \$150M/\$250M)
 - ✓ \$80M to Public Policy (State Agreement) Driver
(\$200M x \$100M/\$250M)

- Decision-making regarding drivers
 - Reliability and Market Efficiency
 - Specific tests identified in Operating Agreement
 - Operational Performance
 - Contemplated in Operating Agreement and described in PJM Manuals
 - Tests are based on operating experience and judgment
 - Aging Infrastructure
 - Contemplated in Operating Agreement
 - Typically supplements reliability or market efficiency driver when choosing among alternatives

- Decision-making regarding drivers
 - Public Policy
 - Stand-alone Public Policy projects included in RTEP to the extent that states choose to proceed, per State Agreement Approach
 - Multi-driver projects including a Public Policy component included in RTEP to the extent that states choose to proceed with the incremental element of project above other drivers
or
 - Multi-driver projects including a Public Policy component included in RTEP to the extent that states do not choose to withdraw initial inclusion of public policy requirement into assumptions to be evaluated
or
 - Multi-driver projects including a Public Policy component included in RTEP based on some PJM criteria and allocated to benefitting load

- **Reliability / Public Policy Projects**
 - Must address risk associated with moving from simple reliability solution to large, complex multi-driver project
 - Customers (or states) involved with reliability driver, but not Public Policy driver may not wish to defer simple solution and bear reliability risk that multi-driver project may not be completed in a timely manner, or at all
 - Interim operational solutions to ensure reliability during construction of multi-driver project may not be acceptable from a reliability risk standpoint

- Work with OPSI to ensure consistency with State Agreement Approach
- Establish procedures for allocation among buckets for multi-driver projects
 - Establish procedures for allocation of public policy bucket, if required
- Develop OA language
- Outline areas for updated PJM Manuals language
- Develop list of implementation questions
 - Work through implementation questions in sub-group
- ??