

Attachment M4 - CIP-014 Mitigation Projects (CMP) Process

TOA-AC Special Session



Agenda

- **Welcome and Introduction**
- **NERC CIP-014-2 Reliability Standard Overview**
- **Background and Framework of the Proposed CIP-014 Mitigation Projects (CMP) Process**
- **Discussion of Questions and Comments Received from OPSI and Stakeholders**
 - Additional questions and comments
- **Next Steps**

Welcome and Introduction

- **Welcome to the webinar which is being hosted by the Transmission Owners Agreement-Administrative Committee (TOA-AC)**
- **On August 12, the TOA-AC issued a notice to stakeholders regarding the intent to file a new Tariff Attachment M-4 solely applicable to the planning of CIP-014 Mitigation Projects (CMPs)**
- **The stakeholder notice and consultation process (30 days) for certain Tariff revisions is defined in the Tariff, Section 9.1.(b)**
- **The deadline for comments was extended from September 16 to September 30 at the request of stakeholders**
- **A revised proposed Attachment M-4 that reflects revisions in response to comments received was posted on November 20**
- **The purpose of today's webinar is to provide feedback on the comments and questions received and to provide an opportunity for more discussion**

How did we get here?

■ April 16, 2013 PGE's Metcalf Substation Attack

- 17 transformers
- 52,000 gallons of oil
- \$15M in damages

Shots in the Dark
A look at the April 16 attack on PG&E's Metcalf Transmission Substation

1 12:58 a.m., 1:07 a.m. Attackers cut telephone cables	2 1:31 a.m. Attackers open fire on substation	3 1:41 a.m. First 911 call from power plant operator	4 1:45 a.m. Transformers all over the substation start crashing	5 1:50 a.m. Attack ends and gunmen leave	6 1:51 a.m. Police arrive but can't enter the locked substation	7 3:15 a.m. Utility electrician arrives
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Sources: PG&E; Santa Clara County Sheriff's Dept.; California Independent System Operator; California Public Utilities Commission; Google (image); The Wall Street Journal

- March 7, 2014 FERC directs NERC to submit a physical security reliability standard within 90 days
- November 20, 2014 FERC approves CIP-014-1
- July 14, 2015 FERC approves CIP-014-2
- October, 2015 CIP-014-2 effective

NERC CIP-014-2 Standard

NERC CIP-014-2 Standard Purpose:

Requires Transmission Owners to ***identify and protect*** transmission stations and transmission substations, and their associated primary control centers, that if rendered inoperable or damaged as a result of a physical attack could result in instability, uncontrolled separation, or cascading within an interconnection.

- The Standard is applicable to Transmission Owners that own Transmission stations or substations (Section A.4.1.1)
- Screening must be done for stations and substations existing and planned to be in service within 24 months
- Subsequent screening and risk assessments must be performed by the TO:
 - At least every 30 months if a TO facility was identified in the previous assessment
 - At least every 60 months if no TO facilities were identified in the previous assessment

NERC CIP-014-2 Standard

NERC CIP-014-2 Requirements:

■ Requirements 1-3 (R1-R3)

- Consist of an initial risk assessment based on a transmission analysis to identify the Transmission **substations** that if rendered inoperable or damaged could result in instability, uncontrolled separation, or Cascading within an Interconnection
- Results are to be verified by an **unaffiliated third party**
- PJM is used as the **unaffiliated third party verifier** by Transmission Owners in PJM

■ Requirements 4-6 (R4-R6)

- Consist of an evaluation of potential threats and vulnerabilities of a **physical attack** to each of the identified substations and primary control centers; and
- Development of a documented **physical security plan** for each site
- The evaluation and plan are to be verified by an **unaffiliated qualified security entity**

NERC CIP-014-2 Standard

- **NERC CIP-014-2 R5 requires the implementation of a physical security plan for each identified CIP-014-2 substation**
 - Plan shall include: “Resiliency *or* security measures designed collectively to deter, detect, delay, assess, communicate, and respond to potential physical threats and vulnerabilities”
 - Compliance options include:
 - Substation hardening
 - Station switching
 - Building walls and fences
- **Circumstances exist where the consequences associated with losing the substations are severe**
- **Physical security protections do not eliminate the criticality of these substations**

NERC CIP-014-2 Standard

- **CIP-014-2 substations have the potential for long-term loss of load and associated loss of service to critical infrastructure should these substations be damaged**
- **In compliance with the Standard, security upgrades to physically protect these CIP-014-2 substations are either already complete or are in-progress**
 - E.g. Removal of vegetation in close proximity to substation fencing
 - E.g. Surveillance cameras, ballistic shields, barriers
 - E.g. Chain link fencing replaced with a solid material (e.g. concrete) that restricts exterior line of sight into the substation



