

PJM/TO NERC Compliance Matrix

Revision 2

Approved by the Transmission Owners Agreement Administrative Committee: 01/29/08

This revision was provided to the TOA-AC on 1/8/08. It includes updates to references that reflect recently issued/revised PJM Manuals and RFC Standards re-numbering.

The shared responsibilities presented in this matrix are merely a composite listing of those requirements presented in PJM Manuals, the Transmission Owner's Agreement, the Open Access Transmission Tariff and/or PJM Operating Agreement. This document does not impose any new requirements nor limit or supercede any responsibilities previously agreed to by PJM or our members.

REFERENCE: Transmission Operator and Transmission Owner Responsibilities as well as the Purpose and Use of the attached Assignment Matrix including additional guidance is provided in the PJM/Transmission Owner NERC Standards Compliance Matrix Document on the PJM website at

<http://www.pjm.com/committees/toa-ac/postings/nerc-standards-compliance-matrix.pdf>

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	EOP-001-RFC-01	R1.	In addition to developing, maintaining and implementing an Emergency Operations Plan (EOP) compliant with the requirements of NERC standard EOP-001, each Balancing Authority, Reliability Coordinator, and Transmission Operator shall include the elements		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM. However, Member TOs shall satisfy the following applicable Attachment requirements.	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission
	Attachment A	1	Emergency Power Purchases – Review and document if there is an emergency power purchase agreement to the extent that generation resources are available		TOP		See EOP-001-RFC-01 R1 above	See EOP-001-RFC-01 R1 above
	Attachment A	2	Internal Demand Curtailment – Document and address when internal demand of generating plants and other member-owned facilities should be reduced to the maximum	TO	TOP		PJM M-13, Section 2, Steps 5 and 7B	See EOP-001-RFC-01 R1 above
	Attachment A	3	an entity can execute and or request shared Reserves to prevent the loss of, or inability to serve, customer load.		TOP		See EOP-001-RFC-01 R1 above	See EOP-001-RFC-01 R1 above
	Attachment A	4	Selected Rotating Service Interruptions – Document and indicate when an interruption of selected distribution circuits can be utilized during the period(s) of maximum System demand on a rotational basis in accordance with	TO	TOP		PJM M-13, Section 2, Step 8. This is it, we just don't use the exact term "Selective Rotating Service Interruptions" (This is a distribution process - the TOs decide how to do it.	See EOP-001-RFC-01 R1 above
	Attachment A	5	Manual Mitigation of Frequency Decline – Document when and if there is time for manual corrective action prior to automatic Under Frequency Load Shedding (UFLS), or if automatic UFLS has not arrested the decline, when the deficient systems and other systems as appropriate, should manually shed firm load in amounts sufficient		TOP		See EOP-001-RFC-01 R1 above	See EOP-001-RFC-01 R1 above

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
	Attachment A	6	Exiting Emergency Procedures - Document that when exiting emergency procedures it is done in a controlled, deliberate manner so as to not adversely affect system reliability, while minimizing the impac		TOP		See EOP-001-RFC-01 R1 above	See EOP-001-RFC-01 R1 above
	Attachment A	7	Sequential Warning Levels – Document the use of Emergency plans utilization and as well the several sequential levels of warnings to give customers and all entities		TOP		See EOP-001-RFC-01 R1 above	See EOP-001-RFC-01 R1 above
	Attachment A	8	Implementation Times – Document the approximate time to implement corrective actions contained in the EOP (which is an important factor in considering emergency actions that	TO	TOP		PJM M-13 (which is OK for now but will be enhanced)	See EOP-001-RFC-01 R1 above
	Attachment A	9	Conservative System Operation for Unusual and Infrequent System Conditions– Provide guidelines during any periods when monitoring capability is lost, for any reason, or when system conditions are subject	TO	TOP		PJM M-13, Section 3, pg. 37	See EOP-001-RFC-01 R1 above
RFC	EOP-001-RFC-01	R2.	Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall update its Emergency Operations Plan including the additional regional requirement stated in R1 and provide it to RFC annually and make the current version available upon request.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission
RFC	EOP-001-RFC-01	R3.	Each Reliability Coordinator shall annually review the emergency operations plans of each Balancing Authority and Transmission Operator to ensure that actions required in the plan that relate to or effect other Balancing Authorities or Transmission Operators are		TOP		N/A	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	EOP-501-RFC-01	R3.	Each Transmission Operator and Balancing Authority shall participate in its Reliability Coordinator's training program as specified in R2.		TOP		N/A	M-40 Certification and Training Requirements and M-37 Reliability Coordination
RFC	EOP-007-RFC-01	R1.	Each Transmission Operator shall develop and maintain a Blackstart Capability Plan and provide a list of units designated as blackstart capable for inclusion in the RFC Blackstart Database as required in NERC EOP-009-0. The plan and		TOP		N/A	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57 M-14 D Generation Operations
RFC	EOP-007-RFC-01	R1.1	The list of backstart units provided by each Transmission Operator shall include the unit name, location, megawatt capability, type of unit, latest date of test, and starting		TOP		N/A	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57
RFC	EOP-007-RFC-01	R2.	Each Transmission Operator shall verify through either testing or through simulation that the units listed in its Blackstart Capability Plan can perform their intended function.		TOP		Manual 14 (Gen OP) The (Member TO through its) LCC must have and maintain the capability and authority to conduct black starts with all generators in the PJM Control Area that are within their respective zones. Voice communication (LCC-to-plant) tolerant of major power system failures is the minimum requirement to achieve black start.	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57 M-14 D Generation Operations

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	EOP-007-RFC-01	R2.1	If verification is done through testing, documentation of such tests shall include how the test was performed, including operating steps, an indication of the startup of sufficient auxiliary equipment required for startup and operation of the next nonblackstart unit, or		TOP		Manual 14 (Gen OP) The (Member TO through its) LCC must have and maintain the capability and authority to conduct black starts with all generators in the PJM Control Area that are within their respective zones. Voice communication (LCC-to-plant) tolerant of major power system failures is the minimum requirement to achieve black start.	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57 M-14 D Generation Operations
RFC	EOP-007-RFC-01	R2.2.	If verification in is done through simulation, the analytical analysis must be the result of dynamic studies that include the capacitive effects of cranking path circuits, unit reactive capabilities, possible steady-state and transient switching voltages, acceptable frequency, and proper modeling of large auxiliary motors required in startup.		TOP		Manual 14 (Gen OP) The (Member TO through its) LCC must have and maintain the capability and authority to conduct black starts with all generators in the PJM Control Area that are within their respective zones. Voice communication (LCC-to-plant) tolerant of major power system failures is the minimum requirement to achieve black start.	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57 M-14 D Generation Operations
RFC	EOP-007-RFC-01	R3.	Each Transmission Operator shall review its Blackstart Capability Plan at least once every fives years or more frequently upon changes to the system that warrants such review.		TOP		Manual 14 (Gen OP) The (Member TO through its) LCC must have and maintain the capability and authority to conduct black starts with all generators in the PJM Control Area that are within their respective zones. Voice communication (LCC-to-plant) tolerant of major power system failures is the minimum requirement to achieve black start.	Tariff Schedule 6A M 12, Balancing Operations, Sec. 4, Ancillary Services, Black Start Service, pp 50 - 57 M-14 D Generation Operations

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R1.	The Loss of Load Expectation (LOLE) for any load in RFC due to resource inadequacy shall not exceed one occurrence in ten years. This requirement applies to all PRSGs within RFC.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R2.	Each LSE			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R2.1	shall be a member of a PRSG for determining its resource planning reserve requirements. Membership in PRSGs must recognize interconnected system arrangements and are subject to verification by RFC.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R2.2	shall report to RFC within 90 days of the effective date of RFC-RES-001-1 which PRSG is responsible for determining its resource planning reserve requirements. In addition, if a LSE changes the PRSG that is responsible for determining its resource planning reserve requirements, the LSE shall notify RFC at least 90 days prior to the			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this term)

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.	Resource Planning Reserve Requirement analyses performed by each PRSG shall:			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.1.	be performed or verified annually			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.2.	express resource planning reserve requirements as a percentage of the 50:50 probability forecast peak load (Reserve Margin).			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.3.	determine a resource planning reserve requirement for each of the PRSG members for the upcoming planning year as defined by the PRSG.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.4.	be performed or verified for the nine subsequent planning years to provide information for long-term resource planning without establishing specific resource planning reserve requirements			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.5.	model a “loss-of-load event” as system conditions before taking emergency actions (e.g. unplanned voltage reductions or public appeals) but including system conditions subsequent to taking planned contractual actions (e.g. direct control load management).			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.	consider the availability of all generating units within the PRSG committed to meet the adequacy of Group load. At a minimum, the calculations must consider the following characteristics of the generating unit population:			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.1.	Historic generating unit performance and any projected changes			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

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				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.6.2.	Generating unit seasonal ratings			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.3.	The population of units deemed "typical" for compiling the history to determine generating performance statistics for new units			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.4.	Projected planned generator outages and maintenance schedules			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.5.	Fuel limitations, wind or hydro energy limitations or other reasons for limited dispatchability of generators			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

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				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.6.6.	Common mode outages that effect resource adequacy			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.6.7.	Availability of Resources with Environmental or Regulatory Restrictions			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.7.	consider the characteristics of other resources within the PRSG committed to meet the adequacy of Group load. At a minimum, the calculations must consider the following:			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.7.1.	Limitations such as notice, buy-through provisions, duration, or frequency			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.7.2.	How it is dispatched			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.7.3.	Physical characteristics such as weather, cold load pickup, etc.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.8.	consider the characteristics of load, such as the following:			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.8.1.	Load diversity			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.8.2.	Seasonal load variation			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.8.3.	Load variability due to weather, regional economic forecasts, etc.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.8.4.	Load forecast uncertainty			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.8.5.	Contractual arrangements concerning load shedding agreements among PRSG members			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

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				TO	TOP	TP		
RFC	BAL-502-RFC-01	R3.9.	shall base the LOLE calculation on a methodology employing the sum of the daily loss of load probabilities.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.10.	consider the benefit of interconnections to other entities outside the PRSG recognizing transmission limitations and the likelihood of capacity resources being available to the PRSG when needed.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R3.11	documentation of the consideration for each of the items in R3.1 through R3.10 must be provided.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R4.	Each Planning Resource Sharing Group (PRSG) shall document that it has an agreement to enforce the requirement of R3.3 on its LSE members.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

RFC Standards

Standard Developer	Standard Number	Req. #	Text of Requirement	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
				TO	TOP	TP		
RFC	BAL-502-RFC-01	R5.	Each LSE shall secure the resources needed to meet the resource planning reserve requirement established by a PRSG for the upcoming planning year.			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this
RFC	BAL-502-RFC-01	R6.	The consideration of any resources within the PRSG not committed to serving the capacity needs of the Group that are included as resources in the calculation of required reserve levels or accepted as resources used to meet requirements must be specifically			TP	N/A	M-20 PJM Reserve Requirements Within RFC, PJM is the Planned Reserve Sharing Group for its members (manual needs to be updated to include this

Standards Groupings

Group 1 - Operating Standards

BAL	Resource and Demand Balancing
COM	Communications
EOP	Emergency Preparedness and Operations
INT	Interchange Scheduling and Coordination
IRO	Interconnection Reliability Operations and Coordination
PER	Personnel Performance, Training and Qualifications
TOP	Transmission Operations
VAR	Voltage and Reactive

Group 2 - Planning Standards

FAC	Facilities Design, Connections and Maintenance
MOD	Modeling, Data and Analysis
PRC	Protection and Control
TPL	Transmission Planning

Group 3 - CIP Standards

CIP	Critical Infrastructure Protection
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Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
BAL-005-1	R1.	All generation, transmission, and load operating within an Interconnection must be included within the metered boundaries of a Balancing Authority Area.		TOP		Member TO to provide transmission data to support operation as part of the PJM Region's interconnected system which is included within the metered boundaries of the PJM Region per M-1, Control Center Requirements, Section 2, Member Control Center Requirements	TOA, 4.9 Data, Information and Metering PJM OA 11.3 & 14 M-1 Control Center Requirements, Section 2 Member Control Center Requirements, PJM Member Data Exchange, page 10 PJM OA Sch 1, 1.7.4 Reliability Assurance Agreement, Schedule 2 Original Sheet page 26
BAL-005-1	R1.2.	Each Transmission Operator with transmission facilities operating in an Interconnection shall ensure that those transmission facilities are included within the metered boundaries of a Balancing Authority Area.		TOP		Member TO to provide transmission data to support operation as part of the PJM Region's interconnected system which is included within the metered boundaries of the PJM Region per M-1, Control Center Requirements, Section 2, Member Control Center Requirements	TOA, 4.9 Data, Information and Metering PJM OA 11.3 & 14 M-1 Control Center Requirements PJM OA Sch 1, 1.7.4 Reliability Assurance Agreement, Schedule 2 Original Sheet page 26
COM-001-1	R 1.	Each Reliability Coordinator, Transmission Operator and Balancing Authority shall provide adequate and reliable telecommunications facilities the exchange of Interconnection and operating information:		TOP		Member TO must provide the information in accordance with the PJM criteria. PJM OA 11.3 & 14.1. General 11.6 Membership Requirements and M-1,Control Center Requirements, Section 3 Data Exchange Requirements.	<p>PJM OA 11.3 & 14.1. General 11.6 Membership Requirements M-1 Control Center Requirements Section 3 Data Exchange Requirements, pages 20-26</p> <p>M-1 Control Center Requirements Section 2 Member Control Center requirements, Transmission Monitoring Capability, Page 11</p> <p>M-1 Control Center Requirements Section 2 Member Control Center requirements, Communication requirements, page 14</p> <p>M-1 Control Center Requirements Section 2 Data Integrity, pages 12 13</p> <p>M-1 Control Center Requirements Section 2 Bckup recovery Procedures, page 16</p>

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
							M-1 Control Center Requirements Section 3, Data Exchange Requirements, EMS Data Exchange, pages 21-23 M-1 Control Center Requirements Section 3, Data Exchange Requirements, EMS Data Exchange, pages 22
COM-001-1	R 1.1.	Internally.		TOP		N/A	PJM OA 11.3 & 14.1. General 11.6 Membership Requirements M-1 Control Center Requirements
COM-001-1	R 1.2.	Between the Reliability Coordinator and its Transmission Operators and Balancing Authorities.		TOP		N/A	M1 Control Center Requirements
COM-001-1	R 1.3.	With other Reliability Coordinators, Transmission Operators, and Balancing Authorities as necessary to maintain reliability.		TOP		N/A	M1 Control Center Requirements
COM-001-1	R 1.4.	Where applicable, these facilities shall be redundant and diversely routed.		TOP		Member TO must maintain communication capabilities as described in M-1 Control Center Requirements, Section 2, Member Control Center Requirements and Section 3, Data Exchange Requirements	M1 Control Center Requirements
COM-001-1	R 2.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall manage, alarm, test and/or actively monitor vital telecommunications facilities. Special attention shall be given to emergency telecommunications facilities and equipment not used for routine communications.		TOP		Member TO must maintain communication capabilities as described in M-1 Control Center Requirements, Section 2, Member Control Center Requirements and Section 3, Data Exchange Requirements	TOA, 4.9 Data, Information and Metering M-1 Control Center Rquirements, Section 3 Data Exchange Requirements, REAL-TIME ANALYSIS MONITORING REQUIREMENTS FOR SYSTEM SECURITY, page 25 M-1 Control Center Rquirements, Section 3 Data Exchange Requirements, REAL-TIME ANALYSIS MONITORING REQUIREMENTS FOR SYSTEM SECURITY, page 26 M-1 Control Center Rquirements, Section 1 PJM Systems, Energy Management System (EMS), page 5 M-1 Control Center Rquirements, Section 1 PJM Systems, Energy Management System (EMS), page 5 M-1 Control Center Rquirements, Section 2 Member Control Center Requirements, Computer System Security, page 12

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
							M-1 Control Center Requirements, Section 2 Member Control Center Requirements, System Maintenance, page 12
COM-001-1	R 3.	Each Reliability Coordinator, Transmission Operator and Balancing Authority shall provide a means to coordinate telecommunications among their respective areas. This coordination shall include the ability to investigate and recommend solutions to telecommunications problems within the area and with other areas.		TOP		Member TO must maintain communication capabilities as described in M-1 Control Center Requirements, Section 2, Member Control Center Requirements and Section 3, Data Exchange Requirements	M1 Control Center Requirements, Section 2 Member Control Center Requirements, Backup Recovery Procedures, page 16
							M1 Control Center Requirements, Section 2 Member Control Center Requirements, Backup Recovery Procedures, page 16
COM-001-1	R 4.	Unless agreed to otherwise, each Reliability Coordinator, Transmission Operator, and Balancing Authority shall use English as the language for all communications between and among operating personnel responsible for the real-time generation control and operation of the interconnected Bulk Electric System. Transmission Operators and Balancing Authorities may use an alternate language for internal operations.		TOP		Member TO must adhere to communication protocols in accordance with the PJM criteria in M-1 Control Center Requirements, Section 4 Voice Communication	M-1 Control Center Requirements, Section 4 Voice Communications, DISPATCH VOICE & FACSIMILE COMMUNICATIONS, page 28

