

April 29, 2021

VIA ELECTRONIC FILING

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re: **NERC Full Notice of Penalty regarding Central Maine Power Company,
FERC Docket No. NP21-_-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty¹ regarding Central Maine Power Company (CMP), and referred to herein as the Entity, NERC Registry ID# NCR07029,² in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations, and orders, as well as NERC's Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).³

NERC is filing this Notice of Penalty, with information and details regarding the nature and resolution of the violations,⁴ with the Commission because Northeast Power Coordinating Council, Inc. (NPCC) and the Entity have entered into a Settlement Agreement to resolve all outstanding issues arising from NPCC's determination and findings of the violations of the Reliability Standards listed below.

According to the Settlement Agreement, CMP admits to the violations, and has agreed to the assessed penalty of three hundred and sixty thousand dollars (\$360,000), in addition to other remedies and

¹ *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards, Order No. 672, 114 FERC ¶ 61,104, order on reh'g, Order No. 672-A, 114 FERC ¶ 61,328 (2006); Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the N. Am. Elec. Reliability Corp., Docket No. RM05-30-000 (February 7, 2008); Mandatory Reliability Standards for the Bulk-Power System, Order No. 693, 118 FERC ¶ 61,218, order on reh'g, Order No. 693-A, 120 FERC ¶ 61,053 (2007).*

² CMP was included on the NERC Compliance Registry as a Distribution Provider (DP), Transmission Owner (TO), Transmission Operator (TOP), Transmission Planner (TP) and Transmission Service Provider (TSP) on June 21, 2007.

³ See 18 C.F.R § 39.7(c)(2) and 18 C.F.R § 39.7(d).

⁴ For purposes of this document, each violation at issue is described as a "violation," regardless of its procedural posture and whether it was a possible, alleged, or confirmed violation.

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NERC Notice of Penalty
CMP
April 29, 2021
Page 2

actions to mitigate the instant violations and facilitate future compliance under the terms and conditions of the Settlement Agreement.

Statement of Findings Underlying the Violations

This Notice of Penalty incorporates the findings and justifications set forth in the Settlement Agreement, by and between NPCC and CMP. The details of the findings and basis for the penalty are set forth in the Settlement Agreement and herein. This Notice of Penalty filing contains the basis for approval of the Settlement Agreement by NERC Enforcement staff under delegated authority from the NERC Board of Trustees Compliance Committee (NERC BOTCC).

In accordance with Section 39.7 of the Commission’s regulations, 18 C.F.R. § 39.7 (2021), NERC provides the following summary table identifying each violation of a Reliability Standard resolved by the Settlement Agreement. Further information on the subject violations is set forth in the Settlement Agreement and herein.

Violation(s) Determined and Discovery Method								
*SR = Self-Report / SC = Self-Certification / CA = Compliance Audit / SPC = Spot Check / CI = Compliance Investigation								
NERC Violation ID	Standard	Req.	VRF/VSL	Applicable Function(s)	Discovery Method* & Date	Violation Start-End Date	Risk	Penalty Amount
NPCC2019022452	TOP-001-4	R13	High/Moderate	TOP	SR; 11/6/19	9/5/19	Moderate	\$360k
NPCC2020023377	TOP-001-4	R13	High/Moderate	TOP	SR; 5/7/20	2/12/20	Moderate	

Information About the Entity

CMP is Maine’s largest electricity transmission and distribution utility. Established in 1899, CMP operates approximately 23,500 miles of distribution lines and 2,900 miles of transmission lines. It serves approximately 624,000 customers across 346 communities in central and southern Maine. CMP is a subsidiary of Avangrid Networks, Inc. (Avangrid). Avangrid owns eight electricity, natural gas or combination utilities in Connecticut, Maine, Massachusetts, and New York. The utilities serve 2.2 million electricity customers and 930,000 natural gas customers. Avangrid employs approximately 6,500 people.

NERC Notice of Penalty
CMP
April 29, 2021
Page 3

Background to the Violations

TOP-001-4 R13 (NPCC2019022452)

NPCC determined that CMP did not ensure that a Real-time Assessment was performed for 49 minutes. CMP missed the 30-minute deadline to ensure that a Real-time Assessment was performed by 19 minutes. Attachment A includes additional facts regarding the violation.

The cause of this violation involved workforce oversight because management failed to verify and fully understand the implications of masking of a Real-Time Contingency Analysis (RTCA) alarm from appearing as a high priority on the System Operator's console and whether it would still permit the System Operator to be aware of instances when the Real-time Assessments could not be performed.

NPCC determined that this violation posed a moderate risk to the reliability of the bulk power system (BPS). Attachment A includes the facts regarding the violation that NPCC considered in its risk assessment.

CMP submitted its mitigation activities to address the referenced violation. Attachment A includes a description of the mitigation activities CMP took to address this violation.

CMP certified that it had completed all mitigation activities. NPCC verified CMP completed the mitigation as of November 6, 2019.

TOP-001-4 R13 (NPCC2020023377)

NPCC determined CMP did not ensure that a Real-time Assessment was performed for 48 minutes. CMP missed the 30-minute deadline to ensure that a Real-time Assessment was performed by 18 minutes. Attachment A includes additional facts regarding the violation.

The cause of this violation was workforce oversight. Management failed to ensure CMP's documented procedure and/or policy clearly identified and communicated the limitations of the RTCA application.

NPCC determined that this violation posed a moderate risk to the reliability of the bulk power system (BPS). Attachment A includes the facts regarding the violation that NPCC considered in its risk assessment.

NERC Notice of Penalty
CMP
April 29, 2021
Page 4

CMP submitted its mitigation activities to address the referenced violation. Attachment A includes a description of the mitigation activities CMP took to address this violation.

CMP certified that it had completed all mitigation activities. NPCC verified CMP completed the mitigation as of May 22, 2020.

