TO/TOP Matrix Version 10

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Chair, TO/TOP Matrix Subcommittee

Transmission Owners Agreement – Administrative Committee Meeting

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What is the Matrix?

- Index between the PJM Manuals and the NERC Reliability Standards
- Delineates the Assigned/Shared Tasks between PJM and the Member TO for NERC Reliability Standards applicable to PJM as the TOP <u>where PJM relies on its TOs to perform certain tasks</u>
- Does not create any new obligations for PJM or its Member TOs
- Simply a cross-reference indicating where the assignment of various reliability tasks is documented
- An efficient and effective tool fundamental to a strong PJM Internal Control – The PJM TO/TOP Audit Program

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Changes Since Version 9.1

- Currently Version 9.1 effective as of January 26, 2016
- Categories of Changes incorporated in Version 10
  1. Addition of New NERC Reliability Standards
  2. Assigned/Shared Task Updates from COM-002-4 Operating Instructions
  3. ReliabilityFirst Annual Review of V8 Recommendations
  4. Deletion of NERC Reliability Standards Inactive for More Than 3 Years
  5. Updates to Inactive Dates of Certain NERC Reliability Standards
  6. Reference Document Updates
  7. Administrative Changes

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Change #1: Addition of New NERC Reliability Standards

	NERC Reliability Standard	Requirements	Enforcement Date
1	EOP-004-3	R2	4/1/2017
2	IRO-001-4	R2, R3	4/1/2017
3	TOP-001-3	R1, R5, R6, R8, R9, R10.1, R12, R13, R14, R16, R18, R19 (total 12)	4/1/2017

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Change #2: COM-002-4 Operating Instruction Updates

- Previous version, COM-002 had the language – “Directives”
- PJM defined Directives in PJM Manual 1, all other tasks performed by Member TO fell into the category of “instructions”
- COM-002-4 replaces “Directives” and “instructions” with “Operating Instructions” (OI)
- V10 of Matrix updated with OI in all instances where previously “Directives” or “instructions” were used
  - 30 such instances

COM-002-4 Operating Instruction Changes To Assigned/Shared Tasks		
1	COM-002-2	R2
2	EOP-001-2.1b	R2.2
3	EOP-001-2.1b	R2.3
4	EOP-010-1	R3.2
5	EOP-010-1	R3.3
6	IRO-001-1.1	R8
7	IRO-004-2	R1
8	IRO-005-3.1a	R5
9	IRO-005-3.1a	R6
10	TOP-001-1a	R1
11	TOP-001-1a	R2
12	TOP-001-1a	R3
13	TOP-001-1a	R5
14	TOP-001-1a	R8
15	TOP-004-2	R1
16	TOP-004-2	R2
17	TOP-004-2	R3
18	TOP-004-2	R4
19	TOP-004-2	R5
20	TOP-007-0	R2
21	TOP-007-0	R3
22	TOP-008-1	R1
23	TOP-008-1	R2
24	TOP-008-1	R3
25	TOP-008-1	R4
26	VAR-001-3	R7
27	VAR-001-3	R8
28	VAR-001-3	R10
29	VAR-001-3	R12
30	VAR-001-4.1	R3

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Change #3: RF Annual Review of V8 Recommendations

- PJM Shared Task Additions to Existing Requirements
  1. EOP-001-21.b R2.2 and R2.3 (task to implement plans for mitigating operating emergencies)
  2. EOP-003-2 R1, R5, R6, and R8 (task to implement load shedding plans)
- TO Assigned Task Additions to Existing Requirements
  1. IRO-001-1.1 R8 (task to notify PJM when Member TO cannot comply with PJM OI)
- Addition of Assigned/Shared Tasks
  1. EOP-005-2 R3 (annual review of restoration plan) and R8 (following restoration plan and coordinating with PJM)
  2. TOP-001-1a R6 (follow PJM OI to render emergency assistance)