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
COM-001-1	R 5.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall have written operating instructions and procedures to enable continued operation of the system during the loss of telecommunications facilities.		TOP		Member TO must perform accordance with M-1 Control Center Requirements, Section 3, Data Exchange Requirements	TOA, 4.9 Data, Information and Metering M-1 Control Center Requirements, Section 2 Communication Requirements, Page 14 and Section 3 Data Exchange Requirements, EMS Data Exchange pages 21-23
COM-002-2	R.1.	Each Transmission Operator, Balancing Authority, and Generator Operator shall have communications (voice and data links) with appropriate Reliability Coordinators, Balancing Authorities, and Transmission Operators. Such communications shall be staffed and available for addressing a real-time emergency condition.		TOP		Member TO must maintain communication capabilities as described in M-1 Control Center Requirements, Section 2, Member Control Center Requirements, Section 3, Data Exchange Requirements, and Section 4, Voice Communications	TOA, 4.9 Data, Information and Metering M 14 Generator Operational Requirements M-1 Control Center Requirements Section 2, Member Control Center Requirements, System Maintenance, page 12; Control Center Staffing, page 18, Voice Communications, pages 28-30
COM-002-2	R.1.1.	Each Balancing Authority and Transmission Operator shall notify its Reliability Coordinator, and all other potentially affected Balancing Authorities and Transmission Operators through predetermined communication paths of any condition that could threaten the reliability of its area or when firm load shedding is anticipated.		TOP		Member TO must maintain communication capabilities as described in M-1 Control Center Requirements, Section 2, Member Control Center Requirements, Section 3, Data Exchange Requirements, and Section 4, Voice Communications	M-1 Control Center Requirements, TOA 4.9 Data, Information and Metering

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
COM-002-2	R.2.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall issue directives in a clear, concise, and definitive manner; shall ensure the recipient of the directive repeats the information back correctly; and shall acknowledge the response as correct or repeat the original statement to resolve any misunderstandings.		TOP		Member TO shall use the communication protocols established in the PJM manuals	PJM shall initiate all emergency procedure actions and shall communicate them to the TO and other RC. PJM shall report all emergency actions to NERC and DOE. M-13 Emergency Operations TOA Article 4.7 M-3 Transmission Operations M-40 Certification and Training Requirements, Section 2 Training Requirements, pages 8 to 17 and Appendix 1, Recommended Operating Training Topics, page 41 M-36 System Restoration and M-1, Sect.4, page 28
EOP-001-0	R2.	The Transmission Operator shall have an emergency load reduction plan for all identified IROLs. The plan shall include the details on how the Transmission Operator will implement load reduction in sufficient amount and time to mitigate the IROL violation before system separation or collapse would occur. The load reduction plan must be capable of being implemented within 30 minutes.		TOP		Member TO shall implement the load reduction plan in accordance with M-13, Emergency Operations, Section 5, Transmission Security Emergencies	PJM OA, Schedule 1, 1.7.6 Scheduling and Dispatching. PJM OA, Schedule 1, 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission Operations
EOP-001-0	R3.	Each Transmission Operator and Balancing Authority shall:		TOP		N/A	N/A
EOP-001-0	R3.1.	Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 2 Capacity Emergency	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA, Schedule 1, 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-001-0	R3.2.	Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 5 Transmission Security Emergencies	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA , Schedule 1, 1.7.15 Corrective Action M-13 Emergency Operations, Section 5, pgs.50-63 TOA Article 4.7 M-3 Transmission Operations
EOP-001-0	R3.3.	Develop, maintain, and implement a set of plans for load shedding.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 2 Capacity Emergency	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA , Schedule 1, 1.7.15 Corrective Action M-13 Emergency Operations, Section 2, pgs. 25-30 TOA Article 4.7 M-3 Transmission Operations
EOP-001-0	R3.4.	Develop, maintain, and implement a set of plans for system restoration.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 2 Capacity Emergency and M-36, System Restoration, Sections 3 and 8	PJM OA 1.7.6 Scheduling and Dispatching. PJM OA, Schedule 1, 1.7.15 Corrective Action M-13 Emergency Operations TOA Article 4.7 M-3 Transmission Operations M-36 System Restoration Tariff Article 4 Black Start and Schedule 6A, OA 17.2 System Restoration and Black Start Generation
EOP-001-0	R4.	Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include the following subrequirements.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	OA, , Schedule 1, 1.7.4 General Obligations of the Market Participants M-13 Emergency Operations
EOP-001-0	R4.1.	Communications protocols to be used during emergencies.		TOP		Member TO shall follow communication protocols described in M-1, Control Center Requirements and M-13, Emergency Operations	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements, Section 1, pg. 8 and Attachment B M-3 Transmission Operations M- 13, Emergency Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-001-0	R4.2.	A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 2, Capacity Emergencies & 5, Transmission Security Emergencies	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements M-3 Transmission Operations M- 13, Emergency Operations, Section 5
EOP-001-0	R4.3.	The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements M-3 Transmission Operations M- 13, Emergency Operations
EOP-001-0	R4.4.	Staffing levels for the emergency.		TOP		Member TO shall follow PJM instructions in accordance with M-01 Control Center Requirements, Section 2, Member Control Center Requirements	TOA 4.7 Actions in Emergency, M-1 Control Center Reqt., Sect.2, pg.18 M-3 Transmission Operations M- 13, Emergency Operations
EOP-001-0	R5.	Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM. However, Member TOs shall satisfy the following applicable Attachment requirements.	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements M-3 Transmission Operations M-13, Emergency Operations M-36 System Restoration
Attachment 1	1	Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.		TOP			See EOP-001 R5 above
Attachment 1	2	Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	3	Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	4	System energy use — The reduction of the system's own energy use to a minimum	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Section 2, Steps 5 and 7B	See EOP-001 R5 above
Attachment 1	5	Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Section 1, pg.8	See EOP-001 R5 above

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
Attachment 1	6	Load management — Implementation of load management and voltage reductions, if appropriate.	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Sect. 2, pgs.18-27	See EOP-001 R5 above
Attachment 1	7	Optimize fuel supply — The operation of all generating sources to optimize the availability		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	8	Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	9	Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Sect. 2, pgs. 18-20	See EOP-001 R5 above
Attachment 1	10	Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	11	Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.		TOP		See EOP-001 R5 above	See EOP-001 R5 above
Attachment 1	12	Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Sect. 1, pg. 8	See EOP-001 R5 above
Attachment 1	13	Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Sect.2, pg. 28-30, Steps 6 and 8.	See EOP-001 R5 above
Attachment 1	14	Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.	TO	TOP		Member TO shall follow PJM instructions iaw M-13, Emergency Operations, Sect. 1, pg.8	See EOP-001 R5 above
Attachment 1	15	Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.		TOP		See EOP-001 R5 above	See EOP-001 R5 above
EOP-001-0	R6.	The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations (Section 2) and M-01 Control Center Requirements, Section 1, Member Control Center Requirements	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements M-3 Transmission Operations M- 13, Emergency Operations M-36 System Restoration
EOP-001-0	R7.	The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM. However, Member TOs shall satisfy the following applicable Attachment requirements.	TOA 4.7 Actions in Emergency, M-1 Control Center Requirements M-3 Transmission Operations M-13, Emergency Operations M-36 System Restoration

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-001-0	R7.1.	The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.		TOP		Member TO shall ensure that communications exist and are maintained in accordance with M-1, Control Center Requirements, Section 2: Member Control Center Requirements	<p>PJM OA Schedule , Schedule 1, 1.7.14 General Obligations of the market participants. M-1 Control Center Requirements</p> <p>M-1 Control Center Requirements, Section 2 and M-13 Emergency Operations (p. 12)</p> <p>M-1 Control Center Requirements, Section 2 and M-13 Emergency Operations (p. 12)</p> <p>M-1 Control Center Requirements, Section 2 and M-13 Emergency Operations (p.13, 24, 25, 29, 30, 32, 34, and 40).</p>
EOP-001-0	R7.2.	The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.		TOP		N/A	<p>PJM OA , Schedule 1, 1.6.2 Scope of Services. M-3 Transmission Operations M-13 Emergency Operations</p>
EOP-001-0	R7.3.	The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)		TOP		Member TO shall provide transmission outage and maintenance information and update it as it changes in accordance with TOA Article 4.8	<p>PJM OA, Schedule 1, 1.9.1 Outage Scheduling. M-3 Transmission Operations M-11 Scheduling Operations M-13 Emergency Operations (p. 11, 45-46, 56, 57, 63-65) TOA Article 4.8</p> <p>M-13 Emergency Operations (p. 56)</p> <p>M-13 Emergency Operations (p. 57)</p> <p>M-13 Emergency Operations (p. 63, 54, 65)</p>
EOP-001-0	R7.4.	The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.		TOP		N/A	<p>OA , Schedule 1, 1.10 Scheduling. M-11 Scheduling Operations.</p>
EOP-003-1	R1.	After taking all other remedial steps, a Transmission Operator or Balancing Authority operating with insufficient generation or transmission capacity shall shed customer load rather than risk an uncontrolled failure of components or cascading outages of the Interconnection.		TOP		Member TO shall follow PJM instructions in accordance with M-13, Emergency Operations, Section 2, Step 8	<p>PJM OA , Schedule 1, 1.7.11 (B). M-13 Emergency Operations (p. 11,12) TOA Article 4.7 M-3 Transmission Operations</p> <p>M-13 Emergency Operations (p. 33, 34)</p>

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-003-1	R2.	Each Transmission Operator and Balancing Authority shall establish plans for automatic load shedding for underfrequency or undervoltage conditions.		TOP		N/A	Region Agreement, Region Guide B8; to be replaced by RFC standard on UFLS; SERC Supplements; M-36 System Restoration Section 2
EOP-003-1	R3.	Each Transmission Operator and Balancing Authority shall coordinate load shedding plans among other interconnected Transmission Operators and Balancing Authorities.		TOP		N/A	PJM OA , Schedule 1, 1.7.11(B).
EOP-003-1	R4.	A Transmission Operator or Balancing Authority shall consider one or more of these factors in designing an automatic load shedding scheme: frequency, rate of frequency decay, voltage level, rate of voltage decay, or power flow levels.		TOP		N/A	Region Agreement, Region Guide B8; to be replaced by RFC standard on UFLS; SERC Supplements M-36 System Restoration, Section 2
EOP-003-1	R5.	A Transmission Operator or Balancing Authority shall implement load shedding in steps established to minimize the risk of further uncontrolled separation, loss of generation, or system shutdown.		TOP		Member TO shall implement the requested load shedding directives in accordance with M-13, Emergency Operations, Section 2, Capacity Emergencies, pgs. 28-30 step 8 , and M-36 System Restoration Section 2, Disturbance Conditions	Region Agreement, Region Guide B8; to be replaced by RFC standard on UFLS; SERC Supplements M-1 Emergency Operations M-36 System restoration, Section 2
EOP-003-1	R6.	After a Transmission Operator or Balancing Authority Area separates from the Interconnection, if there is insufficient generating capacity to restore system frequency following automatic underfrequency load shedding, the Transmission Operator or Balancing Authority shall shed additional load.		TOP		Member TO shall implement the requested load shedding directives in accordance with M-13, Emergency Operations, Section 2, Capacity Emergencies, Step 8	M-13, Emergency Operations
EOP-003-1	R7.	The Transmission Operator and Balancing Authority shall coordinate automatic load shedding throughout their areas with underfrequency isolation of generating units, tripping of shunt capacitors, and other automatic actions that will occur under abnormal frequency, voltage, or power flow conditions.		TOP		N/A	PJM Tariff, 54.8 Under- and Over-Frequency Conditions.
EOP-003-1	R8.	Each Transmission Operator or Balancing Authority shall have plans for operator-controlled manual load shedding to respond to real-time emergencies. The Transmission Operator or Balancing Authority shall be capable of implementing the load shedding in a timeframe adequate for responding to the emergency.		TOP		Member TO shall implement requested actions in accordance with M-13, Emergency Operations, Section 5, Transmission Security Emergencies and Section 2, Step 8	M-13 Emergency Operations TOA Article 4.7 M-3 Transmission Operations
EOP-004-1	R2.	A Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity shall promptly analyze Bulk Electric System disturbances on its system or facilities.		TOP		Member TO will investigate with assistance by PJM in accordance with M-13, Emergency Operations, Section 6, Analysis of System Events and Disturbances and Attachment L	Manual 13, Section 6 & Attachment L, PJM and Transmission Owners Event Investigation Program Document

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-004-1	R3.	A Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity experiencing a reportable incident shall provide a preliminary written report to its Regional Reliability Organization and NERC.		TOP		Member TO shall provide a report in accordance with DOE requirements as specified in M-13, Emergency Operations, Attachment J, Disturbance Reporting - US Department of Energy, any time load is lost which exceeds the DOE triggers.	M-13 Emergency Operations (p. 11, 12, 68 and 71) , Attachment J
EOP-004-1	R3.1.	The affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity shall submit within 24 hours of the disturbance or unusual occurrence either a copy of the report submitted to DOE, or, if no DOE report is required, a copy of the NERC Interconnection Reliability Operating Limit and Preliminary Disturbance Report form. Events that are not identified until some time after they occur shall be reported within 24 hours of being recognized.		TOP		Member TO shall provide a report in accordance with DOE requirements as specified in M-13, Emergency Operations, Attachment J, Disturbance Reporting - US Department of Energy, any time load is lost which exceeds the DOE triggers.	M-13 Emergency Operations, Attachment J
EOP-004-1	R3.2.	Applicable reporting forms are provided in Attachments 022-1 and 022-2.		TOP		Member TO shall provide a report in accordance with DOE requirements as specified in M-13, Emergency Operations, Attachment J, Disturbance Reporting - US Department of Energy, any time load is lost which exceeds the DOE triggers.	M-13 Emergency Operations, Attachment J
EOP-004-1	R3.3.	Under certain adverse conditions, e.g., severe weather, it may not be possible to assess the damage caused by a disturbance and issue a written Interconnection Reliability Operating Limit and Preliminary Disturbance Report within 24 hours. In such cases, the affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, or Load Serving Entity shall promptly notify its Regional Reliability Organization(s) and NERC, and verbally provide as much information as is available at that time. The affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, or Load Serving Entity shall then provide timely, periodic verbal updates until adequate information is available to issue a written Preliminary Disturbance Report.		TOP		Member TO shall report disturbances to PJM in accordance with M-13, Emergency Operations, Attachment J, Disturbance Reporting - US Department of Energy	M-13 Emergency Operations, Attachment J
EOP-004-1	R3.4.	If, in the judgment of the Regional Reliability Organization, after consultation with the Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, or Load Serving Entity in which a disturbance occurred, a final report is required, the affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, or Load Serving Entity shall prepare this report within 60 days. As a minimum, the final report shall have a discussion of the events and its cause, the conclusions reached, and recommendations to prevent recurrence of this type of event. The report shall be subject to Regional Reliability Organization approval.		TOP		Member TO shall report disturbances to PJM in accordance with M-13, Emergency Operations, Attachment J, Disturbance Reporting - US Department of Energy	M-13 Emergency Operations, Attachment J
EOP-005-1	R1.	Each Transmission Operator shall have a restoration 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. Each Transmission Operator shall include the applicable elements listed in Attachment 1-EOP-005 in developing a restoration plan.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines	M-1 Control Center Requirements M-3 Transmission Operations M-36 System Restoration (p. 10) M-36 System Restoration (p. 10)

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-005-1	R2.	Each Transmission Operator shall review and update its restoration plan at least annually and whenever it makes changes in the power system network, and shall correct deficiencies found during the simulated restoration exercises.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines	M-1 Control Center Requirements M-3 Transmission Operations M-36 System Restoration M-36 System Restoration (p. 5)
EOP-005-1	R3.	Each Transmission Operator shall develop restoration plans with a priority of restoring the integrity of the Interconnection.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Section 3	M-1 Control Center Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R4.	Each Transmission Operator shall coordinate its restoration plans with the Generator Owners and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	M-1 Control Center Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R5.	Each Transmission Operator and Balancing Authority shall periodically test its telecommunication facilities needed to implement the restoration plan.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachment D	M-1 Control Center Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R6.	Each Transmission Operator and Balancing Authority shall train its operating personnel in the implementation of the restoration plan. Such training shall include simulated exercises, if practicable.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachment D. Restoration training will be in accordance with M-40 Certification and Training Requirements	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R7.	Each Transmission Operator and Balancing Authority shall verify the restoration procedure by actual testing or by simulation.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachment D	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-005-1	R 8.	Each Transmission Operator shall verify that the number, size, availability, and location of system blackstart generating units are sufficient to meet Regional Reliability Organization restoration plan requirements for the Transmission Operator's area.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachment A	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R 9.	The Transmission Operator shall document the Cranking Paths, including initial switching requirements, between each blackstart generating unit and the unit(s) to be started and shall provide this documentation for review by the Regional Reliability Organization upon request. Such documentation may include Cranking Path diagrams.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R10.	The Transmission Operator shall demonstrate, through simulation or testing, that the blackstart generating units in its restoration plan can perform their intended functions as required in the regional restoration plan.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachments A and D.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R10.1.	The Transmission Operator shall perform this simulation or testing at least once every five years.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachments A and D.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.	Following a disturbance in which one or more areas of the Bulk Electric System become isolated or blacked out, the affected Transmission Operators and Balancing Authorities shall begin immediately to return the Bulk Electric System to normal.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration, pg. 45, first paragraph
EOP-005-1	R11.1.	The affected Transmission Operators and Balancing Authorities shall work in conjunction with their Reliability Coordinator(s) to determine the extent and condition of the isolated area(s).		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Section 1, "PJM Member Actions"	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.2.	The affected Transmission Operators and Balancing Authorities shall take the necessary actions to restore Bulk Electric System frequency to normal, including adjusting generation, placing additional generators on line, or load shedding.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Section 1, "PJM Member Actions"	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-005-1	R11.3.	The affected Balancing Authorities, working with their Reliability Coordinator(s), shall immediately review the Interchange Schedules between those Balancing Authority Areas or fragments of those Balancing Authority Areas within the separated area and make adjustments as needed to facilitate the restoration. The affected Balancing Authorities shall make all attempts to maintain the adjusted Interchange Schedules, whether generation control is manual or automatic.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration (p. 16)
EOP-005-1	R11.4.	The affected Transmission Operators shall give high priority to restoration of off-site power to nuclear stations.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Attachment A, Section B, "Definition of Critical Load"	PJM OA 10.4, M-36 System Restoration
EOP-005-1	R11.5.	The affected Transmission Operators may resynchronize the isolated area(s) with the surrounding area(s) when the following conditions are met:		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM. However, Member TOs shall satisfy the following applicable sub-requirements.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.5.1.	Voltage, frequency, and phase angle permit.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Section 3, Synchronization of Areas	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.5.2.	The size of the area being reconnected and the capacity of the transmission lines effecting the reconnection and the number of synchronizing points across the system are considered.		TOP		Each Member TO must have a restoration plan in accordance with M-36, System Restoration, Section 8, System Restoration Plan Guidelines and Section 3, Synchronization of Areas	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.5.3.	Reliability Coordinator(s) and adjacent areas are notified and Reliability Coordinator approval is given.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-005-1	R11.5.4.	Load is shed in neighboring areas, if required, to permit successful interconnected system restoration.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	M-40 Certification and Training Requirements M-3 Transmission Operations M-36 System Restoration
EOP-008-0	R1.	Each Reliability Coordinator, Transmission Operator and Balancing Authority shall have a plan to continue reliability operations in the event its control center becomes inoperable. The contingency plan must meet the following requirements:		TOP		Each Member TO shall develop a backup recovery plan in accordance with M-1, Control Center Requirements, Section 2, Member Control Center Requirements. This plan is subject to review by PJM.	M-1 Control Center Requirements M-1 Control Center Requirements, Section 2 Member Control Center requirements, Backup Recovery Procedures, page 16

