Critical Infrastructure Stakeholder Oversight

Christina Stotesbury
CISO Facilitator
Markets & Reliability Committee
March 29, 2021

CISO Issue Summary

- Issue brought forward in response to the TO's intent to file a new Attachment M-4 for the planning of CIP-014 Mitigation Projects ("CMPs")
  - Issue Charge approved at the December 12, 2019 Planning Committee
- On March 17, 2020, FERC approved Attachment M-4 which sets forth the planning procedures that apply to a limited subset of supplemental projects designed to mitigate the risk associated with CIP-014-2 facilities
  - Updated Issue Charge approved at the May 12, 2020 Planning Committee which focuses only on the Avoidance and Mitigation of *future* CIP-014 facilities; not those already designated as *current* CMPs.
- On November 19, 2020 FERC issued an order addressing arguments raised on rehearing
  - CIP-014 Mitigation Projects can be developed only as Supplemental Projects
  - PJM Transmission Owners retain all rights to plan Supplemental Projects

CISO Special Sessions & PC Vote

- PJM hosted 16 Special CISO meetings (January 2020 – March 2021) to provide education, propose solutions, and review manual and OA language for the Avoidance & Mitigation of CIP-014 facilities
  - July 2020 MRC first read to revoke the CISO Issue Charge being worked at the Special PC Sessions and replace with an MRC PS/IC due to delays in mitigation solution options.
  - 2 non-binding polls for consensus in August and October 2020
- January 11, 2021: First read of Avoidance and Mitigation packages
- February 9, 2021: Vote on Avoidance and Mitigation packages
  - Avoidance package and manual language (M14B & M14F) passed with 77% support
    - Avoidance package and manual language preferred over status quo with 61% support
  - Mitigation package passed with 61% support
    - Mitigation package preferred over status quo with 60% support
  - Operating Agreement language to address Mitigation has been reviewed during multiple special sessions in 2021

Critical Infrastructure Stakeholder Oversight

Michael Herman
Transmission Planning
Markets & Reliability Committee
March 29, 2021