Regional Entity's Basis for Penalty

According to the Settlement Agreement, NPCC has assessed a penalty of three hundred sixty thousand dollars (\$360,000) for the referenced violations. In reaching this determination, NPCC considered the following factors:

1. NPCC considered CMP and other CMP affiliates' compliance history with TOP-001-4 R13 as an aggravating factor in the penalty determination;⁵
2. CMP self-reported the violations;
3. CMP was cooperative throughout the compliance enforcement process;
4. CMP recognized and affirmatively accepted responsibility for its conduct by admitting to the violations; and
5. The violations of NPCC2019022452 and NPCC2020023377 posed a moderate risk and did not pose a serious or substantial risk to the reliability of the BPS, as discussed in Attachment A.

After consideration of the above factors, NPCC determined that, in this instance, the penalty amount of three hundred sixty thousand dollars (\$360,000) is appropriate and bears a reasonable relation to the seriousness and duration of the violations.

⁵ The CMP's relevant prior noncompliance with TOP-001-4 R13: NERC Violation ID NPCC2019020965 and NPCC2019020966.

NERC Notice of Penalty
CMP
April 29, 2021
Page 5

Statement Describing the Assessed Penalty, Sanction, or Enforcement Action Imposed⁶

Basis for Determination

Taking into consideration the Commission's direction in Order No. 693, the NERC Sanction Guidelines and the Commission's July 3, 2008, October 26, 2009 and August 27, 2010 Guidance Orders,⁷ NERC Enforcement staff reviewed and approved the resolution between NPCC and CMP of the violations in this Notice of Penalty under delegated authority from the NERC BOTCC. In approving the resolution, NERC Enforcement staff reviewed the applicable requirements of the Commission-approved Reliability Standards and the underlying facts and circumstances of the violations at issue, and considered the factors listed above.

For the foregoing reasons, NERC Enforcement staff approved the resolution and believes that the assessed penalty of three hundred sixty thousand dollars (\$360,000) is appropriate for the violations and circumstances at issue, and is consistent with NERC's goal to promote and ensure reliability of the BPS.

Pursuant to 18 C.F.R. § 39.7(e), the penalty will be effective upon expiration of the 30-day period following the filing of this Notice of Penalty with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

Attachments to be Included as Part of this Notice of Penalty

The attachments to be included as part of this Notice of Penalty are the following documents:

1. Settlement Agreement by and between NPCC and CMP executed 1/15/21, included as Attachment A;
2. CMP's Self-Report for TOP-001-4 R13 dated November 6, 2019, included as Attachment B; and
3. CMP's Self-Report for TOP-001-4 R13 dated May 7, 2020, included as Attachment C.

⁶ See 18 C.F.R. § 39.7(d)(4).

⁷ N. Am. Elec. Reliability Corp., "Guidance Order on Reliability Notices of Penalty," 124 FERC ¶ 61,015 (2008); N. Am. Elec. Reliability Corp., "Further Guidance Order on Reliability Notices of Penalty," 129 FERC ¶ 61,069 (2009); N. Am. Elec. Reliability Corp., "Notice of No Further Review and Guidance Order," 132 FERC ¶ 61,182 (2010).

NERC Notice of Penalty
 CMP
 April 29, 2021
 Page 6

Notices and Communications: Notices and communications with respect to this filing may be addressed to the following:

<p>*Persons to be included on the Commission’s service list are indicated with an asterisk. NERC requests waiver of the Commission’s rules and regulations to permit the inclusion of more than two people on the service list.</p> <p>Kristin McKeown General Counsel Northeast Power Coordinating Council, Inc. 1040 Avenue of the Americas, 10th Floor New York, NY 10018-3703 (212) 840-1070 kmckeown@npcc.org</p> <p>Scott Nied Assistant Vice-President Northeast Power Coordinating Council, Inc. 1040 Avenue of the Americas, 10th Floor New York, NY 10018-3703 (212) 840-1070 snied@npcc.org</p> <p>Damase Hebert Director, Enforcement Northeast Power Coordinating Council, Inc. 1040 Avenue of the Americas, 10th Floor New York, NY 10018-3703 (212) 840-1070 dhebert@npcc.org</p> <p>Dennis Arriola CEO, Avangrid 180 Marsh Hill Road, Orange, CT 06477 dennis.arriola@avangrid.com</p>	<p>Teresina Stasko* Assistant General Counsel and Director of Enforcement North American Electric Reliability Corporation 1325 G Street NW, Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile teresina.stasko@nerc.net</p> <p>James McGrane* Senior Counsel North American Electric Reliability Corporation 1325 G Street NW, Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile james.mcgrane@nerc.net</p> <p>Alain Rigaud* Associate Counsel North American Electric Reliability Corporation 1325 G Street NW Suite 600 Washington, DC 20005 (202) 400-3000 (202) 644-8099 – facsimile alain.rigaud@nerc.net</p>
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NERC Notice of Penalty

CMP

April 29, 2021

Page 7

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NERC Notice of Penalty

CMP

April 29, 2021

Page 8

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NERC Notice of Penalty
CMP
April 29, 2021
Page 9

Conclusion

NERC respectfully requests that the Commission accept this Notice of Penalty as compliant with its rules, regulations, and orders.

Respectfully submitted,

/s/ Alain Rigaud

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Assistant General Counsel and Director of
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cc: Central Maine Power Company
Northeast Power Coordinating Council, Inc.

Attachments

Attachment A

Settlement Agreement by and between NPCC and CMP executed
January 15, 2021

In re: Central Maine Power Company) **Violation ID Nos.:**
NERC Registry ID No. NCR07029) NPCC2019022452 (TOP-001-4 R13)
) NPCC2020023377 (TOP-001-4 R13)

**SETTLEMENT AGREEMENT
OF
NORTHEAST POWER COORDINATING COUNCIL, INC.
AND
CENTRAL MAINE POWER COMPANY**

I. INTRODUCTION

1. Northeast Power Coordinating Council, Inc. (“NPCC”) and Central Maine Power Company (“CMP”) (collectively, the “Parties”) enter into this Settlement Agreement (“Agreement”) to resolve violations by CMP of the above-captioned Reliability Standard and Requirement.
2. The Parties stipulate to the facts in this Agreement for the sole purpose of resolving the violations. CMP admits that these facts constitute violations of the above-captioned Reliability Standards and Requirements and takes responsibility for the violations.