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
							M-1 Control Center Requirements, Section 2 Member Control Center requirements, Staffing Upon Loss of an EMS or a 765 kV, 500 kV, or 345 kV RTU, page 19 M-36 System Restoration (p. 27, 43) M-36 System Restoration (p. 27) M-36 System Restoration (p. 27, 43)
EOP-008-0	R1.1.	The contingency plan shall not rely on data or voice communication from the primary control facility to be viable.		TOP		Member TOs must provide all the necessary backup voice and data circuits between the Local Control Center and PJM. The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1, Control Center Requirements, Section 2, Member Control Center Requirements.	M-1 Control Center Requirements M-36 System Restoration Section 4 (p. 25)
EOP-008-0	R1.2.	The plan shall include procedures and responsibilities for providing basic tie line control and procedures and for maintaining the status of all inter-area schedules, such that there is an hourly accounting of all schedules.		TOP		Member TOs must provide all the necessary backup voice and data circuits between the Local Control Center and PJM. The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1, Control Center Requirements, Section 2, Member Control Center Requirements.	M-1 Control Center Requirements

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-008-0	R1.3.	The contingency plan must address monitoring and control of critical transmission facilities, generation control, voltage control, time and frequency control, control of critical substation devices, and logging of significant power system events. The plan shall list the critical facilities.		TOP		The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1 Control Center Requirements, Section 2, Member Control Center Requirements	M-1 Control Center Requirements
EOP-008-0	R1.4.	The plan shall include procedures and responsibilities for maintaining basic voice communication capabilities with other areas.		TOP		Member TOs must provide all the necessary backup voice and data circuits between the Local Control Center and PJM. The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1, Control Center Requirements, Section 2, Member Control Center Requirements.	M-1 Control Center Requirements, Section 2, pg. 18, "Backup Recovery Procedures," 3rd paragraph and M-36 System Restoration Section 4 (p. 26)
EOP-008-0	R1.5.	The plan shall include procedures and responsibilities for conducting periodic tests, at least annually, to ensure viability of the plan.		TOP		The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1 Control Center Requirements, Section 2, Member Control Center Requirements and Backup Recovery Procedures, 4th paragraph	M-1 Control Center Requirements, M-36 System Restoration Section 4 (p. 26)
EOP-008-0	R1.6.	The plan shall include procedures and responsibilities for providing annual training to ensure that operating personnel are able to implement the contingency plans.		TOP		Member TO shall provide PJM backup operations training for its operators and participate in the training exercises conducted by PJM in accordance with M-1, Control Center Requirements, Section 2, Member Control Center Requirements and page 18, "Backup Recovery Procedures" 4th paragraph.	M-1 Control Center Requirements M-40 Certification and Training Requirements M-36 System Restoration Attachment D (p. 63)

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
EOP-008-0	R1.7.	The plan shall be reviewed and updated annually.		TOP		The Member TO shall develop a backup recovery plan to cover various contingencies, including maintaining an off-site storage location for updated copies of all software and data files necessary to restore critical functions in accordance with M-1 Control Center Requirements, Section 2, Member Control Center Requirements	M-1 Control Center Requirements M-36 System Restoration Section 8 (p. 42)
EOP-008-0	R1.8.	Interim provisions must be included if it is expected to take more than one hour to implement the contingency plan for loss of primary control facility.		TOP		N/A	M-1 Control Center Requirements
INT-004-1	R1.	At such time as the reliability event allows for the reloading of the transaction, the entity that initiated the curtailment shall release the limit on the Interchange Transaction tag to allow reloading the transaction and shall communicate the release of the limit to the Sink Balancing Authority.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	Tariff Annex 1 M-3 Transmission Operations
INT-004-1	R2.	The Purchasing-Selling Entity responsible for tagging a Dynamic Interchange Schedule shall ensure the tag is updated for the next available scheduling hour and future hours when any one of the following occurs:		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	Tariff Annex 1 M-3 Transmission Operations
INT-004-1	R2.1.	The average energy profile in an hour is greater than 250 MW and in that hour the actual hourly integrated energy deviates from the hourly average energy profile indicated on the tag by more than +10%.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	Tariff Annex 1 M-3 Transmission Operations
INT-004-1	R2.2.	The average energy profile in an hour is less than or equal to 250 MW and in that hour the actual hourly integrated energy deviates from the hourly average energy profile indicated on the tag by more than +25 megawatt-hours.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	Tariff Annex 1 M-3 Transmission Operations
INT-004-1	R2.3.	A Reliability Coordinator or Transmission Operator determines the deviation, regardless of magnitude, to be a reliability concern and notifies the Purchasing-Selling Entity of that determination and the reasons.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	Tariff Annex 1 M-3 Transmission Operations
IRO-001-1	R8.	Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load-Serving Entities, and Purchasing-Selling Entities shall comply with Reliability Coordinator directives unless such actions would violate safety, equipment, or regulatory or statutory requirements. Under these circumstances, the Transmission Operator, Balancing Authority, Generator Operator, Transmission Service Provider, Load-Serving Entity, or Purchasing-Selling Entity shall immediately inform the Reliability Coordinator of the inability to perform the directive so that the Reliability Coordinator may implement alternate remedial actions.		TOP		Member TO will comply with PJM directives in accordance with M-3, Transmission Operations & M-13 Emergency Operations and M-37, Section 1, page 4, "Policy Statements" in the 4th paragraph	PJM OA 11.3 & 14, PJM Operations M-3 Transmission Operations, M-13 Emergency Operation M-36 System Restoration
IRO 002-1	R3.	Each Reliability Coordinator – or its Transmission Operators and Balancing Authorities – shall provide, or arrange provisions for, data exchange to other Reliability Coordinators of Transmission Operators and Balancing Authorities via a secure network.		TOP		N/A	M-37 Reliability Coordination M-3 Transmission Operations.

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
IRO 002-1	R4.	Each Reliability Coordinator shall have multi-directional communications capabilities with its Transmission Operators and Balancing Authorities, and with neighboring Reliability Coordinators, for both voice and data exchange as required to meet reliability needs of the Interconnection.		TOP		N/A	M-37 Reliability Coordination
IRO-004-1	R3.	Each Reliability Coordinator shall, in conjunction with its Transmission Operators and Balancing Authorities, develop action plans that may be required, including reconfiguration of the transmission system, re-dispatching of generation, reduction or curtailment of Interchange Transactions, or reducing load to return transmission loading to within acceptable SOLs or IROLs.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-37 Reliability Coordination, Section 3	PJM OA, M-3 Transmission Operations, Sec 1, p12, Responsibilities for TO Operating Entity , TOA, M-37 Reliability Coordination
IRO-004-1	R4.	Each Transmission Operator, Balancing Authority, Transmission Owner, Generator Owner, Generator Operator, and Load-Serving Entity in the Reliability Coordinator Area shall provide information required for system studies, such as critical facility status, Load, generation, operating reserve projections, and known Interchange Transactions. This information shall be available by 1200 Central Standard Time for the Eastern Interconnection and 1200 Pacific Standard Time for the Western Interconnection.	TO	TOP		Member TO will provide PJM data required to perform system studies in accordance with M-3, Transmission Operations	PJM OA 11.3, Schedule 1, 1.9.9 M-14 D, Generator Operational Requirements. Ref "Coordination with Dispatch, Operation" M-1 Control Center Requirements M-3 Transmission Operations, Sec 4, p55, Scheduled Transmission Outage Requests M-5 Power System Application Data M-37 Reliability Coordination
IRO-004-1	R7.	Each Transmission Operator, Balancing Authority, and Transmission Service Provider shall comply with the directives of its Reliability Coordinator based on the next day assessments in the same manner in which it would comply during real time operating events.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-37 Reliability Coordination, Attachment A © "Common Tasks" (2)	PJM OA 11.3, Schedule 1, 1.9.9 TOA M-3 Transmission Operations M-37 Reliability Coordination
IRO-005-2	R3.	As portions of the transmission system approach or exceed SOLs or IROLs, the Reliability Coordinator shall work with its Transmission Operators and Balancing Authorities to evaluate and assess any additional Interchange Schedules that would violate those limits. If a potential or actual IROL violation cannot be avoided through proactive intervention, the Reliability Coordinator shall initiate control actions or emergency procedures to relieve the violation without delay, and no longer than 30 minutes. The Reliability Coordinator shall ensure all resources, including load shedding, are available to address a potential or actual IROL violation.		TOP		N/A	PJM OA Schedule 1, 1.7.6 Scheduling and Dispatching TOA M-3 Transmission Operations M-37 Reliability Coordination
IRO-005-2	R9.	The Reliability Coordinator shall coordinate with Transmission Operators, Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS, or DCS violations. The Reliability Coordinator shall coordinate pending generation and transmission maintenance outages with Transmission Operators, Balancing Authorities, and Generator Operators as needed in both the real time and next-day reliability analysis timeframes.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-37 Reliability Coordination, Section 1, page 5	TOA PJM OA 1.7.6 Scheduling and Dispatching, M-3 Transmission Operations, M-11 Scheduling Operations M-12 Balancing Operations. M-37 Reliability Coordination

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
IRO-005-12	R12.	Whenever a Special Protection System that may have an inter-Balancing Authority, or inter-Transmission Operator impact (e.g., could potentially affect transmission flows resulting in a SOL or IROL violation) is armed, the Reliability Coordinators shall be aware of the impact of the operation of that Special Protection System on inter-area flows. The Transmission Operator shall immediately inform the Reliability Coordinator of the status of the Special Protection System including any degradation or potential failure to operate as expected.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-37 Reliability Coordination, Attachment A, page 29	M-3 Transmission Operations, Sec 1, p12, Responsibility for TO Operating Entity M-37 Reliability Coordination
IRO-005-2	R13.	Each Reliability Coordinator shall ensure that all Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load-Serving Entities and Purchasing-Selling Entities operate to prevent the likelihood that a disturbance, action, or nonaction in its Reliability Coordinator Area will result in a SOL or IROL violation in another area of the Interconnection. In instances where there is a difference in derived limits, the Reliability Coordinator and its Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load-Serving Entities and Purchasing-Selling Entities shall always operate the Bulk Electric System to the most limiting parameter.		TOP		Member TO will provide PJM data required to perform system studies in accordance with M-3, Transmission Operations and M-37 Reliability Coordination, Attachment A(C) Common Tasks (2)	PJM OA 1.7.6 Scheduling and Dispatching, M-3 Transmission Operations, Sec 1, p14, Transmission Operating Guidelines M-37 Reliability Coordination
PER-001-0	R1.	Each Transmission Operator and Balancing Authority shall provide operating personnel with the responsibility and authority to implement real-time actions to ensure the stable and reliable operation of the Bulk Electric System.		TOP		The Member TO shall be responsible for implementing such corrective actions directed by PJM. If such PJM action or direction is disputed, PJM's position shall control pending resolution of the dispute (per OATT, Att. U, Section 2, Security Coordination), M-3, pg 12, 3rd to last paragraph	PJM Open Access Transmission Tariff, Attachment U -Independent Transmission Companies, Section 2 - Security Coordination M-13 Emergency Operations
PER-002-0	R1.	Each Transmission Operator and Balancing Authority shall be staffed with adequately trained operating personnel.		TOP		N/A	OA 10.4, OA 11.3.1, M-40 Certification and Training Requirements 1) Sec1, p5, Certification Examinations. 2) Sec2, P15, LCCCompliance Monitoring.
PER-002-0	R2.	Each Transmission Operator and Balancing Authority shall have a training program for all operating personnel that are in:		TOP		N/A	M-40 Certification and Training Requirements 1) Sec2, P13, Minimum Required. 2) Sec 2, P13, Annual LCC SO Continuing Training. 3) Sec 2 P14, Annual LCC SO Continuing Training. M-14 Generator Operational Requirements.
PER-002-0	R2.1.	Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.		TOP		N/A	M-40 Certification and Training Requirements

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PER-002-0	R2.2.	Positions directly responsible for complying with NERC standards.		TOP		N/A	PJM OA 10.4 M-40 Certification and training Requirements
PER-002-0	R3.	For personnel identified in Requirement R2, the Transmission Operator and Balancing Authority shall provide a training program meeting the following criteria:		TOP		N/A	PJM OA 10.4 M-40 Certification and training Requirements
PER-002-0	R3.1.	A set of training program objectives must be defined, based on NERC and Regional Reliability Organization standards, entity operating procedures, and applicable regulatory requirements. These objectives shall reference the knowledge and competencies needed to apply those standards, procedures, and requirements to normal, emergency, and restoration conditions for the Transmission Operator and Balancing Authority operating positions.		TOP		N/A	M-40 Certification and Training Requirements M-3 Transmission Operations Manual
PER-002-0	R3.2.	The training program must include a plan for the initial and continuing training of Transmission Operator and Balancing Authority operating personnel. That plan shall address knowledge and competencies required for reliable system operations.		TOP		N/A	M-40 Certification and Training Requirements
PER-002-0	R3.3.	The training program must include training time for all Transmission Operator and Balancing Authority operating personnel to ensure their operating proficiency.		TOP		N/A	M-40 Certification and Training Requirements
PER-002-0	R3.4.	Training staff must be identified, and the staff must be competent in both knowledge of system operations and instructional capabilities.		TOP		N/A	M-40 Certification and Training Requirements
PER-002-0	R4.	For personnel identified in Requirement R2, each Transmission Operator and Balancing Authority shall provide its operating personnel at least five days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.		TOP		N/A	M-40 Certification and Training Requirements
PER-003-0	R1.	Each Transmission Operator, Balancing Authority, and Reliability Coordinator shall staff all operating positions that meet both of the following criteria with personnel that are NERC-certified for the applicable functions:		TOP		N/A	PJM OA 10.4 M-40 Certification and Training Requirements
PER-003-0	R1.1.	Positions that have the primary responsibility, either directly or through communications with others, for the real-time operation of the interconnected Bulk Electric System.		TOP		N/A	PJM OA 10.4 M-40 Certification and Training Requirements
PER-003-0	R1.2.	Positions directly responsible for complying with NERC standards.		TOP		N/A	PJM OA 10.4 M-40 Certification and Training Requirements
TOP-001-1	R1.	Each Transmission Operator shall have the responsibility and clear decision-making authority to take whatever actions are needed to ensure the reliability of its area and shall exercise specific authority to alleviate operating emergencies.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	PJM OA Sch 1: 1.7.15, M-1 Control Center Requirements M-3 Transmission Operations, pg 12 M-12 Balancing Operations M-13 Emergency Operations, Sec 1, p11, PJM Member Actions , M-36 System Restoration M-37 Reliability Coordination
TOP-001-2	R2.	Each Transmission Operator shall take immediate actions to alleviate operating emergencies including curtailing transmission service or energy schedules, operating equipment (e.g., generators, phase shifters, breakers), shedding firm load, etc.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, pg. 12	PJM OA Sch 1: 1.7.15, M-1 Control Center Requirements M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations M-36 System Restoration M-37 Reliability Coordination