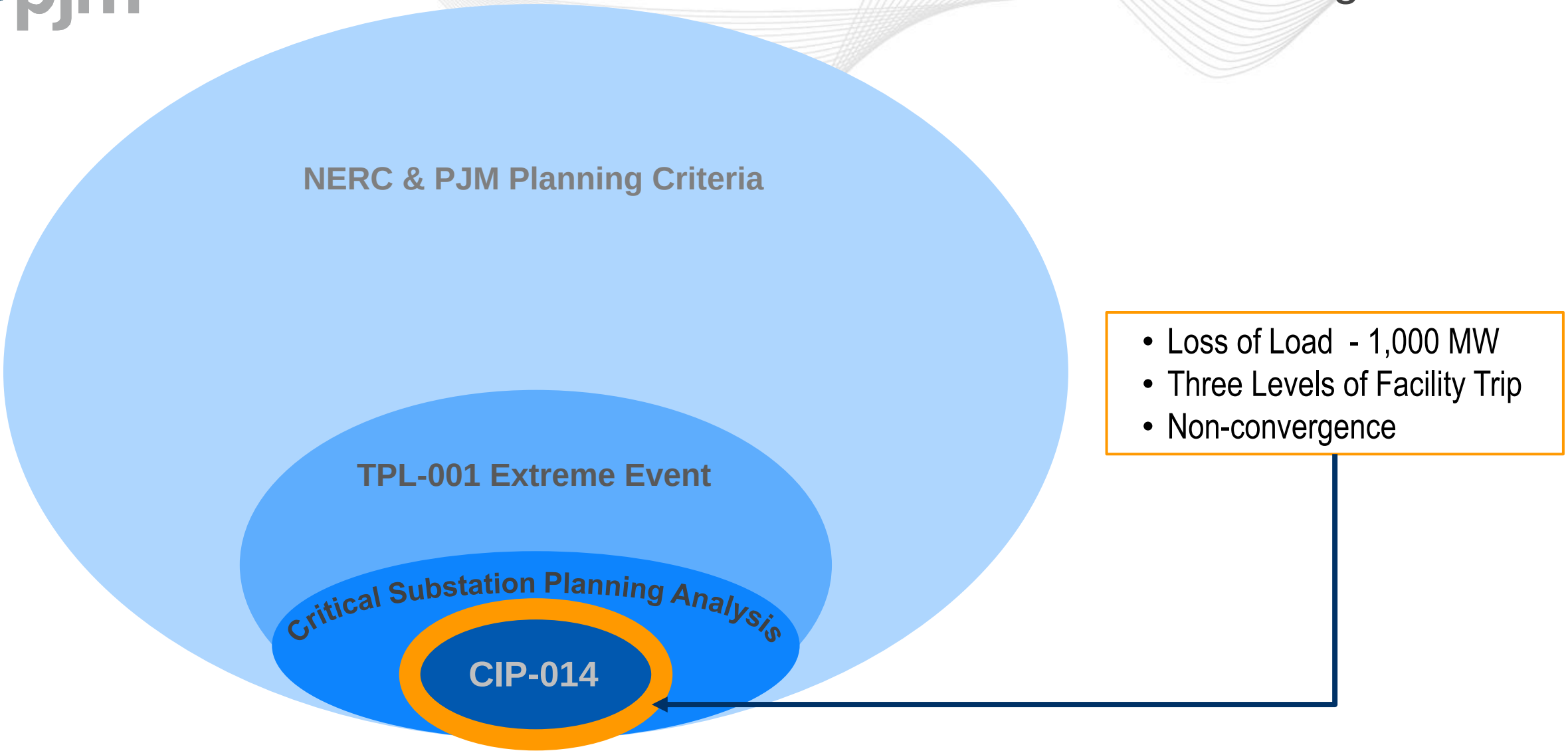
NERC Standard CIP-014-2 Confidentiality

- **Requirement 2.4.** Each Transmission Owner shall implement procedures, such as the use of nondisclosure agreements, for protecting sensitive or confidential information made available to the unaffiliated third party verifier and to *protect or exempt sensitive or confidential information developed pursuant to this Reliability Standard from public disclosure*.
- **Guidelines and Technical Basis:** With respect to the requirement that Transmission owners develop and implement procedures for protecting confidential and sensitive information, the Transmission Owner could have a method for identifying documents that require confidential treatment. One mechanism for protecting confidential or sensitive information is to *prohibit removal of sensitive or confidential information from the Transmission Owner's site.* Transmission Owners could include such a prohibition in a *non-disclosure agreement with the verifying entity.*
  - Parts 2.4 and 6.4 require the entities to have procedures to protect the confidentiality of sensitive or confidential information. Those procedures may include the following elements: 1. *Control and retention of information on site for third party verifiers/reviewers.* 2. *Only "need to know" employees*, etc., get the information. 3. Marking documents as confidential 4. Securely storing and destroying information when no longer needed. 5. *Not releasing information outside the entity* without, for example, General Counsel sign-off.

CISO = Avoidance + Mitigation

- CISO concepts divided into two processes: Avoidance and Mitigation
  - Avoidance: The study of proposed RTEP projects to ensure that no new critical facilities are created
  - Mitigation: The process under which PJM can address critical facilities that were unavoidable

World of Contingencies



Definition: Critical Substation Planning Analysis

- **Critical Substation Planning Analysis**:
  - Analyses performed to ensure system reliability based on a study of select substation contingencies, which are based upon TPL-001-4 Extreme Contingency Analysis. The analysis evaluates the loss of load and potential cascade events which may result from power flow analysis. Due to the sensitive nature of the analysis, identified substations and results require confidentiality consistent with established processes and good utility practice.

Avoidance

Avoidance: Analysis (12a/b/c)

- CISO Avoidance process performs Critical Substation Planning Analysis using cascading trees tool to simulate the impacts of a critical substation outage
- Analysis, metrics and sensitivity consistent with cascading trees software.
- Cascading trees analysis is based on evaluation of instability, uncontrolled separation or cascading.