II. OVERVIEW OF CMP

3. CMP is Maine’s largest electricity transmission and distribution utility. Established in 1899, CMP operates approximately 23,500 miles of distribution lines and 2,900 miles of transmission lines. It serves approximately 624,000 customers across 346 communities in central and southern Maine. CMP is a subsidiary of Avangrid Networks, Inc. (“Avangrid”). Avangrid owns eight electricity, natural gas or combination utilities in Connecticut, Maine, Massachusetts, and New York. The utilities serve 2.2 million electricity customers and 930,000 natural gas customers. Avangrid employs approximately 6,500 people.
4. CMP is registered as a Distribution Provider (“DP”), Transmission Owner (“TO”), Transmission Operator (“TOP”), Transmission Planner (“TP”) and Transmission Service Provider (“TSP”) in the NPCC Region. CMP, in its capacity as a TOP, is subject to compliance with the above captioned Reliability Standard and Requirement.

III. EXECUTIVE SUMMARY

5. This Agreement resolves two violations of one Transmission Operations (TOP) Reliability Standard and Requirement. Both violations posed a moderate risk to the reliability and resilience of the Bulk Power System (BPS). Both violations were discovered by CMP and promptly self-reported. The first violation (NPCC2019022452) was self-reported on

November 9, 2019. The second violation (NPCC2020023377) was self-reported on May 7, 2020.

6. The first violation involved the failure of CMP to ensure that a Real-time Assessment was performed every 30 minutes. The 30-minute timeframe was exceeded by 19 minutes after an external severed communication cable eventually caused CMP's Real-Time Contingency Analysis (RTCA) to stop solving. The System Operator was unaware of the failure of the RTCA due to lack of appropriate alarms and a communication failure with the operations support group.
7. The second violation also involved the failure of CMP to ensure that a Real-time Assessment was performed every 30 minutes. The 30-minute timeframe was exceeded by 18 minutes after an evacuation drill involving a switch over from the primary Control Center (PCC) to the backup Control Center (BCC) resulted in the failure of the Energy Management System (EMS). Although the EMS restarted within 30 minutes, it failed again within 4 minutes. This resulted in the System Operator mistakenly believing that the RTCA solved and that a Real-time Assessment was performed. However, a successful RTCA run required the EMS to be operational for 5 minutes and a Real-time Assessment was not performed within the 30 minutes.
8. Specific mitigation for each of the violations is described below and includes updated procedures, alarms, and training. However, given the repetitive nature of these violations by CMP and its affiliates, Avangrid has also taken strategic improvement actions to improve its operations culture.
9. NPCC determined that a penalty is appropriate in this case. NPCC has levied a monetary penalty of \$360,000.

IV. ADJUSTMENT FACTORS

10. In addition to the facts and circumstances described in section VII of this Agreement, NPCC considered the following factors in its penalty determination.

Self-Identification and Self-Reporting

11. CMP self-identified and self-reported these violations prior to detection or intervention by NPCC. Effective oversight of the reliability and resilience of the BPS depends upon self-reporting by registered entities. NPCC seeks to encourage self-reporting of offenses and, therefore, applied mitigating credit relating to both violations.

Cooperation

12. CMP has been highly cooperative throughout the entire enforcement process relating to these violations. Throughout the enforcement process, CMP voluntarily provided NPCC with information that was timely, candid, detailed, thoughtful, organized, and thorough. CMP fully cooperated in NPCC's investigation of the violations and all associated

mitigating activities and openly shared information regarding its processes, procedures, internal controls, assets, systems, and organization. NPCC applied mitigating credit for CMP's cooperation.

Admission of Noncompliance

13. CMP recognized and affirmatively accepted responsibility for its conduct by admitting to the violations and entering into this Agreement. NPCC applied mitigating credit since there is independent value in organizations accepting responsibility for their violations.

Internal Compliance Program

14. CMP has a documented NERC Reliability Standards Internal Compliance Program that is designed to ensure CMP is monitoring compliance with all applicable Reliability Standards. The Program provides training for staff with compliance responsibilities, ensuring they have the information required to interpret and develop evidentiary documentation of compliance with the Reliability Standards. The Program is characterized by clear and frequent communication, documentation, and implementation of actions toward compliance, taking into consideration the various factors. In this case, NPCC did not award penalty credit for CMP's Internal Compliance Program.

Compliance History

15. On November 26, 2019, NERC filed a Notice of Penalty with the Commission in Docket No. NP20-4. The Notice of Penalty included a settlement agreement between Avangrid and NPCC addressing six violations of TOP-001-3 and TOP-001-4. On December 26, 2019, the Commission issued a Notice that it would not further review, on its own motion, the Notice of Penalty regarding Avangrid in Docket No. NP20-4.
16. The previous six violations were a result of two separate events where CMP and other CMP affiliates failed to ensure a Real-time Assessment was performed at least every 30 minutes. Those events also involved the failure to notify the RC of a 30-minute unplanned outage of monitoring and assessment capabilities. NPCC determined that those two events and the R13 violations associated with them are relevant and aggravating factors to the penalty amount. The root cause of the previous violations involved the failure of detective controls to identify the lack of the ability to perform a Real-time Assessment and the lack of effective management oversight. Although these instances are slightly different, the root cause is the same; namely a lack of effective management oversight with respect to implementing an internal control. The previous mitigation was unsuccessful in preventing a recurrence of this violation. However, in both cases, the entity did improve on its notification to the RC. As soon as the System Operator was aware that the Real-time Assessment was not being performed, the System Operator immediately notified the RC and requested that the RC begin performing a Real-time Assessment on behalf of the entity.

V. PENALTY

17. Based upon the foregoing, CMP shall pay a monetary penalty of \$360,000 to NPCC.
18. NPCC shall present an invoice to CMP after the Agreement is approved by the Commission or affirmed by operation of law. Upon receipt, CMP shall make a payment by the Required Date, which shall be 30 days from the receipt of the invoice. NPCC will notify NERC if it does not timely receive the payment from CMP.
19. If CMP does not remit the payment by the Required Date, interest payable to NPCC will begin to accrue pursuant to the Commission's regulations at 18 C.F.R. §35.19a(a)(2)(iii) from the date that payment is due, and shall be payable in addition to the payment.