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-001-1	R3.	Each Transmission Operator, Balancing Authority, and Generator Operator shall comply with reliability directives issued by the Reliability Coordinator, and each Balancing Authority and Generator Operator shall comply with reliability directives issued by the Transmission Operator, unless such actions would violate safety, equipment, regulatory or statutory requirements. Under these circumstances the Transmission Operator, Balancing Authority or Generator Operator shall immediately inform the Reliability Coordinator or Transmission Operator of the inability to perform the directive so that the Reliability Coordinator or Transmission Operator can implement alternate remedial actions.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-37, Section 1, pg. 4, "Policy Statements," 4th paragraph	PJM OA Sch 1: 1.7.15, M-1 Control Center Requirements M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations M-36 System Restoration M-37 Reliability Coordination
TOP-001-1	R4.	Each Distribution Provider and Load Serving Entity shall comply with all reliability directives issued by the Transmission Operator, including shedding firm load, unless such actions would violate safety, equipment, regulatory or statutory requirements. Under these circumstances, the Distribution Provider or Load Serving Entity shall immediately inform the Transmission Operator of the inability to perform the directive so that the Transmission Operator can implement alternate remedial actions.		TOP		N/A	PJM OA 11.3, M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations TOA Article 4.7
TOP-001-1	R5.	Each Transmission Operator shall inform its Reliability Coordinator and any other potentially affected Transmission Operators of real time or anticipated emergency conditions, and take actions to avoid, when possible, or mitigate the emergency.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	PJM OA 11.3, M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations TOA Article 4.7
TOP-001-1	R6.	Each Transmission Operator, Balancing Authority, and Generator Operator shall render all available emergency assistance to others as requested, provided that the requesting entity has implemented its comparable emergency procedures, unless such actions would violate safety, equipment, or regulatory or statutory requirements.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations and M-13, Section 2, pg. 39, "General Assistance to Adjacent Control Areas"	PJM OA 11.3, M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations TOA Article 4.7
TOP-001-1	R7.	Each Transmission Operator and Generator Operator shall not remove Bulk Electric System facilities from service if removing those facilities would burden neighboring systems unless:		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	PJM OA Schedule 1, 1.9.1 Outage Scheduling M-3 Transmission Operations M-11 Scheduling Operations
TOP-001-1	R7.1.	For a generator outage, the Generator Operator shall notify and coordinate with the Transmission Operator. The Transmission Operator shall notify the Reliability Coordinator and other affected Transmission Operators, and coordinate the impact of removing the Bulk Electric System facility.		TOP		N/A	PJM OA Section 10.4 M3- Transmission Operations PJM OA Schedule 1, 1.9.1 Outage Scheduling M-11 Scheduling Operations
TOP-001-1	R7.2.	For a transmission facility, the Transmission Operator shall notify and coordinate with its Reliability Coordinator. The Transmission Operator shall notify other affected Transmission Operators, and coordinate the impact of removing the Bulk Electric System facility.		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	PJM OA Section 10.4 M3 Transmission Operations, PJM OA Schedule 1, 1.9.1 Outage Scheduling M-11 Scheduling Operations
TOP-001-1	R7.3.	When time does not permit such notifications and coordination, or when immediate action is required to prevent a hazard to the public, lengthy customer service interruption, or damage to facilities, the Generator Operator shall notify the Transmission Operator, and the Transmission Operator shall notify its Reliability Coordinator and adjacent Transmission Operators, at the earliest possible time.		TOP		N/A	PJM OA Section 11.3 Member Responsibilities M-14 D Generator Operational Requirements

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-001-1	R8.	During a system emergency, the Balancing Authority and Transmission Operator shall immediately take action to restore the Real and Reactive Power Balance. If the Balancing Authority or Transmission Operator is unable to restore Real and Reactive Power Balance it shall request emergency assistance from the Reliability Coordinator. If corrective action or emergency assistance is not adequate to mitigate the Real and Reactive Power Balance, then the Reliability Coordinator, Balancing Authority, and Transmission Operator shall implement firm load shedding.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	PJM OA 10.4, M-3 Transmission Operations M-12 Balancing Operations M-13 Emergency Operations
TOP-002-2	R1.	Each Balancing Authority and Transmission Operator shall maintain a set of current plans that are designed to evaluate options and set procedures for reliable operation through a reasonable future time period. In addition, each Balancing Authority and Transmission Operator shall be responsible for using available personnel and system equipment to implement these plans to ensure that interconnected system reliability will be maintained.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, pg. 12, bullet 8	PJM OA 10.3, Schedule 1, 1.7.15 Corrective Action, M-3 Transmission Operations M-10 Pre-Scheduling Operations PJM OATF Scope and Procedures
TOP-002-2	R2.	Each Balancing Authority and Transmission Operator shall ensure its operating personnel participate in the system planning and design study processes, so that these studies contain the operating personnel perspective and system operating personnel are aware of the planning purpose.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	M-3 Transmission Operations M 10 Pre-Scheduling Operations M 38 PJM OATF Scope and Procedures, Sec 1, p5, PJM Member TO Actions
TOP-002-2	R4.	Each Balancing Authority and Transmission Operator shall coordinate (where confidentiality agreements allow) its current-day, next-day, and seasonal planning and operations with neighboring Balancing Authorities and Transmission Operators and with its Reliability Coordinator, so that normal Interconnection operation will proceed in an orderly and consistent manner.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 4, pg. 56	PJM OA, Schedule 1, 1.9.9 Office of the Interconnection Responsibilities. Transmission Outage schedules by TOA and OA requirements M-3 Transmission Operations M-10 Pre-Scheduling Operations PJM OATF Scope and Procedures
TOP-002-2	R5.	Each Balancing Authority and Transmission Operator shall plan to meet scheduled system configuration, generation dispatch, interchange scheduling and demand patterns.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 4, pg. 57	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-002-2	R6.	Each Balancing Authority and Transmission Operator shall plan to meet unscheduled changes in system configuration and generation dispatch (at a minimum N-1 Contingency planning) in accordance with NERC, Regional Reliability Organization, subregional, and local reliability requirements.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Sect. 4, pg. 58	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations M-12 Balancing Operations M-11 Scheduling Operations
TOP-002-2	R10.	Each Balancing Authority and Transmission Operator shall plan to meet all System Operating Limits (SOLs) and Interconnection Reliability Operating Limits (IROLs).		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Sect. 4, pg. 59	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations M-12 Balancing Operations

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-002-2	R11.	The Transmission Operator shall perform seasonal, next-day, and current-day Bulk Electric System studies to determine SOLs. Neighboring Transmission Operators shall utilize identical SOLs for common facilities. The Transmission Operator shall update these Bulk Electric System studies as necessary to reflect current system conditions; and shall make the results of Bulk Electric System studies available to the Transmission Operators, Balancing Authorities (subject confidentiality requirements), and to its Reliability Coordinator.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Sect. 4, pg. 60	PJM OA, Schedule 1, 1.9.9 Office of the Interconnection Responsibilities. M-3 Transmission Operations M12 Balancing Operations
TOP-002-2	R16.	Subject to standards of conduct and confidentiality agreements, Transmission Operators shall, without any intentional time delay, notify their Reliability Coordinator and Balancing Authority of changes in capabilities and characteristics including but not limited to:		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM.	M-3 Transmission Operations, Sec 1, p12, M-38 Operations Planning
TOP-002-2	R16.1.	Changes in transmission facility status.		TOP		Member TO shall confirm status changes of transmission facilities in accordance with M-3, Transmission Operations, Sect. 4, pg. 58, "Emergency and Forced Outages"	M-3 Transmission Operations, Sec 4, p62, Notification of Transmission Outages M-38 Operations Planning
TOP-002-2	R16.2.	Changes in transmission facility rating.		TOP		Member TO shall confirm status changes of transmission facilities in accordance with M-3, Transmission Operations, Section 2, pg. 30	TOA 4.11.3 M-3 Transmission Operations, Sec 1, p12, Responsibilities of TO Operating Entity
						Member TO shall confirm rating changes of transmission facilities in accordance with M-3, Transmission Operations	M-3 Transmission Operations, Sec 2, p30 How to change facility ratings
TOP-002-2	R17.	Balancing Authorities and Transmission Operators shall, without any intentional time delay, communicate the information described in the requirements R1 to R16 above to their Reliability Coordinator.		TOP		N/A	TOA 4.11.3 M-3 Transmission Operations M-38 Operations Planning
TOP-002-2	R18.	Neighboring Balancing Authorities, Transmission Operators, Generator Operators, Transmission Service Providers and Load Serving Entities shall use uniform line identifiers when referring to transmission facilities of an interconnected network.		TOP		PJM and its member TO's utilize a bus naming convention in accordance with M-5, Power System Application Data, Section 1, Power System Application Data, and M-3, Section 4, pg. 63 Note.	M-5 Power System Application Data, Sec Intro, p2, About This Manual

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-002-2	R19.	Each Balancing Authority and Transmission Operator shall maintain accurate computer models utilized for analyzing and planning system operations.		TOP		Each Member TO maintains models of their transmission system and include adjacent areas as necessary in accordance with M-5, Power System Application Data and M-3, Section 4, pg. 57, "Energizing New Facilities"	PJM OA, 1.7.15 Corrective Action. M-5 Power System Application Data M-1 Control Center Requirements, Section 2 Member Control Center Requirements, Transmission Monitoring Capability, page 11
TOP-003-0	R1.	Generator Operators and Transmission Operators shall provide planned outage information.		TOP		Member TO must provide outage information in accordance with M-10, Pre-Scheduling Operations and M-3, Section 4, pg. 56, "Scheduling Transmission Outage Requests."	PJM OA, 10.4 Duties and Responsibilities, M-10 Pre-Scheduling Operations TOA 4.5 and 4.8, OA Schedule 1, 1.9 M-38 Operations Planning, M3 Transmission Operations, Sec 4, p55, Scheduled Transmission Outage Requests
TOP-003-0	R1.1.	Each Generator Operator shall provide outage information daily to its Transmission Operator for scheduled generator outages planned for the next day (any foreseen outage of a generator greater than 50 MW). The Transmission Operator shall establish the outage reporting requirements.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities M-10 Pre-Scheduling Operations M-38 Operations Planning

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-003-0	R1.2.	Each Transmission Operator shall provide outage information daily to its Reliability Coordinator, and to affected Balancing Authorities and Transmission Operators for scheduled generator and bulk transmission outages planned for the next day (any foreseen outage of a transmission line or transformer greater than 100 kV or generator greater than 50 MW) that may collectively cause or contribute to an SOL or IROL violation or a regional operating area limitation. The Reliability Coordinator shall establish the outage reporting requirements.		TOP		Member TO shall provide maintenance and construction plans to PJM and other Transmission Owners as required; takes action to maintain local reliability and public safety; and submit outage requests to PJM according to PJM requirements in PJM OA Article 10.4, M-3, Transmission Operations and M-10, Pre-Scheduling Operations	PJM OA, 10.4 Duties and Responsibilities M-3, Transmission Operations, Sect. 4, pg. 56, "Scheduling Transmission Outage Requests" M-10, Pre-Scheduling Operations M-38 Operations Planning
TOP-003-0	R1.3.	Such information shall be available by 1200 Central Standard Time for the Eastern Interconnection and 1200 Pacific Standard Time for the Western Interconnection.		TOP		Member TO shall provide maintenance and construction plans to PJM and other Transmission Owners as required; takes action to maintain local reliability and public safety; and submit outage requests to PJM according to PJM requirements in PJM OA Article 10.4, M-3, Transmission Operations and M-10, Pre-Scheduling Operations	PJM OA, 10.4 Duties and Responsibilities M-3, Transmission Operations, Sect. 4, pg. 56, "Scheduling Transmission Outage Requests" Requirements Table M-10, Pre-Scheduling Operations M-38 Operations Planning
TOP-003-0	R2.	Each Transmission Operator, Balancing Authority, and Generator Operator shall plan and coordinate scheduled outages of system voltage regulating equipment, such as automatic voltage regulators on generators, supplementary excitation control, synchronous condensers, shunt and series capacitors, reactors, etc., among affected Balancing Authorities and Transmission Operators as required.		TOP		Member TO shall provide maintenance and construction plans to PJM and other Transmission Owners as required; takes action to maintain local reliability and public safety; and submit outage requests to PJM according to PJM requirements in PJM OA Article 10.4, M-3, Transmission Operations and M-10, Pre-Scheduling Operations	PJM OA, 10.4 Duties and Responsibilities M-3, Transmission Operations, Sect. 4, pg. 56, "Scheduling Transmission Outage Requests" M-10, Pre-Scheduling Operations M-38 Operations Planning
TOP-003-0	R3.	Each Transmission Operator, Balancing Authority, and Generator Operator shall plan and coordinate scheduled outages of telemetering and control equipment and associated communication channels between the affected areas.		TOP		Member TO must provide telemetry, control and communication outage information in accordance with M-1, Control Center Requirements, Section 3, Data Exchange Requirements	PJM OA, 10.4 Duties and Responsibilities M-1 Control Center Requirements M-3, Transmission Operations, Section 4, pg. 57 last line before "energizing new facilities" M-10, Pre-Scheduling Operations M-38 Operations Planning

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-004-1	R1.	Each Transmission Operator shall operate within the Interconnection Reliability Operating Limits (IROLs) and System Operating Limits (SOLs).		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R2.	Each Transmission Operator shall operate so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single contingency.		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R3.	Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R4.	If a Transmission Operator enters an unknown operating state (i.e. any state for which valid operating limits have not been determined), it will be considered to be in an emergency and shall restore operations to respect proven reliable power system limits within 30 minutes.		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R5.	Each Transmission Operator shall make every effort to remain connected to the Interconnection. If the Transmission Operator determines that by remaining interconnected, it is in imminent danger of violating an IROL or SOL, the Transmission Operator may take such actions, as it deems necessary, to protect its area.		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations M-13 Emergency Operations
TOP-004-1	R6.	Transmission Operators, individually and jointly with other Transmission Operators, shall develop, maintain, and implement formal policies and procedures to provide for transmission reliability. These policies and procedures shall address the execution and coordination of activities that impact inter- and intra-Regional reliability, including:		TOP		There is no Member TO task associated with this reqt. which is applicable to PJM. However, Member TOs shall satisfy the following applicable sub-requirements.	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations, Sec 1, p12, Responsibilities for TO Operating Entity
TOP-004-1	R6.1.	Equipment ratings.		TOP		Member TO shall provide equipment ratings to PJM in accordance with TOA 4.11.3 and M-3, Section 2, pg. 30	TOA Article 4.11.3 PJM OA, Schedule 1, 1.7.15 Corrective Action.
TOP-004-1	R6.2.	Monitoring and controlling voltage levels and real and reactive power flows.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 3, pgs. 33-36	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R6.3.	Switching transmission elements.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, third line from bottom	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations
TOP-004-1	R6.4.	Planned outages of transmission elements.		TOP		Member TO shall provide transmission outage and maintenance information and update it as it changes in accordance with TOA Article 4.8, and M-3, Section 4, pg. 56, "Scheduling Transmission Outage Requests" Requirement Table	TOA Article 4.8 PJM OA, Schedule 1, 1.7.15 Corrective Action.
TOP-004-1	R6.5.	Development of IROLs and SOLs.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, pg. 12 (second bullet)	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-004-1	R6.6.	Responding to IROL and SOL violations.		TOP		Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations, Section 1, page 12, bullets 8, 9, 10, 13	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-3 Transmission Operations, Sec 1, p12, Responsibilities for TO Operating Entity,
						Member TO shall implement actions as directed by PJM in accordance with M-3, Transmission Operations	M-3 Transmission Operations
TOP-005-1	R1.	Each Transmission Operator and Balancing Authority shall provide its Reliability Coordinator with the operating data that the Reliability Coordinator requires to perform operational reliability assessments and to coordinate reliable operations within the Reliability Coordinator Area.		TOP		N/A	PJM is the reliability coordinator for the PJM control area. M-1 Control Center Requirements M-3 Transmission Operations M-37 Reliability Coordination
TOP-005-1	R3.	Upon request, each Balancing Authority and Transmission Operator shall provide to other Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability, the operating data that are necessary to allow these Balancing Authorities and Transmission Operators to perform operational reliability assessments and to coordinate reliable operations. Balancing Authorities and Transmission Operators shall provide the types of data as listed in Attachment 1-TOP-005-0 "Electric System Reliability Data," unless otherwise agreed to by the Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability.		TOP		N/A	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-1 Control Center requirements M-3 Transmission Operations M-37 Reliability Coordination
TOP-006-1	R1.	Each Transmission Operator and Balancing Authority shall know the status of all generation and transmission resources available for use.		TOP		Member TO shall confirm status changes of transmission facilities in accordance with M-3, Transmission Operations, Sect. 1, pg. 12-13	PJM OA, Schedule 1, 1.7.15 Corrective Action. M-1 Control Center requirements M-3 Transmission Operations, Sec 1, p12 Responsibilities for TO Operating Entity M-37 Reliability Coordination M-38 Operations Planning
TOP-006-1	R1.2.	Each Transmission Operator and Balancing Authority shall inform the Reliability Coordinator and other affected Balancing Authorities and Transmission Operators of all generation and transmission resources available for use.		TOP		Member TO shall confirm status changes of transmission facilities in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	M-3 Transmission Operations
TOP-006-1	R2.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall monitor applicable transmission line status, real and reactive power flows, voltage, load-tap-changer settings, and status of rotating and static reactive resources.		TOP		Member TO shall confirm status changes of transmission facilities in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	M-3 Transmission Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-006-1	R3.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall provide appropriate technical information concerning protective relays to their operating personnel.		TOP		Member TO shall provide technical information concerning protective relays to PJM in accordance with M-3, Transmission Operations, Section 1, pgs. 12-13	M-3 Transmission Operations Sec 1, p12, Responsibilities of Operating Entities.
TOP-006-1	R4.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall have information, including weather forecasts and past load patterns, available to predict the system's near-term load pattern.		TOP		N/A	M-11 Scheduling Operations M-10 Pre-Scheduling Operations
TOP-006-1	R5.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall use monitoring equipment to bring to the attention of operating personnel important deviations in operating conditions and to indicate, if appropriate, the need for corrective action.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. OA Schedule 1, 1.7.6 (c) M-1 Control Center requirements M-3 transmission Operations
TOP-006-1	R6.	Each Balancing Authority and Transmission Operator shall use sufficient metering of suitable range, accuracy and sampling rate (if applicable) to ensure accurate and timely monitoring of operating conditions under both normal and emergency situations.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. OA Schedule 1, 1.7.6 (c) M-1 Control Center Requirements
TOP-006-1	R7.	Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall monitor system frequency.		TOP		N/A	PJM monitors frequency throughout the entire PJM footprint
TOP-007-0	R1.	A Transmission Operator shall inform its Reliability Coordinator when an IROL or SOL has been exceeded and the actions being taken to return the system to within limits.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
TOP-007-0	R2.	Following a Contingency or other event that results in an IROL violation, the Transmission Operator shall return its transmission system to within IROL as soon as possible, but not longer than 30 minutes.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
TOP-007-0	R3.	A Transmission Operator shall take all appropriate actions up to and including shedding firm load, or directing the shedding of firm load, in order to comply with Requirement R 2.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
TOP-008-1	R1.	The Transmission Operator experiencing or contributing to an IROL or SOL violation shall take immediate steps to relieve the condition, which may include shedding firm load.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
TOP-008-1	R2.	Each Transmission Operator shall operate to prevent the likelihood that a disturbance, action, or inaction will result in an IROL or SOL violation in its area or another area of the Interconnection. In instances where there is a difference in derived operating limits, the Transmission Operator shall always operate the Bulk Electric System to the most limiting parameter.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
TOP-008-1	R3.	The Transmission Operator shall disconnect the affected facility if the overload on a transmission facility or abnormal voltage or reactive condition persists and equipment is endangered. In doing so, the Transmission Operator shall notify its Reliability Coordinator and all neighboring Transmission Operators impacted by the disconnection prior to switching, if time permits, otherwise, immediately thereafter.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TOP-008-1	R4.	The Transmission Operator shall have sufficient information and analysis tools to determine the cause(s) of SOL violations. This analysis shall be conducted in all operating timeframes. The Transmission Operator shall use the results of these analyses to immediately mitigate the SOL violation.		TOP		N/A	PJM Operating Agreement, Schedule 1: 1.7.15 Corrective Action. M-13 Emergency Operations
VAR-001-1	R1.	Each Transmission Operator, individually and jointly with other Transmission Operators, shall ensure that formal policies and procedures are developed, maintained, and implemented for monitoring and controlling voltage levels and MVAR flows within their individual areas and with the areas of neighboring Transmission Operators.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations, Section 3	M-1 Control Center Requirements M-3 Transmission Operations, Sec 1, p12, Responsibilities for TO Operating Entity,
VAR-001-1	R2.	Each Transmission Operator shall acquire sufficient reactive resources within its area to protect the voltage levels under normal and Contingency conditions. This includes the Transmission Operator's share of the reactive requirements of interconnecting transmission circuits.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations, Section 1, pg. 12	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R3.	The Transmission Operator shall specify criteria that exempts generators from compliance with the requirements defined in Requirement 4, and Requirement 6.1.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R3.1.	Each Transmission Operator shall maintain a list of generators in its area that are exempt from following a voltage or Reactive Power schedule.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R3.2.	For each generator that is on this exemption list, the Transmission Operator shall notify the associated Generator Owner.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R4.	Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner's facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage). 1. The voltage schedule is a target voltage to be maintained within a tolerance band during a specified period.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations, Section 3, pg. 37	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R5.	Each Purchasing-Selling Entity shall arrange for (self-provide or purchase) reactive resources to satisfy its reactive requirements identified by its Transmission Service Provider.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R6.	The Transmission Operator shall know the status of all transmission Reactive Power resources, including the status of voltage regulators and power system stabilizers.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R6.1.	When notified of the loss of an automatic voltage regulator control, the Transmission Operator shall direct the Generator Operator to maintain or change either its voltage schedule or its Reactive Power schedule.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R7.	The Transmission Operator shall be able to operate or direct the operation of devices necessary to regulate transmission voltage and reactive flow.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations, Section 3, pg. 37	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations