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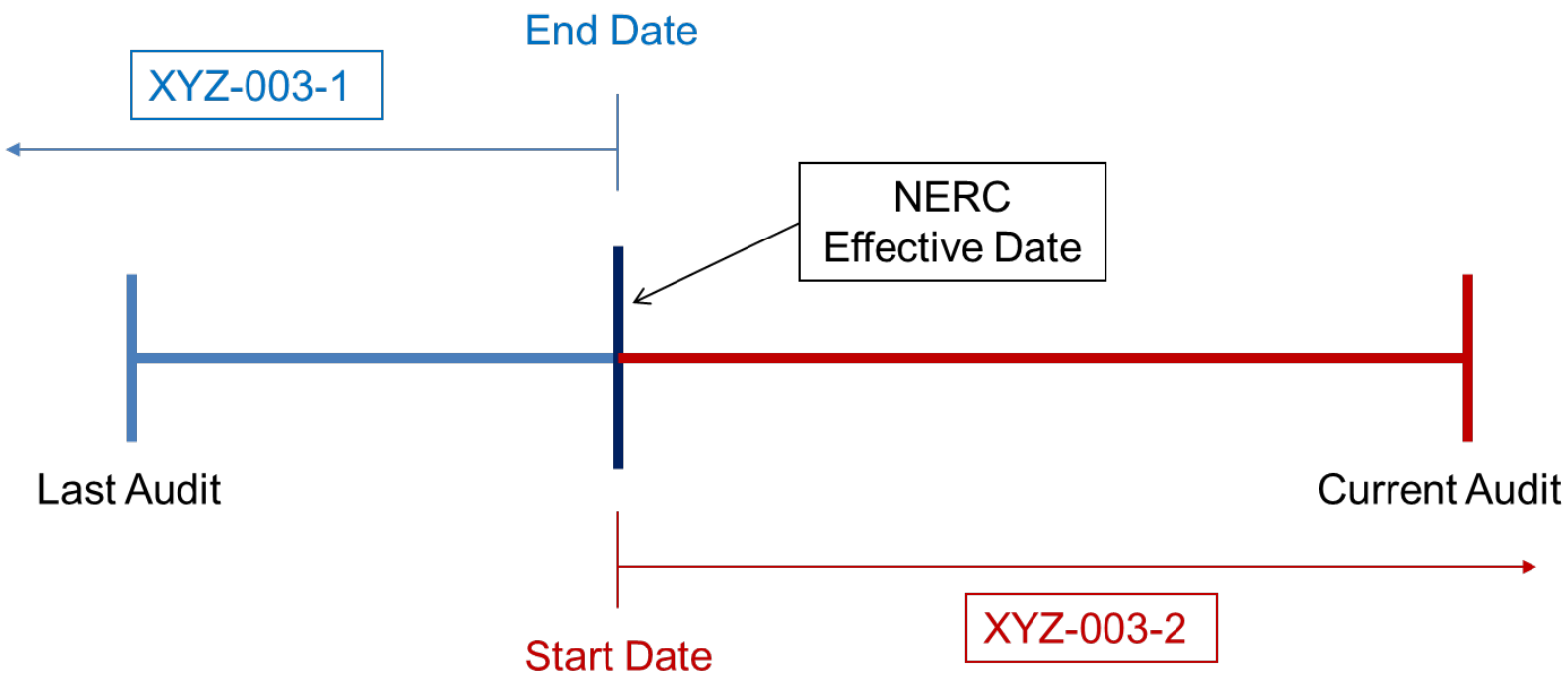
Change #4: Deletion of Standards Inactive for 3 Years

The following Standards were deleted as they have been inactive for at least 3 years

	NERC Reliability Standard	Inactive Date
1	CIP-001-2a	12/31/2013
2	EOP-001-0.1b	6/30/2013
3	EOP-004-1	12/31/2013
4	EOP-005-1	6/30/2013
5	EOP-008-0	6/30/2013
6	FAC-001-0	11/24/2013
7	PER-002-0	3/31/2013
8	PRC-001-1	3/31/2013