VI. ADDITIONAL TERMS

20. The Parties agree that this Agreement is in the best interest of Bulk Power System reliability. The terms and conditions of the Agreement are consistent with the regulations and orders of the Commission and the NERC Rules of Procedure.
21. NPCC shall report the terms of all settlements of compliance matters in the United States to NERC. NERC will review the Agreement for the purpose of evaluating its consistency with other settlements entered into for similar violations or under similar circumstances. Based on this review, NERC will either approve or reject this Agreement. If NERC rejects the Agreement, NERC will provide specific written reasons for such rejection and NPCC will attempt to negotiate with CMP a revised settlement agreement that addresses NERC's concerns. If a settlement cannot be reached, the enforcement process will continue to conclusion. If NERC approves the Agreement, NERC will (a) report the approved settlement to the Commission for review and approval by order or operation of law and (b) publicly post the violations and the terms provided for in this Agreement.
22. This Agreement binds the Parties upon execution and may only be altered or amended by written agreement executed by the Parties. CMP expressly waives its right to any hearing or appeal concerning any matter set forth herein, unless and only to the extent that CMP contends that any NERC or Commission action constitutes a material modification to this Agreement.
23. NPCC reserves all rights to initiate enforcement action against CMP in accordance with the NERC Rules of Procedure in the event that CMP fails to comply with any of the terms or conditions of this Agreement. CMP retains all rights to defend against such action in accordance with the NERC Rules of Procedure.
24. CMP consents to NPCC's future use of this Agreement for the purpose of assessing the factors within the NERC Sanction Guidelines and applicable Commission orders and policy statements, including, but not limited to, the factor evaluating CMP's history of violations. Such use may be in any enforcement action or compliance proceeding undertaken by NERC or any Regional Entity or both, provided however that CMP does not

consent to the use of the conclusions, determinations, and findings set forth in this Agreement as the sole basis for any other action or proceeding brought by NERC or any Regional Entity or both, nor does CMP consent to the use of this Agreement by any other party in any other action or proceeding.

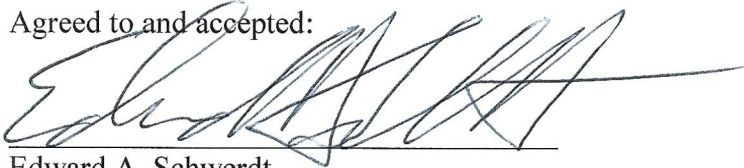
25. CMP affirms that all of the matters set forth in this Agreement are true and correct to the best of its knowledge, information, and belief, and that it understands that NPCC enters into this Agreement in express reliance on the representations contained herein, as well as any other representations or information provided by CMP to NPCC during any CMP interaction with NPCC relating to the subject matter of this Agreement.
26. Upon execution of this Agreement, the Parties stipulate that each possible violation addressed herein constitutes a violation. The Parties further stipulate that all required, applicable information listed in Section 5.3 of the CMEP is included within this Agreement.
27. Each of the undersigned agreeing to and accepting this Agreement warrants that he or she is an authorized representative of the party designated below, is authorized to bind such party, and accepts the Agreement on the party's behalf.
28. The undersigned agreeing to and accepting this Agreement warrant that they enter into this Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer, or promise of any kind by any member, employee, officer, director, agent, or representative of the Parties has been made to induce the signatories or any other party to enter into this Agreement.
29. This Agreement may be signed in counterparts.
30. This Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

[Signatures on following page]¹

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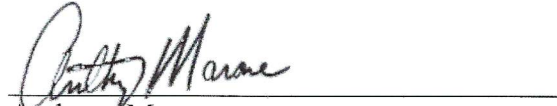
¹An electronic version of this executed document shall have the same force and effect as the original.

Agreed to and accepted:



Edward A. Schwerdt
President & CEO
Northeast Power Coordinating Council, Inc.

1/15/2021
Date



Anthony Marone
President and CEO
Avangrid Networks

1/14/2021
Date

VII. VIOLATIONS

A. TOP-001-4 R13 (NPCC2019022452)

31. The purpose of TOP-001-4 is to prevent instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Interconnection by ensuring prompt action to prevent or mitigate such occurrence.
32. TOP-001-4 R13 states:
Each Transmission Operator shall ensure that a Real-time Assessment is performed at least once every 30 minutes.

Description of Violation

33. On November 6, 2019, Central Maine Power Company ("CMP") submitted a Self-Report stating that, as a Transmission Operator (TOP), it was in noncompliance with TOP-001-4 R13. The violation took place on September 5, 2019.
34. In its Energy Management System (EMS), CMP performs monitoring and assessment using advanced applications: 1) State Estimation (SE) and 2) Real-Time Contingency Analysis (RTCA). Successful SE solutions are used as input into the RTCA. CMP uses both of these EMS applications in addition to monitoring actual MW flows, generation output, voltage profiles, status of equipment outages, weather forecasts, load forecasts, status of remedial action schemes and other inputs to meet its obligation to perform Real-time Assessments.
35. On September 5, 2019 at 8:56 AM, a severed communication cable caused the loss of communications with ten substations, nine of which are part of the Bulk Electric System. The Remote Terminal Unit (RTU) at each substation stopped communicating back to the CMP EMS. At 8:58 AM, the System Operator noticed that the SE failed to solve temporarily and notified the Operations Support Group (OSG) personnel who are the EMS technicians. The System Operator did not discuss the status of the RTCA with OSG. Nonetheless, OSG began monitoring the status of both the SE and RTCA. At 9:27 AM, CMP field personnel were dispatched to two key substations due to the loss of communications. At 9:35 AM, the System Operator notified the Reliability Coordinator (RC) of the loss of communications to the ten substations, but did not ask for assistance from the RC in performing the Real-time Assessment.
36. At 10:08 AM, the RTCA stopped solving and, at this time, CMP could no longer perform a complete Real-time Assessment because a Real-time Assessment is not valid if both the SE and RTCA are not solving properly. OSG personnel was aware of this 10:08 AM occurrence and, without making immediate contact with the System Operator to discuss

the situation further, began attempting to resolve the RTCA issue. As the OSG personnel continued to work on the RTCA, it solved successfully one time at 10:57 AM.