Avoidance: Confidentiality & Transparency (13&14)

- Confidentiality is significant issue with critical substation analysis
- Process ensures transparency where possible, confidentiality where required.
- Avoidance process studies proposed projects to address reliability criteria
- If proposed project creates a new critical substation, PJM will communicate to proposing entity

Avoidance: Competition and Cost Allocation (15&16)

- Competition: Status Quo
- Cost allocation: Status Quo

Avoidance: Roles and Responsibilities (17)

- PJM: Performs RTEP critical substation planning analysis with cascading trees tool. Communicates information in accordance with confidentiality requirements.
- Stakeholders: Status quo with limited/restricted level of communications to entity proposing project triggering potential violations of PJM's critical substation planning analysis.
- States: Status quo with ability to provide feedback consistent with the confidentiality provisions in the Operating Agreement
- Asset Owners: Status quo with limited/restricted level of communications to entity proposing project triggering potential violation of PJM's critical substation planning analysis.

Mitigation

Mitigation: PJM/RTEP (1a/5)

- Avoidance process design to reduce the risk of creating a new critical facility
- PJM to conduct analysis on annual 5 year RTEP case to determine if any critical substations are identified. (does not apply to those CMP's identified as part of M-4.)
- PJM to work with Asset Owner to study potential solutions and select the more efficient or cost effective solution for inclusion in the RTEP via RFP style competitive process, when appropriate.
- Restoration capabilities or operating procedures could replace the need for a project.

Mitigation: Confidentiality/Transparency (2,3,4)

- As with Avoidance, confidentiality and transparency are both important, yet conflicting
- PJM to conduct RFP style proposal window provided that selected solution does not disclose the location of the critical substation.
- PJM to maintain confidentiality of critical aspects of required mitigation project
- Mitigation only available in states where process has been established to maintain confidentiality of the need associated with the critical substation

- **Roles and Responsibilities**
  - States: PJM will consult with relevant state commission(s), asset owner, and Designated Entity regarding any potential mitigation requirements. States maintain full authority where applicable.
  - Stakeholders: Stakeholder participation is limited to those who are pre-qualified for designated entity status and who have executed an NDA and are interested in bidding solutions for projects qualifying as part of RFP competitive solicitation.
  - Asset Owner: Works with PJM to explain applicable restoration capabilities for a substation identified by PJM for potential mitigation.

Mitigation: Process(9b)

- When PJM determines that a mitigation project is required, PJM will conduct an RFP style proposal window seeking proposals to build the identified mitigation project
- RFP window can only address a project that does not disclose the critical substation, otherwise the project is awarded to the incumbent TO in order to maintain confidentiality requirements consistent with NERC standards.
- Mitigation only available in states where process has been established to maintain confidentiality of the need associated with the critical substation
- CPSA project requires a two step board approval
  - Step 1: Approval of the PJM selected project in order to open an RFP window if appropriate.
  - Step 2: Approval of designated entity to build selected project.
- CSPA projects are a subset of baseline reliability projects and will follow existing cost allocation rules.

M14B and M14F Updates

M14B and M14F Updates

- Through development of OA language, PJM and stakeholders have identified updates required in M14B and M14F.

- Modification Language updated in both M14B (S2.9) and M14F (S8.1.1)
  - "If a proposed project fails the Critical Substation Planning Analysis, PJM may modify the technical specifications of a proposal so that is avoids a failure of CSPA, as defined in S2.9. This may result in the modified proposal being determined to be the more efficient or cost-effective proposal for recommendation to the PJM Board."

M14B and M14F Updates

- Addition update to M14B:
  - Removal of “not a driver” text
  - Addition of 5 year annual RTEP cycle to CSPA process
  - Clarified voltage cutoff
  - “Loss of Load approaching 1000 MW”
  - Clarified non-convergence text

Next Steps

- April MRC – Second Read

Contact

Facilitator:
Christina Stotesbury,
Christina.Stotesbury@pjm.com

Secretary: Joe Hay,
Joseph.Hay@pjm.com

SME:
Michael Herman,
Michael.Herman@pjm.com

Critical Infrastructure Stakeholder Oversight

Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

Appendix

Avoidance Package

PJM Package Proposal – Design Component 12a

#	Design Components	A
12a	CSPA Driver/ Criteria Analysis	PJM performs RTEP critical substation planning analysis utilizing the cascading trees tool.