Operations Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
VAR-001-1	R8.	Each Transmission Operator shall operate or direct the operation of capacitive and inductive reactive resources within its area – including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding – to maintain system and Interconnection voltages within established limits.		TOP		N/A	PJM corrects all IROL violations M-37 Reliability Coordination
VAR-001-1	R9.	Each Transmission Operator shall maintain reactive resources to support its voltage under first Contingency conditions.		TOP		Member TO to maintain equipment and report and status changes in accordance with M-3, Transmission Operations, Section 3, pg. 33	PJM OA, 10.4 Duties and Responsibilities M-3 Transmission Operations
VAR-001-1	R9.1.	Each Transmission Operator shall disperse and locate the reactive resources so that the resources can be applied effectively and quickly when Contingencies occur.		TOP		Member TO to maintain equipment and report and status changes in accordance with M-3, Transmission Operations, Sect. 3	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R10.	Each Transmission Operator shall correct IROL or SOL violations resulting from reactive resource deficiencies (IROL violations must be corrected within 30 minutes) and complete the required IROL or SOL violation reporting.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations and M-37, Section 3	PJM OA 1.7.11 Emergencies, Tariff, page 572 (TLRs), Transmission Owners Agreement Article 4 Planning and Operations,, OA 6.3 Dispatch for Local Reliability. M-3 Transmission Operations, Sec 1, p12, PJM Member Actions,
VAR-001-1	R11.	After consultation with the Generator Owner regarding necessary step-up transformer tap changes, the Transmission Operator shall provide documentation to the Generator Owner specifying the required tap changes, a timeframe for making the changes, and technical justification for these changes.		TOP		N/A	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations
VAR-001-1	R12.	The Transmission Operator shall direct corrective action, including load reduction, necessary to prevent voltage collapse when reactive resources are insufficient.		TOP		Member TO to implement PJM directives for voltage control such as adjusting taps, switching transmission, and capacitor operations in accordance with M-3, Transmission Operations and M-13, Section 5, pg. 55	PJM OA, 10.4 Duties and Responsibilities, M-3 Transmission Operations

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-001-0	R1.	The Transmission Owner shall document, maintain, and publish facility connection requirements to ensure compliance with NERC Reliability Standards and applicable Regional Reliability Organization, subregional, Power Pool, and individual Transmission Owner planning criteria and facility connection requirements. The Transmission Owner's facility connection requirements shall address connection requirements for:	TO			Member TO relies on PJM to post the TOs specific interconnection requirements on the PJM web site	Tariff, IV, Interconnections with the Transmission System, Tariff Section 50.6 Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R1.1.	Generation facilities,	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R1.2.	Transmission facilities, and	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 1.3.	End-user facilities	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.	The Transmission Owner's facility connection requirements shall address, but are not limited to, the following items:	TO			Member TO relies on PJM to perform the analysis, planning process, and interconnection processes for generation and transmission facilities in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.	Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:	TO			Member TO relies on PJM to perform the analysis, planning process, and interconnection processes for generation and transmission facilities in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-001-0	R 2.1.1.	Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems.	TO			Member TO relies on PJM to perform the analysis, planning process, and interconnection processes for generation and transmission facilities in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.10.	Power quality impacts.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.11.	Equipment Ratings.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.12.	Synchronizing of facilities.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.13.	Maintenance coordination.	TO			Member TO relies on PJM to perform the maintenance coordination in accordance with M 14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.14.	Operational issues (abnormal frequency and voltages).	TO			Member TO relies on PJM to communicate any Operational issues	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-001-0	R 2.1.15.	Inspection requirements for existing or new facilities.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.16.	Communications and procedures during normal and emergency operating conditions.	TO			Member TO relies on PJM to develop communication and operating procedures for normal and emergency conditions	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.2.	Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as feasible.	TO			Member TO relies on PJM to develop procedures for notifying others of new or modified facilities.	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.3.	Voltage level and MW and MVAR capacity or demand at point of connection.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.4.	Breaker duty and surge protection.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.5.	System protection and coordination.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-001-0	R 2.1.6.	Metering and telecommunications.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.7.	Grounding and safety issues.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.8.	Insulation and insulation coordination.	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 2.1.9.	Voltage, Reactive Power, and power factor control.	TO			Member TO relies on PJM to perform the voltage, reactive power, and power factor control analysis.	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-001-0	R 3.	The Transmission Owner shall maintain and update its facility connection requirements as required. The Transmission Owner shall make documentation of these requirements available to the users of the transmission system, the Regional Reliability Organization, and NERC on request (five business days).	TO			N/A	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-002-0	R 1.	The Generator Owner, Transmission Owner, Distribution Provider, and Load-Serving Entity seeking to integrate generation facilities, transmission facilities, and electricity end-user facilities shall each coordinate and cooperate on its assessments with its Transmission Planner and Planning Authority. The assessment shall include:	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection (Manual 14C, Section C, Page 42)
FAC-002-0	R 1.1.	Evaluation of the reliability impact of the new facilities and their connections on the interconnected transmission systems.	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-002-0	R 1.2.	Ensurance of compliance with NERC Reliability Standards and applicable Regional, subregional, Power Pool, and individual system planning criteria and facility connection requirements.	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-002-0	R1.3.	Evidence that the parties involved in the assessment have coordinated and cooperated on the assessment of the reliability impacts of new facilities on the interconnected transmission systems. While these studies may be performed independently, the results shall be jointly evaluated and coordinated by the entities involved.	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-002-0	R1.4.	Evidence that the assessment included steady-state, short-circuit, and dynamics studies as necessary to evaluate system performance in accordance with Reliability Standard TPL-001-0.	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-002-0	R1.5.	Documentation that the assessment included study assumptions, system performance, alternatives considered, and jointly coordinated recommendations.	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection
FAC-002-0	R2.	The Planning Authority, Transmission Planner, Generator Owner, Transmission Owner, Load-Serving Entity, and Distribution Provider shall each retain its documentation (of its evaluation of the reliability impact of the new facilities and their connections on the interconnected transmission systems) for three years and shall provide the documentation to the Regional Reliability Organization(s) Regional Reliability Organization(s) and NERC on request (within 30 calendar days).	TO		TP	Member TO shall coordinate and cooperate with PJM in the assessments in accordance with M-14 A thru E (manuals related to Generation & Transmission Interconnection)	Tariff, IV, Interconnections with the Transmission System, Subpart A, Generation Subpart B. Transmission Manual 14 A,B,C, D and E Generation/Transmission Interconnection PJM Generation Interconnection process assigns responsibility to PJM, not GO
FAC-003-1	R1.	The Transmission owner shall prepare, and keep current, a formal transmission vegetation management (TVM). The TVMP shall include the Transmission Owner's objectives, practices, approved procedures, and work Specifications. 1. ANSI A300, Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, while not a requirement of this standard, is considered to be an industry best practice.	TO			N/A	
FAC-003-1	R1.1.	The TVMP shall define a schedule for and the type (aerial, ground) of ROW vegetation inspections. This schedule should be flexible enough to adjust for changing conditions. The inspection schedule shall be based on the anticipated growth of vegetation and any other environmental or operational factors that could impact the relationship of vegetation to the Transmission Owner's transmission lines.	TO			N/A	

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-003-1	R1.2.	The Transmission Owner, in the TVMP, shall identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Specifically, the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply conductors.	TO			N/A	
FAC-003-1	R1.2.1.	Clearance 1 — The Transmission Owner shall determine and document appropriate clearance distances to be achieved at the time of transmission vegetation management work based upon local conditions and the expected time frame in which the Transmission Owner plans to return for future vegetation management work. Local conditions may include, but are not limited to: operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements. Clearance 1 distances shall be greater than those defined by Clearance 2 below.	TO			N/A	
FAC-003-1	R1.2.2.	Clearance 2 — The Transmission Owner shall determine and document specific radial clearances to be maintained between vegetation and conductors under all rated electrical operating conditions. These minimum clearance distances are necessary to prevent flashover between vegetation and conductors and will vary due to such factors as altitude and operating voltage. These Transmission Owner-specific minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (<i>Guide for Maintenance Methods on Energized Power Lines</i>) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.	TO			N/A	
FAC-003-1	R1.2.2.1.	Where transmission system transient overvoltage factors are not known, clearances shall be derived from Table 5, IEEE 516-2003, phase-to-ground distances, with appropriate altitude correction factors applied.	TO			N/A	
FAC-003-1	R1.2.2.2.	Where transmission system transient overvoltage factors are known, clearances shall be derived from Table 7, IEEE 516-2003, phase-to-phase voltages, with appropriate altitude correction factors applied.	TO			N/A	
FAC-003-1	R1.3	All personnel directly involved in the design and implementation of the TVMP shall hold appropriate qualifications and training, as defined by the Transmission Owner, to perform their duties.	TO			N/A	
FAC-003-1	R1.4	Each Transmission Owner shall develop mitigation measures to achieve sufficient clearances for the protection of the transmission facilities when it identifies locations on the ROW where the Transmission Owner is restricted from attaining the clearances specified in Requirement 1.2.1.	TO			N/A	
FAC-003-1	R1.5	Each Transmission Owner shall establish and document a process for the immediate communication of vegetation conditions that present an imminent threat of a transmission line outage. This is so that action (temporary reduction in line rating, switching line out of service, etc.) may be taken until the threat is relieved.	TO			Member TO must inform PJM Operations of any imminent threat to the system in accordance with M-3, Transmission Operations	M-3 Transmission Operations (Manual 3, Section 4, Page 57)

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-003-1	R2.	The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.	TO			Any outage coordination activities would be performed by PJM and communicated back to the Member TO in accordance with M-10, Pre-Scheduling Operations and M-3 Transmission Operations, Section 4 Reportable Transmission Facility Outages	M-3 - Transmission Operations M-10 - Pre-Scheduling Operations
FAC-003-1	R3.	The Transmission Owner shall report quarterly to its RRO, or the RRO's designee, sustained transmission line outages determined by the Transmission Owner to have been caused by vegetation.	TO			N/A	
FAC-003-1	R3.1.	Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.	TO			N/A	
FAC-003-1	R3.2.	The Transmission Owner is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation: (1) Vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters shall not be considered reportable (examples of disasters that could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by the Transmission Owner or an applicable regulatory body, ice storms, and floods), and (2) Vegetation-related outages due to human or animal activity shall not be considered reportable (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural activities or horticultural or agricultural activities, or removal or digging of vegetation).	TO			N/A	
FAC-003-1	R3.3.	The outage information provided by the Transmission Owner to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) outaged, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by the Transmission Owner.	TO			N/A	
FAC-003-1	R3.4.	An outage shall be categorized as one of the following:	TO			N/A	
FAC-003-1	R3.4.1.	Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;	TO			N/A	
FAC-003-1	R3.4.2.	Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;	TO			N/A	
FAC-003-1	R3.4.3.	Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.	TO			N/A	
FAC-008-1	R1.	The Transmission Owner and Generator Owner shall each document its current methodology used for developing Facility Ratings (Facility Ratings Methodology) of its solely and jointly owned Facilities. The methodology shall include all of the following:	TO			N/A	PJM TSDS Documentation Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings M-21 Gen Capability Testing