37. However, for 49 minutes (from 10:08 AM until 10:57 AM), CMP was not successful in ensuring that a successful Real-time Assessment was performed. CMP missed the 30-minute deadline to ensure that a Real-time Assessment was performed by 19 minutes.
38. At 10:59 AM after getting the RTCA to solve, OSG personnel notified the System Operator that the RTCA had stopped solving during the 10:08 to 10:57 AM timeframe. The System Operator had been completely unaware that the RTCA was not solving since 10:08 AM. At 11:00 AM, the System Operator notified the RC that the CMP's SE and RTCA had failed intermittently throughout the morning. Although a successful RTCA was run by CMP at 10:57 AM, the RC immediately began performing the Real-time Assessments on behalf of CMP. After the successful run at 10:57 AM, the RTCA did not solve successfully from 10:59 AM to 12:08 PM. At approximately 12:08 PM, CMP's RTCA began solving on a consistent basis and CMP began performing its own Real-time Assessments again. Out of an abundance of caution, the RC continued to support CMP by performing RTCA on the CMP system in duplicative fashion until 3:34 PM.
39. The direct cause of this violation was that the System Operator did not receive the appropriate alarms in the EMS. It was discovered after the event that CMP System Operations Department and OSG had previously agreed to the masking of the RTCA alarm from appearing as a high priority on the System Operator's console. This was done to prevent nuisance alarms being received, which were incorrectly thought to be duplicative to the SE alarms. The SE alarms were not disabled and remained active. Since there were not any SE alarms received during the event, the System Operator assumed both the SE and RTCA were solving within the 30 minute timeframe. The RTCA alarm masking was not seen as a risk because CMP incorrectly assumed at the time that the SE and RTCA would always fail together. This had been the past experience of CMP with SE/RTCA failures. The situation where the SE continued to solve sporadically (but still within 30 minutes) while the RTCA was not solving at all within 30 minutes was not foreseen by CMP and never validated.
40. The root cause of this violation involved workforce oversight. Management failed to verify and fully understand the implications of masking of an RTCA alarm and whether it would still permit the System Operator to be aware of instances when the Real-time Assessments could not be performed. As a result, the CMP System Operator did not have the opportunity to become aware through an EMS alarm that the RTCA was not solving.
41. A contributing cause to this violation was that when OSG personnel became aware of the issue with the RTCA, OSG began to immediately troubleshoot the RTCA instead of first making immediate notification to the System Operator. OSG incorrectly assumed that the System Operator was aware that there was an issue with the RTCA. There was not an established procedure and protocol that required OSG personnel to immediately communicate with the System Operator on all known EMS related issues.

Risk Assessment

42. The violation posed a moderate risk and did not pose a serious or substantial risk to the reliability of the bulk power system.² The failure to ensure a Real-time Assessment is performed at least once every 30 minutes increases the risk that System Operators could be unaware of changing system conditions or parameters at hand and therefore would not allow them to proactively mitigate system conditions that could result in instability, uncontrolled separation, or cascading outage.
43. In this case, CMP made a conscious decision to override certain EMS alarms without validating whether such alarms were necessary for the System Operator to have the necessary information to know whether a Real-time Assessment was being performed. This was a direct cause of the failure to perform a Real-time Assessment for its TOP area for 19 minutes after the expiration of the 30-minute obligation to perform a Real-time Assessment. Furthermore, SCADA data from nine CMP BES substations was unavailable to both CMP and ISO-NE.
44. Since the CMP System Operator was not aware of the inability of EMS to perform a RTCA, it did not contact ISO-NE and ISO-NE was also unaware of the inability of CMP to perform a Real-time Assessment until they were contacted at 10:57 AM.
45. However, during the event, the ICCP link was still in service between the CMP EMS and the ISO-NE EMS. Additionally, ISO-NE was still receiving data via the ICCP on the ties to CMPs neighboring TOPs. Verbal communication between CMP and ISO-NE remained intact and if an event requiring assistance occurred during the violation, such communication increases the likelihood that ISO-NE would have contacted CMP to coordinate providing the necessary assistance. The system conditions during this violation were normal and there were no emergencies that occurred during the loss.
46. No harm is known to have occurred as a result of this violation.

Mitigation Actions

47. To mitigate and prevent recurrence of the violation, CMP took the following actions.
 - a. Revised its internal procedure containing instructions for Emergency Reporting by Operators with language including additional instructions to System Operators on strategies to mitigate the loss of SE and RTCA functionality.
 - b. Notified all responsible staff of the procedure changes and reiterated the importance of implementing the new operating strategies through emails and in-person meetings with each System Operator and Control Center supervisors and managers. Particular emphasis was placed on the need for operators to notify the ISO-NE as soon as the SE and/or RTCA functions display evidence of degraded reliability and

² TOP-001-4 R13 has a VRF of “High.” According to the VSL Matrix, this issue warranted a “Lower” VSL.

to request the ISO-NE to perform RTAs until CMP satisfactorily addresses issues affecting the SE and RTCA functionality.

- c. Made a formal communication requesting OSG personnel to notify System Operators immediately upon discovery of potential reliability issues with the SE and/or the RTCA.
 - d. Updated its internal OSG procedure with instructions to ensure that the support group communicates and discusses with Operations all SE/RTCA issues as they occur.
 - e. Worked with the vendor of the current SCADA/EMS system to install new status alarms for the RTCA
48. In addition to the specific mitigation actions taken to address the violations, Avangrid has taken steps designed to improve its operation's culture of compliance. The operations department was reorganized to assist with reliability and compliance and to facilitate better inaction with the compliance department and senior Avangrid leadership. New staff was added, which includes a new operations director, a dedicated Maine PCC NERC compliance analyst, and a new NERC compliance manager. Avangrid has instituted structured meeting schedules, including weekly operations management meetings, monthly operations compliance meetings, monthly operations/performance meetings, and quarterly steering committee meetings with senior leadership. Avangrid has also contracted with an external consultant to conduct a compliance benchmarking assessment designed to identify compliance program improvement opportunities and is in the process of developing an action plan based on input from that assessment to improve overall performance.
49. Finally, CMP's EMS is scheduled to be replaced in 2021. Avangrid has contracted with external resources to support the new EMS implementation, testing, and training. NPCC has planned a certification review of CMP in 2021.