Rationale for Inactive Standards in the Matrix



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Change #5: Updates to Inactive Dates

The following NERC Reliability Standards will become inactive in 2017 as newer versions or new NERC Reliability Standards become effective

	NERC Reliability Standard	Inactive Date	Being Replaced By	Enforcement Date
1	EOP-001-2.1b	3/31/2017	EOP-011-1	4/1/2017
2	EOP-003-2	3/31/2017	EOP-011-1	4/1/2017
3	EOP-004-2	3/31/2017	EOP-004-3	4/1/2017
4	PRC-010-0	3/31/2017	PRC-010-1	4/1/2017
5	PRC-022-1	3/31/2017	PRC-010-1	4/1/2017
6	TOP-001-1a	3/31/2017	TOP-001-3	4/1/2017

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Change #6: Reference Updates
Change #7: Administrative Changes

- Several reference documents utilized in the Matrix updated
  - Newer versions of manuals or other governing documents
  - Section titles, numbers, and content moves in the document
- Administrative Changes
  - New “Revision History” capturing all revisions
  - Deletion of extraneous information from certain requirements
  - Font consistency and sentence correction checks throughout
  - Annual review performed

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Ask & Roadmap

- Approve V10 of the TO/TOP Matrix as presented with an effective date of 1/1/2017

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TO/TOP Matrix Background/Educational Slides

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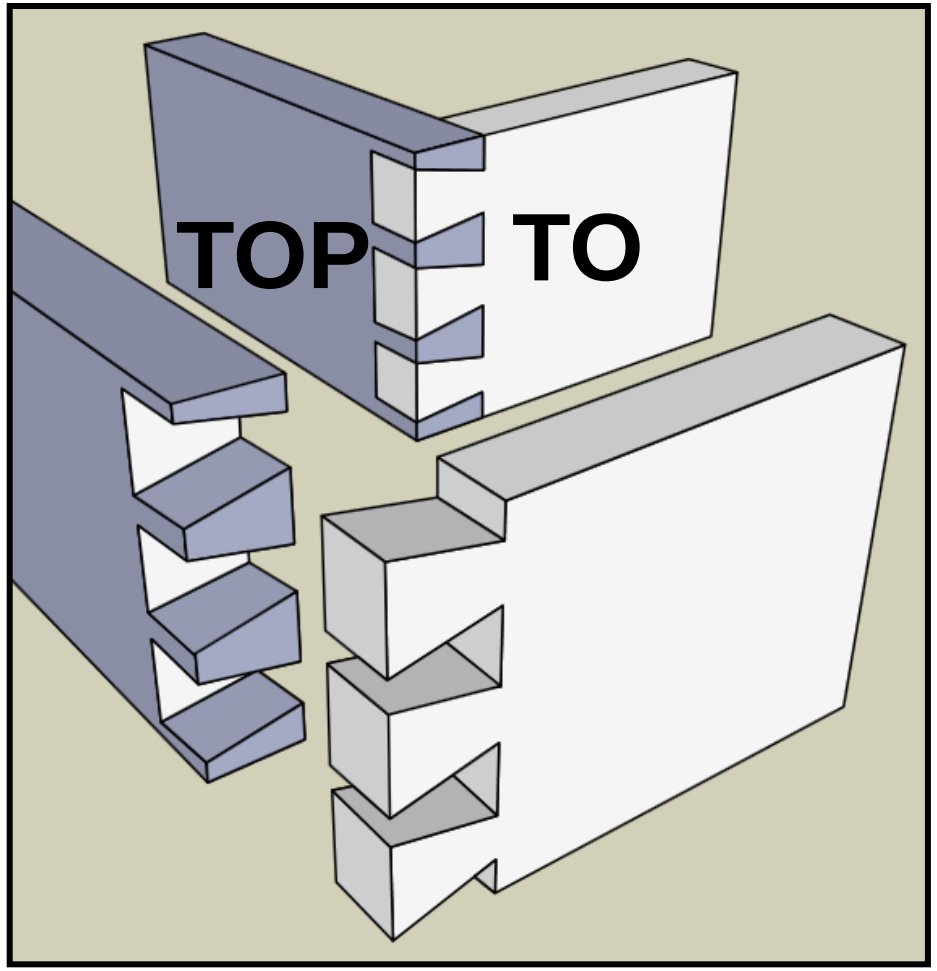
TO/TOP Relationship