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-008-1	R1.1.	A statement that a Facility Rating shall equal the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.2.	The method by which the Rating (of major BES equipment that comprises a Facility) is determined.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.2.1.	The scope of equipment addressed shall include, but not be limited to, generators, transmission conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.2.2.	The scope of Ratings addressed shall include, as a minimum, both Normal and Emergency Ratings.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.3.	Consideration of the following:	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.3.1.	Ratings provided by equipment manufacturers.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-008-1	R1.3.2.	Design criteria (e.g., including applicable references to industry Rating practices such as manufacturer's warranty, IEEE, ANSI or other standards).	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.3.3.	Ambient conditions.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.3.4.	Operating limitations.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R1.3.5.	Other assumptions.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R2.	The Transmission Owner and Generator Owner shall each make its Facility Ratings Methodology available for inspection and technical review by those Reliability Coordinators, Transmission Operators, Transmission Planners, and Planning Authorities that have responsibility for the area in which the associated Facilities are located, within 15 business days of receipt of a request.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-008-1	R3.	If a Reliability Coordinator, Transmission Operator, Transmission Planner, or Planning Authority provides written comments on its technical review of a Transmission Owner's or Generator Owner's Facility Ratings Methodology, the Transmission Owner or Generator Owner shall provide a written response to that commenting entity within 45 calendar days of receipt of those comments. The response shall indicate whether a change will be made to the Facility Ratings Methodology and, if no change will be made to that Facility Ratings Methodology, the reason why	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-009-1	R1.	The Transmission Owner and Generator Owner shall each establish Facility Ratings for its solely and jointly owned Facilities that are consistent with the associated Facility Ratings Methodology.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-009-1	R2.	The Transmission Owner and Generator Owner shall each provide Facility Ratings for its solely and jointly owned Facilities that are existing Facilities, new Facilities, modifications to existing Facilities and re-ratings of existing Facilities to its associated Reliability Coordinator(s), Planning Authority(ies), Transmission Planner(s), and Transmission Operator(s) as scheduled by such requesting entities.	TO			N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides
FAC-012-1	R3.3.	(R3. The Planning Authority shall issue its Transfer Capability Methodology, and any changes to that methodology, prior to the effectiveness of such changes, to all of the following:) Each Reliability Coordinator and Transmission Operator that operates any portion of the Planning Authority's Planning Authority Area.		TOP		N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-014-1	R2.	The Transmission Operator shall establish SOLs (as directed by its Reliability Coordinator) for its portion of the Reliability Coordinator Area that are consistent with its Reliability Coordinator's SOL Methodology.		TOP		N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-014-1	R4.	The Transmission Planner shall establish SOLs, including IROLs, for its Transmission Planning Area that are consistent with its Planning Authority's SOL Methodology.			TP	N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-014-1	R5.	The Reliability Coordinator, Planning Authority and Transmission Planner shall each provide its SOLs and IROLs to those entities that have a reliability-related need for those limits and provide a written request that includes a schedule for delivery of those limits as follows:			TP	N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
FAC-014-1	R5.2.	The Transmission Operator shall provide any SOLs it developed to its Reliability Coordinator and to the Transmission Service Providers that share its portion of the Reliability Coordinator Area.		TOP		N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
FAC-014-1	R5.4.	The Transmission Planner shall provide its SOLs (including the subset of SOLs that are IROLs) to its Planning Authority, Reliability Coordinators, Transmission Operators, and Transmission Service Providers that work within its Transmission Planning Area and to adjacent Transmission Planners.			TP	N/A	PJM TSDS Documents Tx & Subst. Design Subctte. http://www.pjm.com/planning/tsds-tech-reqs.html VI. Rating Guides ECAR Document No. 7 - Transmission System Facility Ratings
MOD-010-0	R1.	The Transmission Owners, Transmission Planners Generator Owners, and Resource Planners (specified in the data requirements and reporting procedures of MOD-011-0_R1) shall provide appropriate equipment characteristics, system data, and existing and future Interchange Schedules in compliance with its respective Interconnection Regional steady-state modeling and simulation data requirements and reporting procedures as defined in Reliability Standard MOD-011-0_R 1.	TO		TP	Shared responsibility: Member TO provides modeling information to the RRO; PJM supplies interchange and load forecast.	VI. Rating Guides M-5,Power System Application Data MMWG Manual M-14 D Generator Operational Requirements Manual
MOD-010-0	R2.	The Transmission Owners, Transmission Planners, Generator Owners, and Resource Planners (specified in the data requirements and reporting procedures of MOD-011-0_R1) shall provide this steady-state modeling and simulation data to the Regional Reliability Organizations, NERC, and those entities specified within Reliability Standard MOD-011-0_R 1. If no schedule exists, then these entities shall provide the data on request (30 calendar days).	TO		TP	Shared responsibility: Member TO provides modeling information to the RRO; PJM supplies interchange and load forecast.	VI. Rating Guides M-5,Power System Application Data MMWG Manual M-14 D Generator Operational Requirements Manual
MOD-012-0	R1.	The Transmission Owners, Transmission Planners, Generator Owners, and Resource Planners (specified in the data requirements and reporting procedures of MOD-013-0_R4) shall provide appropriate equipment characteristics and system data in compliance with the respective Interconnection-wide Regional dynamics system modeling and simulation data requirements and reporting procedures as defined in Reliability Standard MOD-013-0_R 4.	TO		TP	Shared responsibility: Member TO provides modeling information to the RRO; PJM supplies interchange and load forecast.	VI. Rating Guides M-5,Power System Application Data MMWG Manual M-14 D Generator Operational Requirements Manual
MOD-012-0	R2.	The Transmission Owners, Transmission Planners, Generator Owners, and Resource Planners (specified in the data requirements and reporting procedures of MOD-013-0_R4) shall provide dynamics system modeling and simulation data to its Regional Reliability Organization(s), NERC, and those entities specified within the applicable reporting procedures identified in Reliability Standard MOD-013-0_R 1. If no schedule exists, then these entities shall provide data on request (30 calendar days).	TO		TP	Shared responsibility: Member TO provides modeling information to the RRO; PJM supplies interchange and load forecast.	VI. Rating Guides M-5,Power System Application Data MMWG Manual M-14 D Generator Operational Requirements Manual
MOD-018-0	R1.	The Load-Serving Entity, Planning Authority, Transmission Planner and Resource Planner's report of actual and forecast demand data (reported on either an aggregated or dispersed basis) shall:			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-018-0	R1.1.	Indicate whether the demand data of nonmember entities within an area or Regional Reliability Organization are included, and			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-018-0	R1.2.	Address assumptions, methods, and the manner in which uncertainties are treated in the forecasts of aggregated peak demands and Net Energy for Load.			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
MOD-018-0	R1.3.	Items (MOD-018-0_R 1.1) and (MOD-018-0_R 1.2) shall be addressed as described in the reporting procedures developed for Standard MOD-016-0_R 1.			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-018-0	R2.	The Load-Serving Entity, Planning Authority, Transmission Planner and Resource Planner shall each report data associated with Reliability Standard MOD-018-0_R1 to NERC, the Regional Reliability Organization, Load-Serving Entity, Planning Authority, and Resource Planner on request (within 30 calendar days).			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-019-0	R1.	The Load-Serving Entity, Planning Authority, Transmission Planner, and Resource Planner shall each provide annually its forecasts of interruptible demands and Direct Control Load Management (DCLM) data for at least five years and up to ten years into the future, as requested, for summer and winter peak system conditions to NERC, the Regional Reliability Organizations, and other entities (Load-Serving Entities, Planning Authorities, and Resource Planners) as specified by the documentation in Reliability Standard MOD-016-0_R 1.			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-020-0	R1.	The Load-Serving Entity, Transmission Planner, and Resource Planner shall each make known its amount of interruptible demands and Direct Control Load Management (DCLM) to Transmission Operators, Balancing Authorities, and Reliability Coordinators on request within 30 calendar days.			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-021-0	R1.	The Load-Serving Entity Transmission Planner and Resource Planner's forecasts shall each clearly document how the Demand and energy effects of DSM programs (such as conservation, time-of-use rates, interruptible Demands, and Direct Control Load Management) are addressed.			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-021-0	R2.	The Load-Serving Entity, Transmission Planner and Resource Planner shall each include information detailing how Demand-Side Management measures are addressed in the forecasts of its Peak Demand and annual Net Energy for Load in the data reporting procedures of Standard MOD-016-0_R 1.			TP	N/A	PJM Operating Agreement PJM Tariff.
MOD-021-0	R3.	The Load-Serving Entity, Transmission Planner and Resource Planner shall each make documentation on the treatment of its DSM programs available to NERC on request (within 30 calendar days).			TP	N/A	PJM Operating Agreement PJM Tariff.
PRC-001-1	R1.	Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of protection system schemes applied in its area.		TOP		Upon request the TO shall provide protection system schemes as detailed in Manual 14 C Sections 1, 2 and 3	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R2.	Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:		TOP		TO must notify PJM Operations of any relay or equipment failures in accordance with M-3 Transmission operations, Section 4 Reportable Transmission facility outages, pg 63, 2nd paragraph	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R 2.1.	If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-001-1	R2.2.	If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R3.	A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R3.1.	Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R3.2.	Each Transmission Operator shall coordinate all new protective systems and all protective system changes with neighboring Transmission Operators and Balancing Authorities.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R4.	Each Transmission Operator shall coordinate protection systems on major transmission lines and interconnections with neighboring Generator Operators, Transmission Operators, and Balancing Authorities.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R5.	A Generator Operator or Transmission Operator shall coordinate changes in generation, transmission, load or operating conditions that could require changes in the protection systems of others:		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R5.1.	Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that could require changes in the Transmission Operator's protection systems.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-001-1	R5.2.	Each Transmission Operator shall notify neighboring Transmission Operators in advance of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators' protection systems.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-001-1	R6.	Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected Transmission Operators and Balancing Authorities of each change in status.		TOP		N/A	M-3 Transmission Operations. M-14 C Generation and Transmission Facility Construction M-14 D Generator Operational Requirements
PRC-004-1	R1.	The Transmission Owner and any Distribution Provider that owns a transmission Protection System shall each analyze its transmission Protection System Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for Reliability Standard PRC-003 Requirement 1.	TO			N/A	Relay Subcommittee: Reporting Requirements
PRC-004-1	R3.	The Transmission Owner, any Distribution Provider that owns a transmission Protection System, and the Generator Owner shall each provide to its Regional Reliability Organization, documentation of its Misoperations analyses and Corrective Action Plans according to the Regional Reliability Organization's procedures developed for PRC-003 R1.	TO			N/A	Relay Subcommittee: Reporting Requirements
PRC-005-1	R1.	Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall have a Protection System maintenance and testing program for Protection Systems that affect the reliability of the BES. The program shall include:	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-005-1	R1.1.	Maintenance and testing intervals and their basis.	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-005-1	R1.2.	Summary of maintenance and testing procedures.	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-005-1	R2.	Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-005-1	R1.2.	Evidence Protection System devices were maintained and tested within the defined intervals.	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-005-1	R2.1.	Date each Protection System device was last tested/maintained.	TO			N/A	PJM Relay Maintenance and Testing Practices document - see PJM Relay Subcommittee
PRC-007-0	R1.	The Transmission Owner and Distribution Provider, with a UFLS program (as required by its Regional Reliability Organization) shall ensure that its UFLS program is consistent with its Regional Reliability Organization's UFLS program requirements.	TO			N/A	Information obtained through PJM SOS
PRC-007-0	R2.	The Transmission Owner, Transmission Operator, Distribution Provider, and Load-Serving Entity that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall provide, and annually update, its underfrequency data as necessary for its Regional Reliability Organization to maintain and update a UFLS program database.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Information obtained through PJM SOS
PRC-007-0	R3.	The Transmission Owner and Distribution Provider that owns a UFLS program (as required by its Regional Reliability Organization) shall provide its documentation of that UFLS program to its Regional Reliability Organization on request (30 calendar days).	TO			N/A	PJM Relay Testing and Maintenance Practices

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-008-0	R1.	The Transmission Owner and Distribution Provider with a UFLS program (as required by its Regional Reliability Organization) shall have a UFLS equipment maintenance and testing program in place. This UFLS equipment maintenance and testing program shall include UFLS equipment identification, the schedule for UFLS equipment testing, and the schedule for UFLS equipment maintenance.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-008-0	R2.	The Transmission Owner and Distribution Provider with a UFLS program (as required by its Regional Reliability Organization) shall implement its UFLS equipment maintenance and testing program and shall provide UFLS maintenance and testing program results to its Regional Reliability Organization and NERC on request (within 30 calendar days).	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R1.	The Transmission Owner, Transmission Operator, Load-Serving Entity and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall analyze and document its UFLS program performance in accordance with its Regional Reliability Organization's UFLS program. The analysis shall address the performance of UFLS equipment and program effectiveness following system events resulting in system frequency excursions below the initializing set points of the UFLS program. The analysis shall include, but not be limited to:	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R1.1.	A description of the event including initiating conditions.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R1.2.	A review of the UFLS set points and tripping times.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R1.3.	A simulation of the event.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R1.4.	A summary of the findings.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-009-0	R2.	The Transmission Owner, Transmission Operator, Load-Serving Entity, and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall provide documentation of the analysis of the UFLS program to its Regional Reliability Organization and NERC on request 90 calendar days after the system event.	TO	TOP		N/A PJM as the TOP does not own or operate UFLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-010-0	R1.	The Load-Serving Entity, Transmission Owner, Transmission Operator, and Distribution Provider that owns or operates a UVLS program shall periodically (at least every five years or as required by changes in system conditions) conduct and document an assessment of the effectiveness of the UVLS program. This assessment shall be conducted with the associated Transmission Planner(s) and Planning Authority(ies).	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-010-0	R1.1.	This assessment shall include, but is not limited to:	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-010-0	R1.1.1.	Coordination of the UVLS programs with other protection and control systems in the Region and with other Regional Reliability Organizations, as appropriate.	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-010-0	R1.1.2.	Simulations that demonstrate that the UVLS programs performance is consistent with Reliability Standards TPL-001-0, TPL-002-0, TPL-003-0 and TPL-004-0.	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-010-0	R1.1.3.	A review of the voltage set points and timing.	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-010-0	R2.	The Load-Serving Entity, Transmission Owner, Transmission Operator, and Distribution Provider that owns or operates a UVLS program shall provide documentation of its current UVLS program assessment to its Regional Reliability Organization and NERC on request (30 calendar days).	TO	TOP		N/A PJM as the TOP does not own or operate UVLS program	Relay Subcommittee: Reporting Requirements (Misoperations)
PRC-011-0	R1.	The Transmission Owner and Distribution Provider that owns a UVLS system shall have a UVLS equipment maintenance and testing program in place. This program shall include:	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.1.	The UVLS system identification which shall include but is not limited to:	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.1.1.	Relays.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.1.2.	Instrument transformers.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.1.3.	Communications systems, where appropriate.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.1.4.	Batteries.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.2.	Documentation of maintenance and testing intervals and their basis.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.3.	Summary of testing procedure.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.4.	Schedule for system testing.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.5.	Schedule for system maintenance.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R1.6.	Date last tested/maintained.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-011-0	R2.	The Transmission Owner and Distribution Provider that owns a UVLS system shall provide documentation of its UVLS equipment maintenance and testing program and the implementation of that UVLS equipment maintenance and testing program to its Regional Reliability Organization and NERC on request (within 30 calendar days).	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-015-0	R1.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall maintain a list of and provide data for existing and proposed SPSs as specified in Reliability Standard PRC-013-0_R 1.	TO			N/A	PJM Relay Subcommittee procedures
PRC-015-0	R2.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have evidence it reviewed new or functionally modified SPSs in accordance with the Regional Reliability Organization's procedures as defined in Reliability Standard PRC-012-0_R1 prior to being placed in service.	TO			N/A	PJM Relay Subcommittee procedures
PRC-015-0	R3.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall provide documentation of SPS data and the results of Studies that show compliance of new or functionally modified SPSs with NERC Reliability Standards and Regional Reliability Organization criteria to affected Regional Reliability Organizations and NERC on request (within 30 calendar days).	TO			N/A	PJM Relay Subcommittee procedures

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-016-0	R1.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall take corrective actions to avoid future misoperations.	TO			N/A	PJM Relay Subcommittee procedures
PRC-016-0	R2.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall provide documentation of the misoperation analyses and the corrective action plans to its Regional Reliability Organization and NERC on request (within 90 calendar days).	TO			N/A	PJM Relay Subcommittee procedures
PRC-016-0	R3.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall analyze its SPS operations and maintain a record of all misoperations in accordance with the Regional SPS review procedure specified in Reliability Standard PRC-012-0_R 1.	TO			N/A	PJM Relay Subcommittee procedures
PRC-017-0	R1.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall have a system maintenance and testing program(s) in place. The program(s) shall include:	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.1.	SPS identification shall include but is not limited to:	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.1.1.	Relays.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.1.2.	Instrument transformers.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.1.3.	Communications systems, where appropriate.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.1.4.	Batteries.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.2.	Documentation of maintenance and testing intervals and their basis.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.3.	Summary of testing procedure.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.4.	Schedule for system testing.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.5.	Schedule for system maintenance.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R1.6.	Date last tested/maintained.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-017-0	R2.	The Transmission Owner, Generator Owner, and Distribution Provider that owns an SPS shall provide documentation of the program and its implementation to the appropriate Regional Reliability Organizations and NERC on request (within 30 calendar days).	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R1.	Each Transmission Owner and Generator Owner required to install DMEs by its Regional Reliability Organization (reliability standard PRC-002 Requirements 1-3) shall have DMEs installed that meet the following requirements:	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R1.1.	Internal Clocks in DME devices shall be synchronized to within 2 milliseconds or less of Universal Coordinated Time scale (UTC)	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R1.2.	Recorded data from each Disturbance shall be retrievable for ten calendar days..	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R2.	The Transmission Owner and Generator Owner shall each install DMEs in accordance with its Regional Reliability Organization's installation requirements (reliability standard PRC-002 Requirements 1 through 3).	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.	The Transmission Owner and Generator Owner shall each maintain, and report to its Regional Reliability Organization on request, the following data on the DMEs installed to meet that region's installation requirements (reliability standard PRC-002 Requirements 1.1, 2.1 and 3.1):	TO			N/A	PJM Relay Testing and Maintenance Practices

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-018-1	R3.1.	Type of DME (sequence of event recorder, fault recorder, or dynamic disturbance recorder).	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.2.	Make and model of equipment.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.3.	Installation location.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.4.	Operational status.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.5.	Date last tested.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.6.	Monitored elements, such as transmission circuit, bus section, etc.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.7.	Monitored devices, such as circuit breaker, disconnect status, alarms, etc.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R3.8.	Monitored electrical quantities, such as voltage, current, etc.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R4.	The Transmission Owner and Generator Owner shall each provide Disturbance data (recorded by DMEs) in accordance with its Regional Reliability Organization's requirements (reliability standard PRC-002 Requirement 4).	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R5.	The Transmission Owner and Generator Owner shall each archive all data recorded by DMEs for Regional Reliability Organization-identified events for at least three years.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R6.	Each Transmission Owner and Generator Owner that is required by its Regional Reliability Organization to have DMEs shall have a maintenance and testing program for those DMEs that includes:	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R6.1.	Maintenance and testing intervals and their basis.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-018-1	R6.2.	Summary of maintenance and testing procedures.	TO			N/A	PJM Relay Testing and Maintenance Practices
PRC-021-1	R1.	Each Transmission Owner and Distribution Provider that owns a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES shall annually update its UVLS data to support the Regional UVLS program database. The following data shall be provided to the Regional Reliability Organization for each installed UVLS system	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R1.1.	Size and location of customer load, or percent of connected load, to be interrupted	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R1.2.	Corresponding voltage set points and overall scheme clearing times	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R1.3.	Time delay from initiation to trip signal.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R1.4.	Breaker operating times.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R1.5.	Any other schemes that are part of or impact the UVLS programs such as related generation protection, islanding schemes, automatic load restoration schemes, UFLS and Special Protection Systems.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-021-1	R2.	Each Transmission Owner and Distribution Provider that owns a UVLS program shall provide its UVLS program data to the Regional Reliability Organization within 30 calendar days of a request.	TO			N/A	PJM does not have a requirement for its members to have an UVLS program