PJM Package Proposal – Design Component 12b

#	Design Components	A
12b	Metrics/Measurements/Factors.	Consistent with RTEP critical substation planning analytical methods incorporated in cascading trees tool software..

PJM Package Proposal – Design Component 12c

#	Design Components	A
12c	Sensitivity Testing	Consistent with analysis methods as indicated in the critical substation planning analysis described above.

PJM Package Proposal – Design Component 13a

#	Design Components	A
13a	Communication Procedures	PJM to communicate failure of project to meet critical substation planning analysis. If a project proposal does not pass critical substation planning analysis, PJM to provide verbal update with limited/restricted level of information to entity who submitted the project proposal through competitive window. Information limited to analytical results only.

PJM Package Proposal – Design Component 13b

#	Design Components	A
13b	Confidentiality	If project proposal does not pass critical substation planning analysis, PJM shall provide limited/restricted level of information to project proposal.

PJM Package Proposal – Design Component 13c

#	Design Components	A
13c	CEII	Status Quo

PJM Package Proposal – Design Component 13d

#	Design Components	A
13d	Re-evaluation Process	Not Applicable

PJM Package Proposal – Design Component 14

#	Design Components	A
14	Transparency	PJM communicate failure of project to meet RTEP critical substation planning analysis. If a project proposal does not pass critical substation planning analysis, PJM shall provide limited/restricted level of information to entity proposing project through the competitive window.

PJM Package Proposal – Design Component 15

#	Design Components	A
15	Competition	Limited to proposing entities ability to mitigate initial issue identified in competitive process. No opportunity to revise a proposal submitted through a competitive window once the window closes to address issues that trigger potential violations associated with the RTEP critical substation planning analysis.

PJM Package Proposal – Design Component 16

#	Design Components	A
16	Cost Allocation/ Cost Recovery	Status Quo

PJM Package Proposal – Design Component 17a

#	Design Components	A
17a	Roles and Responsibilities - PJM	Performs RTEP critical substation planning analysis with cascading trees tool. Communicates information in accordance with confidentiality requirements as described above. E.g., release limited/restricted level of information to proposing entity.

PJM Package Proposal – Design Component 17b

#	Design Components	A
17b	Roles and Responsibilities – State Commissioners	Provide feedback consistent with the confidentiality provisions in the Operating Agreement

PJM Package Proposal – Design Component 17c

#	Design Components	A
17c	Roles and Responsibilities – PJM Stakeholders	Status Quo with limited/restricted level of communications to entity proposing project triggering potential violations of PJM's RTEP critical substation planning analysis.

PJM Package Proposal – Design Component 17d

#	Design Components	A
17d	Roles and Responsibilities – Asset Owners	Status quo with limited/restricted level of communications to entity proposing project triggering potential violation of PJM's RTEP critical substation planning analysis.

Mitigation Package

PJM Mitigation Package Proposal – Design Component 1a

#	Design Components	A
1a	Role of PJM as the Regional Transmission Planner	PJM, as the NERC registered transmission planner, to establish critical substation planning analysis for substation outages. PJM to conduct annual critical substation planning analysis and will identify actionable results to mitigate. PJM to select the more efficient or cost effective solution for recommendation to the PJM Board. This process does not apply to those CMPs identified as part of the Attachment M-4 process.

PJM Mitigation Package Proposal – Design Component 1b

#	Design Components	A
1b	Role of State Commissions	PJM will summarize findings in a confidential document. PJM will use existing protocols in the Operating Agreement to provide the state public utility commissions confidential documentation as needed. PJM will consult with relevant state commission(s) and asset owner regarding any potential mitigation requirements. States maintain full authority where applicable.

PJM Mitigation Package Proposal – Design Component 1c

#	Design Components	A
1c	Role of PJM Stakeholders	Stakeholder participation is limited to those who are pre-qualified for designated entity status and who have executed an NDA and are interested in bidding solutions for projects qualifying as part of RFP competitive solicitation.