B. TOP-001-4 R13 (NPCC2020023377)

50. The purpose of TOP-001-4 is to prevent instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Interconnection by ensuring prompt action to prevent or mitigate such occurrence.
51. TOP-001-4 R13 states:
Each Transmission Operator shall ensure that a Real-time Assessment is performed at least once every 30 minutes.

Description of Violation

52. On May 7, 2020, Central Maine Power Company ("CMP") submitted a Self-Report stating that, as a Transmission Operator (TOP), it was in noncompliance with TOP-001-4 R13.
53. CMP performs 12 evacuation drills each year as part of its standard System Operator training program. This violation occurred during an evacuation drill on February 12, 2020.

54. At 7:06 AM, the evacuation drill began, which involved the System Operators and OSG to assist with any issues that arose during the drill. At 7:15 AM, the notifications were made to begin the switch over from the primary Control Center (PCC) to the backup Control Center (BCC). At 7:16 AM, the EMS switch over from PCC to the BCC was attempted and failed. At 7:21 AM, the EMS restarted and appeared to be stable with no RTCA alarms. At 7:25 AM, the EMS failed again. The EMS restarted and appeared to be stable with no RTCA alarms at 7:32 AM. At 7:36 AM, the EMS failed again.
55. Two System Operators and the control room supervisor at the PCC discussed the situation and erroneously understood that the 30-minute period to ensure an RTCA is performed began again at 7:36 AM. They did not realize that the RTCA could not try to run a solution until the EMS had been back online for five consecutive minutes. In reality, the RTCA had not solved since 7:16 AM. OSG continued to troubleshoot in an effort to restart the EMS.
56. At 7:58 AM, the System Operator at the PCC called ISO-NE to notify them that the EMS had failed, but the System Operator did not request that ISO-NE perform the Real-time Assessment on behalf of CMP. At 8:04 AM, the System Operator at the PCC again called ISO-NE and requested that they perform a Real-time Assessment on behalf of CMP.
57. For 48 minutes (from 7:16 AM until 7:58 AM), CMP was not successful in ensuring that a successful Real-time Assessment was performed. CMP missed the 30-minute deadline to ensure that a Real-time Assessment was performed by 18 minutes.
58. At 8:53 AM, the EMS at the BCC was restored and the RTCA began solving at 9:00 AM. At this point, CMP began performing its own Real-time Assessments.
59. The root cause of this violation was workforce oversight. In particular, management failed to ensure CMP's documented procedure and/or policy clearly identified and communicated the limitations of the RTCA application. Therefore, the System Operators and OSG had an inadequate understanding of the RTCA application capabilities and limitations.
60. Additionally, management failed to ensure that a culture existed where the System Operators were trained to immediately request their RC to perform a Real-time Assessment on their behalf when it became clear that the CMEP EMS was having problems and that Real-time Assessments were not being performed regularly.

Risk Assessment

61. The violation posed a moderate risk and did not pose a serious or substantial risk to the reliability of the bulk power system.³ The failure to ensure a Real-time Assessment is performed at least once every 30 minutes increases the risk that System Operators could be unaware of changing system conditions or parameters at hand and therefore would not allow them to proactively mitigate system conditions that could result in instability, uncontrolled separation, or cascading outage.

³ TOP-001-4 R13 has a VRF of "High." According to the VSL Matrix, this issue warranted a "Lower" VSL.

62. In this case, the System Operators were unaware of the limitations of the RTCA application and at 7:36 AM, did not realize that a Real-time Assessment was not performed since 7:16 AM. The ICCP link between CMP and ISO-NE was not working. Therefore, visibility by any entity into the CMP system was not possible and there were certain actions, such as load shedding, that CMP would not have been able to take during time the RTCA application was not working.
63. However, the purpose of the evacuation drill was to test the transition from the PCC to the BCC if the PCC becomes unavailable. This purpose is designed to provide reliability and resiliency benefits to the BPS. Additionally, the violation lasted only 18 minutes after the expiration of the 30-minute obligation to perform a Real-time Assessment. Finally, although the ICCP link between CMP and ISO-NE was not working, the CMP System Operator remained at the operations desk and maintained communication with ISO-NE and other neighboring System Operators
64. The system conditions during this violation were normal and there were no emergencies that occurred during the loss.
65. No harm is known to have occurred as a result of this violation.

Mitigation Actions

66. To mitigate and prevent recurrence of the violation, CMP took the following actions.
 - a. Revised its procedure to include a request and confirmation that ISO-NE will perform a Real-time Assessment for the CMP system during evacuation drills;
 - b. Directed and trained System Operators at all Avangrid Network companies to immediately notify their Reliability Coordinator when they detect any issues with the EMS, SE and/or RTCA;
 - c. Reinforced events and notification requirements during Cycle 1 and Cycle 2 training;
 - d. Updated the PCC mapboard to include a visible counter for the RTCA solving within 5 minutes and new visible and audible alarms when the RTCA does not solve within 5-minutes; and
 - e. Upgraded the EMS to enable Real-time Assessments to be solved using the last good data.
67. In addition to the specific mitigation actions taken to address the violations, Avangrid has taken steps designed to improve its operation's culture of compliance. The operations department was reorganized to assist with reliability and compliance and to facilitate better inaction with the compliance department and senior Avangrid leadership. New staff was added, which includes a new operations director, a dedicated Maine PCC NERC compliance analyst, and a new NERC compliance manager. Avangrid has instituted structured meeting schedules, including weekly operations management meetings, monthly operations compliance meetings, monthly operations/performance meetings, and quarterly steering committee meetings with senior leadership. Avangrid has also contracted with an external consultant to conduct a compliance benchmarking assessment designed to identify

compliance program improvement opportunities and is in the process of developing an action plan based on input from that assessment to improve overall performance.