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
PRC-022-1	R1.	Each Transmission Operator, Load-Serving Entity, and Distribution Provider that operates a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES shall analyze and document all UVLS operations and Misoperations. The analysis shall include		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R1.1.	A description of the event including initiating conditions.		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R1.2.	A review of the UVLS set points and tripping times		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R1.3.	A simulation of the event, if deemed appropriate by the Regional Reliability Organization. For most events, analysis of sequence of events may be sufficient and dynamic simulations may not be needed.		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R1.4.	A summary of the findings.		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R1.5.	For any Misoperation, a Corrective Action Plan to avoid future Misoperations of a similar nature.		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
PRC-022-1	R2.	Each Transmission Operator, Load-Serving Entity, and Distribution Provider that operates a UVLS program shall provide documentation of its analysis of UVLS program performance to its Regional Reliability Organization within 90 calendar days of a request		TOP		N/A	PJM does not have a requirement for its members to have an UVLS program
TPL-001-0	R1.	The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission system is planned such that, with all transmission facilities in service and with normal (pre-contingency) operating procedures in effect, the Network can be operated to supply projected customer demands and projected Firm (non- recallable reserved) Transmission Services at all Demand levels over the range of forecast system demands, under the conditions defined in Category A of Table I. To be considered valid, the Planning Authority and Transmission Planner assessments shall:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.1.	Be made annually.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.2.	Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.	Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following Category A of Table 1 (no contingencies). The specific elements selected (from each of the following categories) shall be acceptable to the associated Regional Reliability Organization(s).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.1.	Cover critical system conditions and study years as deemed appropriate by the entity performing the study.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.2.	Be conducted annually unless changes to system conditions do not warrant such analyses.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.3.	Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.4.	Have established normal (pre-contingency) operating procedures in place.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.5.	Have all projected firm transfers modeled.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.6.	Be performed for selected demand levels over the range of forecast system demands.			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TPL-001-0	R1.3.7.	Demonstrate that system performance meets Table 1 for Category A (no contingencies).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.8.	Include existing and planned facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.3.9.	Include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R1.4.	Address any planned upgrades needed to meet the performance requirements of Category A.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.	When system simulations indicate an inability of the systems to respond as prescribed in Reliability Standard TPL-001-0_R1, the Planning Authority and Transmission Planner shall each:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.1.	Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.1.1.	Including a schedule for implementation.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.1.2.	Including a discussion of expected required in-service dates of facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.1.3.	Consider lead times necessary to implement plans.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R2.2.	Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-001-0	R3.	The Planning Authority and Transmission Planner shall each document the results of these reliability assessments and corrective plans and shall annually provide these to its respective NERC Regional Reliability Organization(s), as required by the Regional Reliability Organization.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.	The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission system is planned such that the Network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand levels over the range of forecast system demands, under the contingency conditions as defined in Category B of Table I. To be valid, the Planning Authority and Transmission Planner assessments shall:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.1.	Be made annually.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.2.	Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.	Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following Category B of Table 1 (single contingencies). The specific elements selected (from each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.1.	Be performed and evaluated only for those Category B contingencies that would produce the more severe System results or impacts. The rationale for the contingencies selected for evaluation shall be available as supporting information. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.10.	Include the effects of existing and planned protection systems, including any backup or redundant systems.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.11.	Include the effects of existing and planned control devices.			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TPL-002-0	R1.3.12.	Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.2.	Cover critical system conditions and study years as deemed appropriate by the responsible entity.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.3.	Be conducted annually unless changes to system conditions do not warrant such analyses.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.4.	Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.5.	Have all projected firm transfers modeled.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.6.	Be performed and evaluated for selected demand levels over the range of forecast system Demands.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.7.	Demonstrate that system performance meets Category B contingencies.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.8.	Include existing and planned facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.3.9.	Include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.4.	Address any planned upgrades needed to meet the performance requirements of Category B of Table I.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R1.5.	Consider all contingencies applicable to Category B.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.	When System simulations indicate an inability of the systems to respond as prescribed in Reliability Standard TPL-002-0_R1, the Planning Authority and Transmission Planner shall each:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.	Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.1.	Including a schedule for implementation.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.2.	Including a discussion of expected required in-service dates of facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.2.	Including a discussion of expected required in-service dates of facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.3.	Consider lead times necessary to implement plans.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.1.3.	Consider lead times necessary to implement plans.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.2.	Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R2.2.	Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-002-0	R3.	The Planning Authority and Transmission Planner shall each document the results of its Reliability Assessments and corrective plans and shall annually provide the results to its respective Regional Reliability Organization(s), as required by the Regional Reliability Organization.			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TPL-003-0	R1.	The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table 1 (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. To be valid, the Planning Authority and Transmission Planner assessments shall:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.1.	Be made annually.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.2.	Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.	Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following Category C of Table 1 (multiple contingencies). The specific elements selected (from each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.1.	Be performed and evaluated only for those Category C contingencies that would produce the more severe system results or impacts. The rationale for the contingencies selected for evaluation shall be available as supporting information. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.10.	Include the effects of existing and planned protection systems, including any backup or redundant systems.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.11.	Include the effects of existing and planned control devices.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.12.	Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those Demand levels for which planned (including maintenance) outages are performed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.2.	Cover critical system conditions and study years as deemed appropriate by the responsible entity.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.3.	Be conducted annually unless changes to system conditions do not warrant such analyses.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.4.	Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.5.	Have all projected firm transfers modeled.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.6.	Be performed and evaluated for selected demand levels over the range of forecast system demands.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.7.	Demonstrate that System performance meets Table 1 for Category C contingencies.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.8.	Include existing and planned facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.3.9.	Include Reactive Power resources to ensure that adequate reactive resources are available to meet System performance.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.4.	Address any planned upgrades needed to meet the performance requirements of Category C.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R1.5.	Consider all contingencies applicable to Category C.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R2.	When system simulations indicate an inability of the systems to respond as prescribed in Reliability Standard TPL-003-0_R1, the Planning Authority and Transmission Planner shall each:			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TPL-003-0	R2.1.	Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R2.1.1.	Including a schedule for implementation.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R2.1.2.	Including a discussion of expected required in-service dates of facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R2.1.3.	Consider lead times necessary to implement plans.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R2.2.	Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-003-0	R3.	The Planning Authority and Transmission Planner shall each document the results of these Reliability Assessments and corrective plans and shall annually provide these to its respective NERC Regional Reliability Organization(s), as required by the Regional Reliability Organization.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.	The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission system is evaluated for the risks and consequences of a number of each of the extreme contingencies that are listed under Category D of Table I. To be valid, the Planning Authority's and Transmission Planner's assessment shall:			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.1.	Be made annually.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.2.	Be conducted for near-term (years one through five).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.	Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following Category D contingencies of Table I. The specific elements selected (from within each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.1.	Be performed and evaluated only for those Category D contingencies that would produce the more severe system results or impacts. The rationale for the contingencies selected for evaluation shall be available as supporting information. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.2.	Cover critical system conditions and study years as deemed appropriate by the responsible entity.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.3.	Be conducted annually unless changes to system conditions do not warrant such analyses.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.4.	Have all projected firm transfers modeled.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.5.	Include existing and planned facilities.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.6.	Include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.7.	Include the effects of existing and planned protection systems, including any backup or redundant systems.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.8.	Include the effects of existing and planned control devices.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.3.9.	Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed.			TP	N/A	PJM Operating Agreement PJM Tariff.
TPL-004-0	R1.4.	Consider all contingencies applicable to Category D.			TP	N/A	PJM Operating Agreement PJM Tariff.

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
TPL-004-0	R2.	The Planning Authority and Transmission Planner shall each document the results of its reliability assessments and shall annually provide the results to its entities' respective NERC Regional Reliability Organization(s), as required by the Regional Reliability Organization.			TP	N/A	PJM Operating Agreement PJM Tariff.