- Clear Responsibility and Authorities
  - Long Standing Relationship
  - Unity of Command and One Responsible Entity
  - Codified in PJM's Agreements
- PJM Committees (OC, SOS, PC…)
- Strong and proven Internal Control
  - PJM Training
  - TO/TOP Matrix
  - PJM TO/TOP Reliability Audits

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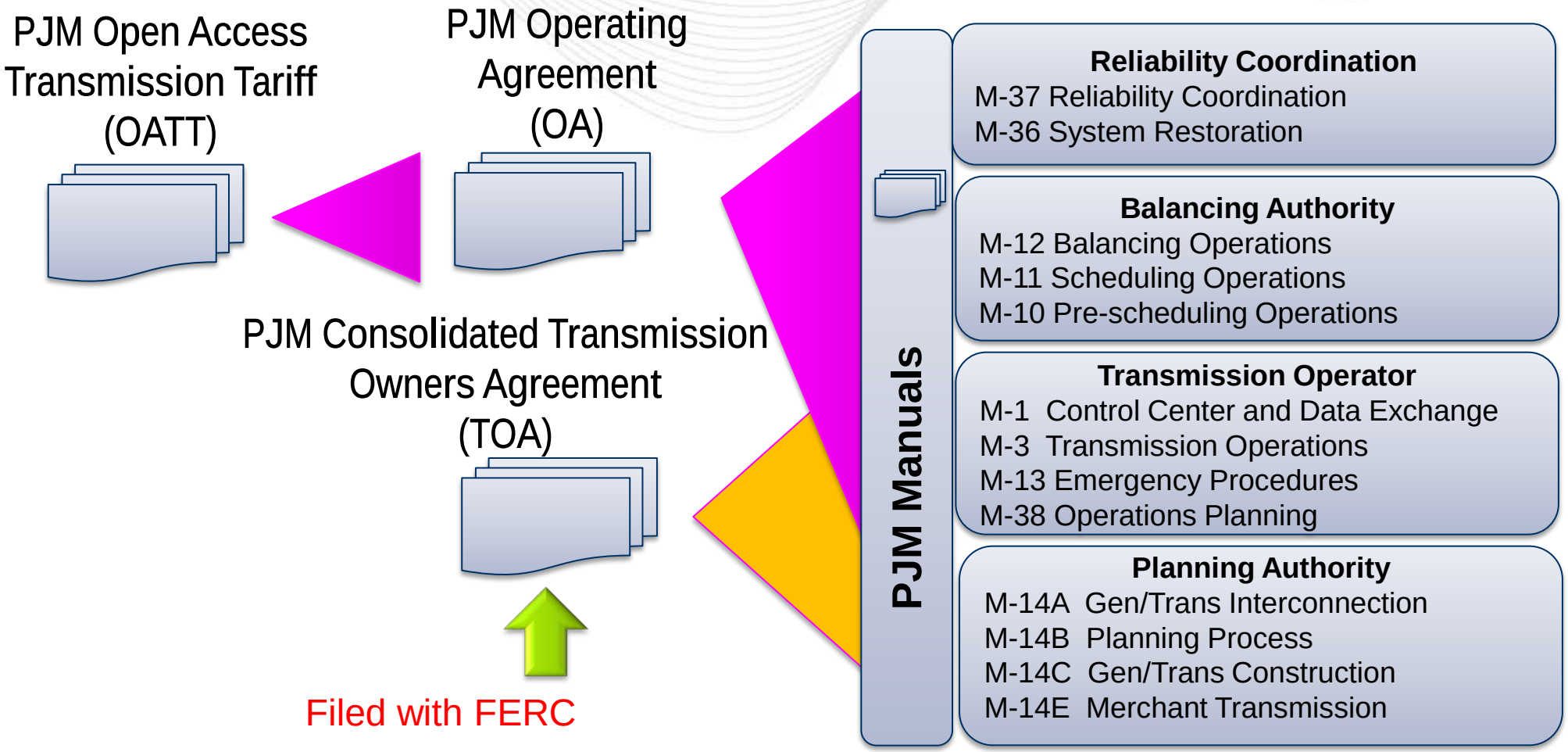
PJM & Member TO Relationship Document Hierarchy