68. Finally, CMP's EMS is scheduled to be replaced in 2021. Avangrid has contracted with external resources to support the new EMS implementation, testing, and training. NPCC has planned a certification review of CMP in 2021.

Attachment B

CMP's Self-Report for TOP-001-4 R13 dated November 6, 2019

This item was submitted by Kasi McLaughlin (Kasi.McLaughlin@NYSEG.com) on 11/6/2019

Please note that the circumstances under which an Entity would submit a Scope Expansion form are different from what would require a new Self-Report. Please review the material in [this link](#) to see clarifying information and examples of these differences before continuing with this form.

FORM INFORMATION

Registered Entity: Central Maine Power Company

NERC Registry ID: NCR07029

JRO ID:

CFR ID:

Entity Contact Information: Julie King

REPORTING INFORMATION

Applicable Standard: TOP-001-4

Applicable Requirement: R13.

Applicable Sub Requirement(s):

Applicable Functions: TOP

Has a Possible violation of this standard and requirement previously been reported or discovered: Yes

If yes, provide NERC Violation ID (if known):

NPCC2019020965

Date Reported to Region or Discovered by Region:

1/24/2019

Monitoring Method for previously reported or discovered:

Self-Report

Has this Possible Violation previously been reported to other Regions: No

Date Possible Violation was discovered: 9/10/2019

Beginning Date of Possible Violation: 9/5/2019

End or Expected End Date of Possible Violation: 9/5/2019

Is the violation still occurring? No

Provide detailed description and cause of Possible Violation:

On 9/5/2019 at 08:56, CMP experienced a loss of RTU telemetry from ten (10) substations when a non-CMP entity caused a communications loss after severing a fiber cable. Although the cable was severed, the State Estimator (SE) and Real Time Contingency Analysis (RTCA) continued to solve until 10:08. The severed communication cable was repaired and returned to service at approximately 16:19 on 9/5/2019. The total duration of this event was roughly 7 hours and 20 minutes.

The loss of telemetry to substation RTUs and other internal and external modeling discrepancies caused CMP's RTCA to stop solving for more than 30 consecutive minutes from 10:08 to 10:57 and from 10:59 to 12:08, a total duration of approximately 2 hours.

At 10:08, Avangrid Operational Smart Grid (OSG) personnel became aware that the RTCA stopped solving and focused their efforts on troubleshooting and repairing the RTCA tool.

OSG did not notify the System Operator in the Control Room that the RTCA stopped solving because it was assumed the System Operator was aware.

There is a visual cue on the EMS CA display 7.40 that indicates when the RTCA fails, however this display was not open on the Operators' consoles at the time of the event. The Operators generally monitor the main Case Index display 7.1 which they have sized to show SE case status (time/date/status of last run). With this display resized in this manner, the System Operator must resize the display to view the RTCA portion of the screen in order to recognize a failure of RTCA. All System Operators now have the CA Case Report display 7.40 open on their consoles in addition to the Case Index display 7.1.

The Energy Control Center (ECC) maintains a procedure (Avangrid Networks ECC Maintenance and Emergency Repair of ECC Equipment Procedure) to notify OSG personnel when SE and/or RTCA fail. However, this procedure does not govern notifications from OSG personnel to the System Operator.

OSG did not have a process in place to notify ECC Operations that the system display for RTCA was indicating the failed status of RTCA.

At 10:59, OSG personnel contacted the System Operator to discuss the RTCA failures. Starting at 11:00, by mutual agreement, ISO-NE began performing Real-time

Assessments for the Maine BES from the CMP System Operator. ISO-NE continued performing Real-time Assessments for the Maine BES from 11:00 until the CMP RTCA was deemed by the CMP System Operator to be reliably solving at 15:34. There was a gap in performing Real-time Assessments for the Maine BES from 10:08 to 10:57 (49 minutes).

The loss of telemetered data from the substations along with other internal and external modeling discrepancies impacted the solvability of CMP's SE and RTCA solutions. One initial failure of SE occurred at 08:57, but subsequent SE and RTCA executions returned to normal convergent solutions, up until 10:08.

Avangrid's Maine OSG Energy Control Systems (ECS) was initially made aware of this event at 08:58 by the System Operator. At 9:01, ME OSG ECS received an automated text message notification regarding the SE failure. Such text message notifications are always delayed by a few minutes since the notification system is separate from the EMS. ME OSG ECS received multiple, periodic text messages, for SE failures, up until 11:18.

SE and RTCA returned to non-convergent solutions at approximately 10:02 and 10:08, respectively; at that time SE was intermittently solving with non-converged solutions. SE solvability remained intermittent from 10:02 until 11:19 at which time it returned to normal/consistent convergent solutions and remained as such.

The longest consecutive duration that SE remained non-convergent was approximately 17 minutes.

At approximately 11:20, ME OSG ECS personnel contacted the EMS vendor, GE Grid Solutions (GE), and requested assistance with troubleshooting the RTCA non-convergent solutions. RTCA remained non-convergent from approximately 10:08 to 10:57 and from 10:59 until 12:08, at which time RTCA returned to normal, consistent convergent solutions. Neither CMP nor GE made any changes or adjustments to the RTCA program before it returned to normal, successful executions.

CMP submitted a GE trouble ticket for their assistance in further investigating the RTCA instability. This issue is related to a combination of both internal and external modeling discrepancies along with the significant loss of RTU data. In addition, the GE system was not designed to use the last "good value," so such failures cannot be easily mitigated.

Sequence of Events:

At 08:56 on 9/5/2019, CMP lost RTU communications with ten (10) substations due to a severed fiber communication cable. Nine of the 10 stations were part of the Bulk Electric System (115 kV or above).

At 08:58 on 9/5/2019, the System Operator notified OSG personnel that SE failed to solve temporarily from multiple RTU failures. OSG began monitoring SE and RTCA.