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-001-1	R1.	Each Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, and Load Serving Entity shall have procedures for the recognition of and for making their operating personnel aware of sabotage events on its facilities and multi-site sabotage affecting larger portions of the Interconnection.		TOP		N/A	M-13 Emergency Operations TOA Article 4.7 M-37 Reliability Coordination
CIP-001-1	R2.	Each Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, and Load Serving Entity shall have procedures for the communication of information concerning sabotage events to appropriate parties in the Interconnection.		TOP		N/A	M-13 Emergency Operations TOA Article 4.7 M-37 Reliability Coordination
CIP-001-1	R3.	Each Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, and Load Serving Entity shall provide its operating personnel with sabotage response guidelines, including personnel to contact, for reporting disturbances due to sabotage events.		TOP		N/A	M-13 Emergency Operations TOA Article 4.7 M-37 Reliability Coordination
CIP-001-1	R4.	Each Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator, and Load Serving Entity shall establish communications contacts, as applicable, with local Federal Bureau of Investigation (FBI) or Royal Canadian Mounted Police (RCMP) officials and develop reporting procedures as appropriate to their circumstances.		TOP		N/A	M-13 Emergency Operations TOA Article 4.7 M-37 Reliability Coordination
CIP-002-1	R1.	Critical Asset Identification Method — The Responsible Entity shall identify and document a risk-based assessment methodology to use to identify its Critical Assets	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.1.	The Responsible Entity shall maintain documentation describing its risk-based assessment methodology that includes procedures and evaluation criteria	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.	The risk-based assessment shall consider the following assets	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.1.	Control centers and backup control centers performing the functions of the entities listed in the Applicability section of this standard	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.2.	Transmission substations that support the reliable operation of the Bulk Electric System.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.3.	Generation resources that support the reliable operation of the Bulk Electric System	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.4.	Systems and facilities critical to system restoration, including blackstart generators and substations in the electrical path of transmission lines used for initial system restoration.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-002-1	R1.2.5.	Systems and facilities critical to automatic load shedding under a common control system capable of shedding 300 MW or more.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.6.	Special Protection Systems that support the reliable operation of the Bulk Electric System.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R1.2.7.	Any additional assets that support the reliable operation of the Bulk Electric System that the Responsible Entity deems appropriate to include in its assessment.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R2.	Critical Asset Identification — The Responsible Entity shall develop a list of its identified Critical Assets determined through an annual application of the risk-based assessment methodology required in R1. The Responsible Entity shall review this list at least annually, and update it as necessary.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R3.	Critical Cyber Asset Identification — Using the list of Critical Assets developed pursuant to Requirement R2, the Responsible Entity shall develop a list of associated Critical Cyber Assets essential to the operation of the Critical Asset. Examples at control centers and backup control centers include systems and facilities at master and remote sites that provide monitoring and control, automatic generation control, real time power system modeling, and real-time inter-utility data exchange. The Responsible Entity shall review this list at least annually, and update it as necessary. For the purpose of Standard CIP-002, Critical Cyber Assets are further qualified to be those having at least one of the following characteristics:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R3.1.	The Cyber Asset uses a routable protocol to communicate outside the Electronic Security Perimeter; or,	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R3.2.	The Cyber Asset uses a routable protocol within a control center; or,	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R3.3.	The Cyber Asset is dial-up accessible.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-002-1	R4.	Annual Approval — A senior manager or delegate(s) shall approve annually the list of Critical Assets and the list of Critical Cyber Assets. Based on Requirements R1, R2, and R3 the Responsible Entity may determine that it has no Critical Assets or Critical Cyber Assets. The Responsible Entity shall keep a signed and dated record of the senior manager or delegate(s)'s approval of the list of Critical Assets and the list of Critical Cyber Assets (even if such lists are null.)	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R1.	Cyber Security Policy — The Responsible Entity shall document and implement a cyber security policy that represents management's commitment and ability to secure its Critical Cyber Assets. The Responsible Entity shall, at minimum, ensure the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-003-1	R1.1.	The cyber security policy addresses the requirements in Standards CIP-002 through CIP-009, including provision for emergency situations.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R1.2.	The cyber security policy is readily available to all personnel who have access to, or are responsible for, Critical Cyber Assets.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R1.3.	Annual review and approval of the cyber security policy by the senior manager assigned pursuant to R2.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R2.	Leadership — The Responsible Entity shall assign a senior manager with overall responsibility for leading and managing the entity's implementation of, and adherence to, Standards CIP-002 through CIP-009.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R2.1.	The senior manager shall be identified by name, title, business phone, business address, and date of designation.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R2.2.	Changes to the senior manager must be documented within thirty calendar days of the effective date.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R2.3.	The senior manager or delegate(s), shall authorize and document any exception from the requirements of the cyber security policy.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R3.	Exceptions — Instances where the Responsible Entity cannot conform to its cyber security policy must be documented as exceptions and authorized by the senior manager or delegate(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R3.1.	Exceptions to the Responsible Entity's cyber security policy must be documented within thirty days of being approved by the senior manager or delegate(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R3.2.	Documented exceptions to the cyber security policy must include an explanation as to why the exception is necessary and any compensating measures, or a statement accepting risk.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R3.3.	Authorized exceptions to the cyber security policy must be reviewed and approved annually by the senior manager or delegate(s) to ensure the exceptions are still required and valid. Such review and approval shall be documented.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R4.	Information Protection — The Responsible Entity shall implement and document a program to identify, classify, and protect information associated with Critical Cyber Assets.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-003-1	R4.1.	The Critical Cyber Asset information to be protected shall include, at a minimum and regardless of media type, operational procedures, lists as required in Standard CIP-002, network topology or similar diagrams, floor plans of computing centers that contain Critical Cyber Assets, equipment layouts of Critical Cyber Assets, disaster recovery plans, incident response plans, and security configuration information.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R4.2.	The Responsible Entity shall classify information to be protected under this program based on the sensitivity of the Critical Cyber Asset information.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R4.3.	The Responsible Entity shall, at least annually, assess adherence to its Critical Cyber Asset information protection program, document the assessment results, and implement an action plan to remediate deficiencies identified during the assessment.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.	Access Control — The Responsible Entity shall document and implement a program for managing access to protected Critical Cyber Asset information.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.1.	The Responsible Entity shall maintain a list of designated personnel who are responsible for authorizing logical or physical access to protected information.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.1.1.	Personnel shall be identified by name, title, business phone and the information for which they are responsible for authorizing access.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.1.2.	The list of personnel responsible for authorizing access to protected information shall be verified at least annually.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.2.	The Responsible Entity shall review at least annually the access privileges to protected information to confirm that access privileges are correct and that they correspond with the Responsible Entity's needs and appropriate personnel roles and responsibilities.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R5.3.	The Responsible Entity shall assess and document at least annually the processes for controlling access privileges to protected information.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-003-1	R6.	Change Control and Configuration Management — The Responsible Entity shall establish and document a process of change control and configuration management for adding, modifying, replacing, or removing Critical Cyber Asset hardware or software, and implement supporting configuration management activities to identify, control and document all entity or vendor-related changes to hardware and software components of Critical Cyber Assets pursuant to the change control process.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-004-1	-	Awareness — The Responsible Entity shall establish, maintain, and document a security awareness program to ensure personnel having authorized cyber or authorized unescorted physical access receive on-going reinforcement in sound security practices. The program shall include security awareness reinforcement on at least a quarterly basis using mechanisms such as:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	-	Direct communications (e.g., emails, memos, computer based training, etc.);	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	-	Indirect communications (e.g., posters, intranet, brochures, etc.);	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1		Management support and reinforcement (e.g., presentations, meetings, etc.).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.	Training — The Responsible Entity shall establish, maintain, and document an annual cyber security training program for personnel having authorized cyber or authorized unescorted physical access to Critical Cyber Assets, and review the program annually and update as necessary.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.1.	This program will ensure that all personnel having such access to Critical Cyber Assets, including contractors and service vendors, are trained within ninety calendar days of such authorization.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.2.	Training shall cover the policies, access controls, and procedures as developed for the Critical Cyber Assets covered by CIP-004, and include, at a minimum, the following required items appropriate to personnel roles and responsibilities:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.2.1.	The proper use of Critical Cyber Assets;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.2.2.	Physical and electronic access controls to Critical Cyber Assets;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.2.3.	The proper handling of Critical Cyber Asset information; and,	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R2.2.4.	Action plans and procedures to recover or re-establish Critical Cyber Assets and access thereto following a Cyber Security Incident.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-004-1	R2.3.	The Responsible Entity shall maintain documentation that training is conducted at least annually, including the date the training was completed and attendance records.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R3.	Personnel Risk Assessment —The Responsible Entity shall have a documented personnel risk assessment program, in accordance with federal, state, provincial, and local laws, and subject to existing collective bargaining unit agreements, for personnel having authorized cyber or authorized unescorted physical access. A personnel risk assessment shall be conducted pursuant to that program within thirty days of such personnel being granted such access. Such program shall at a minimum include:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R3.1.	The Responsible Entity shall ensure that each assessment conducted include, at least identity verification (e.g., Social Security Number verification in the U.S.) and seven-year criminal check. The Responsible Entity may conduct more detailed reviews, as permitted by law and subject to existing collective bargaining unit agreements, depending upon the criticality of the position.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R3.2.	The Responsible Entity shall update each personnel risk assessment at least every seven years after the initial personnel risk assessment or for cause.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R3.3.	The Responsible Entity shall document the results of personnel risk assessments of its personnel having authorized cyber or authorized unescorted physical access to Critical Cyber Assets, and that personnel risk assessments of contractor and service vendor personnel with such access are conducted pursuant to Standard CIP-004.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R4.	Access — The Responsible Entity shall maintain list(s) of personnel with authorized cyber or authorized unescorted physical access to Critical Cyber Assets, including their specific electronic and physical access rights to Critical Cyber Assets.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R4.1.	The Responsible Entity shall review the list(s) of its personnel who have such access to Critical Cyber Assets quarterly, and update the list(s) within seven calendar days of any change of personnel with such access to Critical Cyber Assets, or any change in the access rights of such personnel. The Responsible Entity shall ensure access list(s) for contractors and service vendors are properly maintained.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-004-1	R4.2.	The Responsible Entity shall revoke such access to Critical Cyber Assets within 24 hours for personnel terminated for cause and within seven calendar days for personnel who no longer require such access to Critical Cyber Assets.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.	Electronic Security Perimeter — The Responsible Entity shall ensure that every Critical Cyber Asset resides within an Electronic Security Perimeter. The Responsible Entity shall identify and document the Electronic Security Perimeter(s) and all access points to the perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.1.	Access points to the Electronic Security Perimeter(s) shall include any externally connected communication end point (for example, dial-up modems) terminating at any device within the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-005-1	R1.2.	For a dial-up accessible Critical Cyber Asset that uses a non-routable protocol, the Responsible Entity shall define an Electronic Security Perimeter for that single access point at the dial-up device.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.3.	Communication links connecting discrete Electronic Security Perimeters shall not be considered part of the Electronic Security Perimeter. However, end points of these communication links within the Electronic Security Perimeter(s) shall be considered access points to the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.4.	Any non-critical Cyber Asset within a defined Electronic Security Perimeter shall be identified and protected pursuant to the requirements of Standard CIP-005.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.5.	Cyber Assets used in the access control and monitoring of the Electronic Security Perimeter(s) shall be afforded the protective measures as a specified in Standard CIP-003, Standard CIP-004 Requirement R3, Standard CIP-005 Requirements R2 and R3, Standard CIP-006 Requirements R2 and R3, Standard CIP-007, Requirements R1 and R3 through R9, Standard CIP-008, and Standard CIP-009.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R1.6.	The Responsible Entity shall maintain documentation of Electronic Security Perimeter(s), all interconnected Critical and non-critical Cyber Assets within the Electronic Security Perimeter(s), all electronic access points to the Electronic Security Perimeter(s) and the Cyber Assets deployed for the access control and monitoring of these access points.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.	Electronic Access Controls — The Responsible Entity shall implement and document the organizational processes and technical and procedural mechanisms for control of electronic access at all electronic access points to the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.1.	These processes and mechanisms shall use an access control model that denies access by default, such that explicit access permissions must be specified.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.2.	At all access points to the Electronic Security Perimeter(s), the Responsible Entity shall enable only ports and services required for operations and for monitoring Cyber Assets within the Electronic Security Perimeter, and shall document, individually or by specified grouping, the configuration of those ports and services.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.3.	The Responsible Entity shall maintain a procedure for securing dial-up access to the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.4.	Where external interactive access into the Electronic Security Perimeter has been enabled, the Responsible Entity shall implement strong procedural or technical controls at the access points to ensure authenticity of the accessing party, where technically feasible.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-005-1	R2.5.	The required documentation shall, at least, identify and describe:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.5.1.	The processes for access request and authorization.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.5.2.	The authentication methods.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.5.3.	The review process for authorization rights, in accordance with Standard CIP-004 Requirement R4.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.5.4.	The controls used to secure dial-up accessible connections.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R2.6.	Appropriate Use Banner — Where technically feasible, electronic access control devices shall display an appropriate use banner on the user screen upon all interactive access attempts. The Responsible Entity shall maintain a document identifying the content of the banner.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R3.	Monitoring Electronic Access — The Responsible Entity shall implement and document an electronic or manual process(es) for monitoring and logging access at access points to the Electronic Security Perimeter(s) twenty-four hours a day, seven days a week.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R3.1.	For dial-up accessible Critical Cyber Assets that use non-routable protocols, the Responsible Entity shall implement and document monitoring process(es) at each access point to the dial-up device, where technically feasible.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R3.2.	Where technically feasible, the security monitoring process(es) shall detect and alert for attempts at or actual unauthorized accesses. These alerts shall provide for appropriate notification to designated response personnel. Where alerting is not technically feasible, the Responsible Entity shall review or otherwise assess access logs for attempts at or actual unauthorized accesses at least every ninety calendar days.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R4.	Cyber Vulnerability Assessment — The Responsible Entity shall perform a cyber vulnerability assessment of the electronic access points to the Electronic Security Perimeter(s) at least annually. The vulnerability assessment shall include, at a minimum, the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R4.1.	A document identifying the vulnerability assessment process;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-005-1	R4.2.	A review to verify that only ports and services required for operations at these access points are enabled;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R4.3.	The discovery of all access points to the Electronic Security Perimeter;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R4.5.	A review of controls for default accounts, passwords, and network management community strings; and,	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R4.5.	Documentation of the results of the assessment, the action plan to remediate or mitigate vulnerabilities identified in the assessment, and the execution status of that action plan.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R5.	Documentation Review and Maintenance — The Responsible Entity shall review, update, and maintain all documentation to support compliance with the requirements of Standard CIP-005.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R5.1.	The Responsible Entity shall ensure that all documentation required by Standard CIP-005 reflect current configurations and processes and shall review the documents and procedures referenced in Standard CIP-005 at least annually.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R5.2.	The Responsible Entity shall update the documentation to reflect the modification of the network or controls within ninety calendar days of the change.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-005-1	R5.3.	The Responsible Entity shall retain electronic access logs for at least ninety calendar days.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.	Physical Security Plan — The Responsible Entity shall create and maintain a physical security plan, approved by a senior manager or delegate(s) that shall address, at a minimum, the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.1.	Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter also reside within an identified Physical Security Perimeter. Where a completely enclosed (“six-wall”) border cannot be established, the Responsible Entity shall deploy and document alternative measures to control physical access to the Critical Cyber Assets.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.2.	Processes to identify all access points through each Physical Security Perimeter and measures to control entry at those access points.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.3.	Processes, tools, and procedures to monitor physical access to the perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-006-1	R1.4.	Procedures for the appropriate use of physical access controls as described in Requirement R3 including visitor pass management, response to loss, and prohibition of inappropriate use of physical access controls.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.5.	Procedures for reviewing access authorization requests and revocation of access authorization, in accordance with CIP-004 Requirement R4.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.6.	Procedures for escorted access within the physical security perimeter of personnel not authorized for unescorted access.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.7.	Process for updating the physical security plan within ninety calendar days of any physical security system redesign or reconfiguration, including, but not limited to, addition or removal of access points through the physical security perimeter, physical access controls, monitoring controls, or logging controls.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.8.	Cyber Assets used in the access control and monitoring of the Physical Security Perimeter(s) shall be afforded the protective measures specified in Standard CIP-003, Standard CIP-004 Requirement R3, Standard CIP-005 Requirements R2 and R3, Standard CIP-006 Requirement R2 and R3, Standard CIP-007, Standard CIP-008 and Standard CIP-009.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R1.9.	Process for ensuring that the physical security plan is reviewed at least annually.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R2.	Physical Access Controls — The Responsible Entity shall document and implement the operational and procedural controls to manage physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. The Responsible Entity shall implement one or more of the following physical access methods:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R2.1.	Card Key: A means of electronic access where the access rights of the card holder are predefined in a computer database. Access rights may differ from one perimeter to another.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R2.2.	Special Locks: These include, but are not limited to, locks with “restricted key” systems, magnetic locks that can be operated remotely, and “man-trap” systems.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R2.3.	Security Personnel: Personnel responsible for controlling physical access who may reside on-site or at a monitoring station.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R2.4.	Other Authentication Devices: Biometric, keypad, token, or other equivalent devices th	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-006-1	R3.	Monitoring Physical Access — The Responsible Entity shall document and implement the technical and procedural controls for monitoring physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. Unauthorized access attempts shall be reviewed immediately and handled in accordance with the procedures specified in Requirement CIP-008. One or more of the following monitoring methods shall be used:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R3.1.	Alarm Systems: Systems that alarm to indicate a door, gate or window has been opened without authorization. These alarms must provide for immediate notification to personnel responsible for response.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R3.2.	Human Observation of Access Points: Monitoring of physical access points by authorized personnel as specified in Requirement R2.3.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R4.	Logging Physical Access — Logging shall record sufficient information to uniquely identify individuals and the time of access twenty-four hours a day, seven days a week. The Responsible Entity shall implement and document the technical and procedural mechanisms for logging physical entry at all access points to the Physical Security Perimeter(s) using one or more of the following logging methods or their equivalent:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R4.1.	Computerized Logging: Electronic logs produced by the Responsible Entity's selected access control and monitoring method.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R4.2.	Video Recording: Electronic capture of video images of sufficient quality to determine identity.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R4.3.	Manual Logging: A log book or sign-in sheet, or other record of physical access maintained by security or other personnel authorized to control and monitor physical access as specified in Requirement R2.3.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R5.	Access Log Retention — The responsible entity shall retain physical access logs for at least ninety calendar days. Logs related to reportable incidents shall be kept in accordance with the requirements of Standard CIP-008.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R6.	Maintenance and Testing — The Responsible Entity shall implement a maintenance and testing program to ensure that all physical security systems under Requirements R2, R3, and R4 function properly. The program must include, at a minimum, the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R6.1.	Testing and maintenance of all physical security mechanisms on a cycle no longer than three years.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-006-1	R6.2.	Retention of testing and maintenance records for the cycle determined by the Responsible Entity in Requirement R6.1.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-006-1	R6.3.	Retention of outage records regarding access controls, logging, and monitoring for a m	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R1.	Test Procedures — The Responsible Entity shall ensure that new Cyber Assets and significant changes to existing Cyber Assets within the Electronic Security Perimeter do not adversely affect existing cyber security controls. For purposes of Standard CIP-007, a significant change shall, at a minimum, include implementation of security patches, cumulative service packs, vendor releases, and version upgrades of operating systems, applications, database platforms, or other third-party software or firmware.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R1.1.	The Responsible Entity shall create, implement, and maintain cyber security test procedures in a manner that minimizes adverse effects on the production system or its operation.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R1.2.	The Responsible Entity shall document that testing is performed in a manner that reflects the production environment.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R1.3.	The Responsible Entity shall document test results.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R2.	Ports and Services — The Responsible Entity shall establish and document a process to ensure that only those ports and services required for normal and emergency operations are enabled.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R2.1.	The Responsible Entity shall enable only those ports and services required for normal	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R2.2.	The Responsible Entity shall disable other ports and services, including those used for testing purposes, prior to production use of all Cyber Assets inside the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R2.3.	In the case where unused ports and services cannot be disabled due to technical limitations, the Responsible Entity shall document compensating measure(s) applied to mitigate risk exposure or an acceptance of risk.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-007-1	R3.	Security Patch Management — The Responsible Entity, either separately or as a component of the documented configuration management process specified in CIP-003 Requirement R6, shall establish and document a security patch management program for tracking, evaluating, testing, and installing applicable cyber security software patches for all Cyber Assets within the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R3.1.	The Responsible Entity shall document the assessment of security patches and security upgrades for applicability within thirty calendar days of availability of the patches or upgrades.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R3.2.	The Responsible Entity shall document the implementation of security patches. In any case where the patch is not installed, the Responsible Entity shall document compensating measure(s) applied to mitigate risk exposure or an acceptance of risk.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R4.	Malicious Software Prevention — The Responsible Entity shall use anti-virus software and other malicious software (“malware”) prevention tools, where technically feasible, to detect, prevent, deter, and mitigate the introduction, exposure, and propagation of malware on all Cyber Assets within the Electronic Security Perimeter(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R4.1.	The Responsible Entity shall document and implement anti-virus and malware prevention tools. In the case where anti-virus software and malware prevention tools are not installed, the Responsible Entity shall document compensating measure(s) applied to mitigate risk exposure or an acceptance of risk.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R4.2.	The Responsible Entity shall document and implement a process for the update of anti-virus and malware prevention “signatures.” The process must address testing and installing the signatures.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.	Account Management — The Responsible Entity shall establish, implement, and document technical and procedural controls that enforce access authentication of, and accountability for, all user activity, and that minimize the risk of unauthorized system access.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.1.	The Responsible Entity shall ensure that individual and shared system accounts and authorized access permissions are consistent with the concept of “need to know” with respect to work functions performed.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.1.1.	The Responsible Entity shall ensure that user accounts are implemented as approved by designated personnel. Refer to Standard CIP-003 Requirement R5.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.1.2.	The Responsible Entity shall establish methods, processes, and procedures that generate logs of sufficient detail to create historical audit trails of individual user account access activity for a minimum of ninety days.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

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Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-007-1	R5.1.3.	The Responsible Entity shall review, at least annually, user accounts to verify access privileges are in accordance with Standard CIP-003 Requirement R5 and Standard CIP-004 Requirement R4.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.2.	The Responsible Entity shall implement a policy to minimize and manage the scope and acceptable use of administrator, shared, and other generic account privileges including factory default accounts.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.2.1	The policy shall include the removal, disabling, or renaming of such accounts where possible. For such accounts that must remain enabled, passwords shall be changed prior to putting any system into service.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.2.2.	The Responsible Entity shall identify those individuals with access to shared accounts.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.2.3.	Where such accounts must be shared, the Responsible Entity shall have a policy for managing the use of such accounts that limits access to only those with authorization, an audit trail of the account use (automated or manual), and steps for securing the account in the event of personnel changes (for example, change in assignment or termination).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.3.	At a minimum, the Responsible Entity shall require and use passwords, subject to the following, as technically feasible:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.3.1	Each password shall be a minimum of six characters.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.3.2	Each password shall consist of a combination of alpha, numeric, and "special" characters.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R5.3.3	Each password shall be changed at least annually, or more frequently based on risk.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R6.	Security Status Monitoring — The Responsible Entity shall ensure that all Cyber Assets within the Electronic Security Perimeter, as technically feasible, implement automated tools or organizational process controls to monitor system events that are related to cyber security.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R6.1.	The Responsible Entity shall implement and document the organizational processes and technical and procedural mechanisms for monitoring for security events on all Cyber Assets within the Electronic Security Perimeter.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R6.2.	The security monitoring controls shall issue automated or manual alerts for detected C	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-007-1	R6.3.	The Responsible Entity shall maintain logs of system events related to cyber security, where technically feasible, to support incident response as required in Standard CIP-008.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R6.4.	The Responsible Entity shall retain all logs specified in Requirement R6 for ninety calendar days.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R6.5.	The Responsible Entity shall review logs of system events related to cyber security and maintain records documenting review of logs.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R7.	Disposal or Redeployment — The Responsible Entity shall establish formal methods, processes, and procedures for disposal or redeployment of Cyber Assets within the Electronic Security Perimeter(s) as identified and documented in Standard CIP-005.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R7.1.	Prior to the disposal of such assets, the Responsible Entity shall destroy or erase the data storage media to prevent unauthorized retrieval of sensitive cyber security or reliability data.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R7.2.	Prior to redeployment of such assets, the Responsible Entity shall, at a minimum, erase the data storage media to prevent unauthorized retrieval of sensitive cyber security or reliability data.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R7.3.	The Responsible Entity shall maintain records that such assets were disposed of or redeployed in accordance with documented procedures.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R8.	Cyber Vulnerability Assessment — The Responsible Entity shall perform a cyber vulnerability assessment of all Cyber Assets within the Electronic Security Perimeter at least annually. The vulnerability assessment shall include, at a minimum, the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R8.1.	A document identifying the vulnerability assessment process;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R8.2.	A review to verify that only ports and services required for operation of the Cyber Assets within the Electronic Security Perimeter are enabled;	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R8.3.	A review of controls for default accounts; and,	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-007-1	R8.4.	Documentation of the results of the assessment, the action plan to remediate or mitigate vulnerabilities identified in the assessment, and the execution status of that action plan.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-007-1	R9.	Documentation Review and Maintenance — The Responsible Entity shall review and update the documentation specified in Standard CIP-007 at least annually. Changes resulting from modifications to the systems or controls shall be documented within ninety calendar days of the change.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.	Cyber Security Incident Response Plan — The Responsible Entity shall develop and maintain a Cyber Security Incident response plan. The Cyber Security Incident Response plan shall address, at a minimum, the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.1.	Procedures to characterize and classify events as reportable Cyber Security Incidents.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.2.	Response actions, including roles and responsibilities of incident response teams, incident handling procedures, and communication plans.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.3.	Process for reporting Cyber Security Incidents to the Electricity Sector Information Sharing and Analysis Center (ES ISAC). The Responsible Entity must ensure that all reportable Cyber Security Incidents are reported to the ES ISAC either directly or through an intermediary.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.4.	Process for updating the Cyber Security Incident response plan within ninety calendar	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.5.	Process for ensuring that the Cyber Security Incident response plan is reviewed at least	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R1.6.	Process for ensuring the Cyber Security Incident response plan is tested at least annually. A test of the incident response plan can range from a paper drill, to a full operational exercise, to the response to an actual incident.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-008-1	R2.	Cyber Security Incident Documentation — The Responsible Entity shall keep relevant documentation related to Cyber Security Incidents reportable per Requirement R1.1 for three calendar years.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R1.	Recovery Plans — The Responsible Entity shall create and annually review recovery plan(s) for Critical Cyber Assets. The recovery plan(s) shall address at a minimum the following:	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R1.1.	Specify the required actions in response to events or conditions of varying duration and severity that would activate the recovery plan(s).	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents

CIP Standards

Standard Number	Requirement Number	Revised Requirements to include applicable Version 0 & Version 1 Standards	Functional Entity Responsible for Requirement			Assigned Tasks	Reference Documents
			TO	TOP	TP		
CIP-009-1	R1.2.	Define the roles and responsibilities of responders.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R2.	Exercises — The recovery plan(s) shall be exercised at least annually. An exercise of the recovery plan(s) can range from a paper drill, to a full operational exercise, to recovery from an actual incident.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R3.	Change Control — Recovery plan(s) shall be updated to reflect any changes or lessons learned as a result of an exercise or the recovery from an actual incident. Updates shall be communicated to personnel responsible for the activation and implementation of the recovery plan(s) within ninety calendar days of the change.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R4.	Backup and Restore — The recovery plan(s) shall include processes and procedures for the backup and storage of information required to successfully restore Critical Cyber Assets. For example, backups may include spare electronic components or equipment, written documentation of configuration settings, tape backup, etc.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents
CIP-009-1	R5.	Testing Backup Media — Information essential to recovery that is stored on backup media shall be tested at least annually to ensure that the information is available. Testing can be completed off site.	TO	TOP		N/A	M-13 Emergency operations M-1 Control Center Req. Confidential internal PJM Security Documents