NERC CIP-014-2 Standard

- **While the CIP-014-2 Standard addresses the physical protection measures to be used for a transmission substation, it does not address the consequences to the Bulk Power System should the loss of a transmission substation occur**
 - The very nature of the identified vulnerabilities implicates locations and risks that cannot be completely mitigated or resolved by physically protecting the substation
- **Achieving the removal of these substations from the CIP-014 list may involve transmission projects that, under the Attachment M-3 process and state rules, would require public vetting**
 - However, due to the criticality, the vulnerabilities associated with these facilities should not be disclosed, identified or addressed in public forums

Associated Critical Facility Risks

- **Customer Consequences**
- **Bulk Power System Risk**
- **Compliance Risk**
- **Disclosure of Confidential Information Risk (CIP-014-2 Standard, Requirement 2.4)**

CIP-014 Mitigation Projects (CMP) Process

- **The proposed CIP-014 Mitigation Projects (CMP) process provides a means for planning these projects where the sole purpose is to reduce the criticality of these substations so they can be removed from the CIP-014 list**
- **The list of CIP-014 substations exists and has been established in accordance with the Standard**
- **There is no PJM criteria, mandate or requirement to reduce the criticality of these substations and thus remove them from the CIP-014 list**
- **Thus, CMPs can only be developed as Supplemental Projects; however given the requirement to protect CIP-014 information, the open Attachment M-3 process cannot be used**

CIP-014 Mitigation Projects (CMP) Process

■ The proposed process in Attachment M-4:

- Provides the necessary exception to the Attachment M-3 process
- Only applies to this small set of Supplemental Projects
- Provides for the necessary protection of the sensitive and confidential CIP-014 information
- Provides for input from PJM and the affected States as a proxy for stakeholder input
- Is temporary; sunsets after five years
- Is limited in scope to only addressing existing CIP-014 substations which PJM has indicated is less than 20
- Does not affect existing cost allocation or existing planning authority

CIP-014 Mitigation Projects (CMP) Process

■ The Attachment M-4 process steps are:

1. Definition of CMPs
2. Limitation on the Number of CMPs
3. Transmission Owner Deliberative Process
 - TO submits the Potential Solutions and Preferred Solution to PJM
4. PJM Review and Assessment
 - PJM Review: PJM will either:
 - Support the TO's Preferred Solution as the more efficient or cost effective solution
 - Suggest modifications to the Preferred or Potential Solutions
 - Advise that a CMP solution not be pursued
 - PJM Assessment and Verification: PJM shall assess and verify that the CMP:
 - Will result in removal of substation from the CIP-014 list
 - Does not provide a solution to address an RTEP violation or need
 - Does not remove a substation from the list that will be removed through an RTEP project
 - Does not result in a reliability or operational performance violation (Do No Harm)
 - PJM produces a written report of its findings

CIP-014 Mitigation Projects (CMP) Process

■ The Attachment M-4 process steps (cont.):

5. Consultation with State Commissions

- After the TO's submission of Potential and Preferred solutions to PJM but prior to PJM's review
- After PJM's review
- Before construction begins
- TO shall be prepared to address customer impacts, recovery plans, distribution-level solutions, new or expanded ROW and estimated cost

6. PJM Interim/Periodic Review and Interim Consultation with States

7. Project Notification and Compliance

8. CMP Construction

9. CMP In-Service Placement

10. Confidentiality

- TO provides notice of CMP existence as a precondition to cost recovery

11. Public Review of CMP

- Costs included in TO filed rates with public review under current rate protocols (subject to discovery) after project is placed in service

OPSI Consultation & Stakeholder Feedback

- **Due to the important role of states in this process, the TOs consulted independently with OPSI**
- **Significant changes were made to the Attachment M-4 proposal**
 - Additional opportunities for consultation with the State Commission(s) under appropriate confidentiality safeguards are included throughout the Attachment M-4 process
 - New factors must be considered by TOs prior to identifying Preferred Solutions
 - PJM may suggest modifications to any of the Preferred or Potential Solutions and advise on the more efficient or cost-effective solution
 - PJM may advise that a CMP solution not be pursued
 - PJM will assess and verify any project ultimately selected for construction before any further Attachment M-4 steps are completed
 - Additional information is required to be given to PJM by the TO once a construction decision is made
 - TOs must make reasonable efforts to seek alternative funding to offset project costs
 - Explicit statement that TO will comply with all applicable licensing, permitting, siting, or certification requirements and proceedings for eminent domain authority

Stakeholder Feedback & Next Steps

- **Stakeholder feedback has been reviewed**

1. NERC CIP-014-2 Standard
2. Consider other measures/solutions to remove a CIP-014 substation (non-transmission, batteries, etc.)
3. PJM's authority/role
4. Regional planning needs and solutions
5. Cost allocation
6. Future CIP-014 substations
7. Order No. 1000 competitive process
8. Ensuring confidentiality
9. Attachment M-4 process details and questions

- **Additional feedback received during this webinar will be considered**

- **After considering all input, the TOA-AC will conduct a vote on whether or not to proceed with the Attachment M-4 filing**