PJM Mitigation Package Proposal – Design Component 1d

#	Design Components	A
1d	Role of the Asset Owner	Works with PJM to explain applicable restoration capabilities for a substation identified by PJM for potential mitigation.

PJM Package Proposal – Design Component 2

#	Design Components	A
2	Transparency with respect to CMP	A project that falls under current PJM competitive window rules (exempted less than 200kV, substation equipment and immediate need) will be open to competition as part of an RFP process if the mitigating solution does not disclose the substation associated or the substation contingency. Full details of the solution to be published following completion of construction.

PJM Package Proposal – Design Component 3

#	Design Components	A
3	Confidentiality	PJM will consider additional confidentiality measures for those on a need to know basis for any parties requiring access to information associated with solutions.

PJM Package Proposal – Design Component 3a

#	Design Components	A
3a	Competitive Process	To the extent the PJM recommended transmission enhancement or expansion would be available for competition under current PJM competitive window rules (exempted less than 200kV, substation equipment and immediate need), the project will be open to competition as part of an RFP process if the mitigating solution does not disclose the substation associated or the substation contingency. Any recommended transmission enhancement or expansion, under these provisions, which includes component(s) that require public disclosure of siting prior to completing construction may only proceed in states where confidentiality provisions allow restricting access to information associated with the need driving the recommended transmission enhancement or expansion to the state commission and commission staff.

PJM Package Proposal – Design Component 4

#	Design Components	A
4	CEII	Status Quo

PJM Package Proposal – Design Component 5

#	Design Components	A
5	NERC CIP-014 Mitigation	PJM to work with Asset Owner to study potential solutions to the identified critical substation planning analysis violation. PJM will select solution. Competition available, via competitive process described above

PJM Package Proposal – Design Component 5a

#	Design Components	A
5a	Integration with the regional plan	Mitigation projects will be integrated into the regional plan following PJM board approval.

PJM Package Proposal – Design Component 6

#	Design Components	A
6	Oversight	All existing FERC, PJM and state authorities applicable

PJM Package Proposal – Design Component 7

#	Design Components	A
7	CIP-014 Facility Identification Prevention	Public Review of confidential information associated with the critical substation planning analysis project occurs after the project is placed in-service.

PJM Package Proposal – Design Component 7a

#	Design Components	A
7a	Integration with the regional plan	Critical substation planning analysis projects will be integrated into the regional plan following PJM board approval.

PJM Package Proposal – Design Component 8

#	Design Components	A
8	Cost Allocation/ Cost Recovery	PJM will use existing reliability cost allocation methodology for calculation of cost responsibility

PJM Package Proposal – Design Component 9

#	Design Components	A
9	Timeline	Developed in accordance with the regional planning process.

PJM Package Proposal – Design Component 9a

#	Design Components	A
9a	Horizon for Identification	This process applies to all critical substation planning analysis violations identified by PJM in accordance with PJM's critical substation planning analysis (Except those "Less than 20" that are covered by M4)

PJM Package Proposal – Design Component 9b

#	Design Components	A
9b	Process for Identified Facilities	To the extent the PJM recommended transmission enhancement or expansion would be available for competition under current PJM competitive window rules (exempted less than 200kV, substation equipment and immediate need), the project will be open to competition as part of an RFP process if the mitigating solution does not disclose the violations identified through PJM's critical substation planning analysis. Any recommended transmission enhancement or expansion, under these provisions, which includes component(s) that require public disclosure of siting prior to completing construction may only proceed in states where confidentiality provisions allow restricting access to information associated with the need driving the recommended transmission enhancement or expansion to the state commission and commission staff.

PJM Package Proposal – Design Component 10

#	Design Components	A
10	Cost Efficiency	Reliability should be the priority while adhering to the Order 1000 principles to recommend the more efficient or cost-effective enhancements and expansions to the PJM Board for approval

PJM Package Proposal – Design Component 11

#	Design Components	A
11	Verification of successful mitigation	PJM will perform studies consistent with its critical substation planning analysis to verify that the project mitigates the critical substation planning analysis violation.