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• Delineation of Reliability Tasks

Standard/ Requirement information

NERC Reliability Standard Requirement Text

Tasks Assigned to Member TOs or Shared between PJM and Member TOs

Tasks PJM performs to ensure Reliability Requirement is met in combination with TO Assigned/Shared Tasks

Category	Standard Number	Requirement Number	Approved BOT/FERC Standards	A/S	Assigned or Shared Member TO Tasks	PJM Tasks
EOP	EOP-005-2	R1	Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon =Operations Planning]*	S	1. Each Member TO shall have a restoration plan that supports restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Member TO's BES shuts down. 2. The Member TO shall send the Member TO restoration plan to PJM for approval.	PJM will review, recommend revision, and/or approve submitted Member TO Restoration Plans.

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• TO/TOP Audit Phase

Questions asked to demonstrate compliance

Examples of evidence auditors look for

PJM documents that describe PJM/TO responsibilities

Enforcement and Inactive dates of the NERC Reliability Standard

Audit Questions	Evidence of Compliance (What auditors will be looking for)	Reference Documents	Enforcement Date	Inactive Date
1. Do you have a restoration plan that supports for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Member TO's BES shuts down? 2. Is it approved by PJM?	Exhibit your restoration plan and show that it covers a plan to reestablish its electric system in a stable and orderly manner in the event of a partial or total shutdown of its system, including necessary operating instructions and procedures to cover emergency conditions, and the loss of vital telecommunications channels. 2. Show evidence of approval by PJM.	M-36 System Restoration, Section 8-System Restoration Plan Guidelines; Section 1.1-Policy Statements, PJM Member Actions, Attachment G: Coordination of Restoration Plan with PJM Internal and External Neighboring Entities	7/1/2013	None

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What the Matrix Is Not

- Evidence of compliance
- Formal delegation agreement
- Joint Registration Organization (JRO) or Coordinated Functional Registration (CFR)
- A means of creating new obligations for PJM or its Member TOs other than those specified in the PJM OATT, OA, CTOA, PJM Manuals and other governing documents
- A list of how all TOP requirements are met

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Development and Maintenance of the TO/TOP Matrix

- TO/TOP Matrix Subcommittee (TTMS), a PJM subcommittee with participation limited to Member TOs, develops and maintains the TO/TOP Matrix
- The TTMS reports to the Transmission Owners Agreement-Administrative Committee (TOA-AC), which approves the Matrix
- Monthly meetings to collaborate on new or existing NERC Reliability Standards applicable to PJM as the TOP

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Typical Roadmap to a Version Approval

Review Future Standards Incorporation Plan and prioritize accordingly

Develop Assigned and/or Shared Tasks for NERC Reliability Standard Requirements where PJM relies on Member TOs

Conduct an annual review of the Matrix and agree to a final version for updates to various stakeholders

Take finalized version to PJM SOS, OC, and PC, seeking their recommendation to TOA-AC to approve the Matrix

Present finalized version to TOA-AC, that approves the Matrix. Publish the approved Version.

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