At 09:27 on 9/5/2019, the System Operator directed CMP Substation Operations to have personnel dispatched to staff two substations (Wyman and Harris) due to loss of communications. Staffing is required at these sites as they are NPCC key facilities (part of the black-start plan).

At 09:35 on 9/5/2019, the System Operator notified ISO-NE of the fiber break and the loss of Supervisory Control and Data Acquisition (SCADA) to several substations.

At 10:08 on 9/5/2019, CMP's RTCA stopped solving. OSG personnel attempted to repair/resolve the RTCA issue. CMP's RTCA solved successfully one time at 10:57.

OSG personnel did not contact the control room to discuss the failure until 10:59.

Between 10:08 and 12:08 on 9/5/2019, CMP's OSG ECS support staff along with the EMS vendor, GE, attempted to troubleshoot and adjust the tuning parameters of the RTCA application to get the solutions to solve. Unfortunately, neither CMP nor GE was successful during the period of non-convergent RTCA solutions to resolve the issue.

Between 10:08 and 10:57 (49 minutes) on 9/5/2019, there was a gap in performing a Real-time Assessment for the Maine BES.

At 10:59 on 9/5/2019, Avangrid OSG personnel notified the System Operator that the RTCA had failed completely. This state continued until 12:08.

At 11:00 on 9/5/2019, the System Operator notified ISO-NE that SE/RTCA failed to solve following an attempt to initiate SE/RTCA manually via EMS. ISO-NE agreed to perform Real-time Assessments for the Maine BES.

At approximately 12:08 on 9/5/2019, CMP's RTCA solutions returned to solving/converging on a consistent basis.

At 15:34 on 9/5/2019, the CMP System Operator released ISO-NE from running Real-time Assessments for CMP because SE/CA was deemed reliable by the System Operator and CMP was able to resume performing Real-time Assessments for the Maine BES.

Root Cause:

The loss of telemetry to substation RTUs as well as issues with the modeling of real-time data caused CMP's RTCA to stop solving for more than 30 consecutive minutes from 10:08 to 10:57 and 10:59 to 12:08, a total duration of approximately 2 hours.

During the 49 minute gap (10:08 to 10:57), the System Operator's normal display of SE solutions showed that SE was converging however, the System Operator did not realize that the RTCA display was indicating a failure of the RTCA. In addition, the System Operator was not contacted by OSG personnel to discuss the issue regarding the RTCA until 10:59. No alarms were triggered by the EMS to alert the System Operator because SE did not fail long enough to generate an alarm.

CMP OSG department is currently lacking sufficient staffing. There is only one person available to troubleshoot application issues related to the SE and RTCA. As a result, situations such as this require a primary focus upon fixing the issue.

The SE solved intermittently while the RTCA remained in a non-convergent state. No RTCA alarms were triggered by the system to alert the System Operator because the RTCA alarms had previously been disabled intentionally.

Disabling the RTCA alarms was done because GE's RTCA base line software alarming includes many other non-critical alarms which results in an excess of non-critical entries filling up the alarm logs. These excessive entries make it extremely difficult for the System Operators to read and discern the critical entries. Therefore, CMP had disabled this one particular RTCA alarm point.

This failure of RTCA was a unique and extremely unusual failure at CMP (RTCA failure only). Historically at CMP if RTCA fails, it occurs along with SE failing and therefore the SE failure alarm provides indication for both the SE and RTCA application failures. This event resulted in SE intermittently solving which therefore contributed to a misunderstanding of the status of the RTCA application.

The Siemens Spectrum platform that is used in Avangrid's New York control rooms has independent alarms/health monitors for the SE and RTCA applications. This option was a baseline offering that was established when the system was implemented. When CMP changes its EMS platform from the current GE platform to the Siemens Spectrum platform in 2020, the independent SE and RTCA alarms will be established at CMP. Since the occurrence of this event, CMP has implemented new independent alarming for the GE RTCA application. This new alarming is active and performing in the EMS real-time system.

Are Mitigating Activities in progress or completed? Yes

I An informal Mitigation Plan will be created upon submittal of this Self-Report with mitigating activities. If you would like to formalize that Mitigation Plan, please contact the Region.

If Yes, Provide description of Mitigating Activities:

- Revise AOI-01 - Augusta Instructions for Emergency Reporting by Operators procedure. Add details regarding CA specific failures – complete 9/10/19.
- Reinforce with System Operators the need to verify RTCA validity – complete 10/1/19.
- ECC management requests that OSG personnel notify System Operators immediately when OSG becomes aware of a SE or RTCA problem – complete 9/13/2019.
- Instruct System Operators to notify ISO-NE immediately when the System Operator observes any instance of SE and/or RTCA becoming unreliable and request Real-time Assessments by ISO-NE until CMP ensures SE and RTCA are reliable – complete 9/12/19.
- Request GE to determine why RTCA continued to work after the fiber cut, stopped, and started working again before repairs were complete – request submitted 9/5/2019, completed 9/18/19.
- Request GE explore options regarding the addition of a specific RTCA failure alarm – request submitted 9/11/2019. RTCA Alarming solution completed and implemented as of 9/24/19.
- Add ECC supervisors and managers to the automated text message distribution list for loss of SE – complete 9/16/2019.
- OSG ECS personnel currently receive text messages generated by the GE EMS system when the SE fails. The text message software reviews notifications and alarms within the EMS and when an issue is detected, a text message will be sent. This text message generated independently from the GE system and will only send a subsequent message after two consecutive failures beyond the initial text message. It is normal for the SE to have random occurrences when it doesn't solve only to resolve itself. This has been modified to issue a text message every time there is an SE failure. While not relevant specifically to this CA event, identified as an opportunity to improve during this investigation and implemented proactively. - Completed 9/30/2019
- The Siemens Spectrum platform that is used in Avangrid's New York control rooms has independent alarms/health monitors for the SE and CA applications. When CMP changes its EMS platform from the current - GE to Siemens Spectrum in 2020, the independent SE and RTCA alarms will be in place at CMP.
- On 9/10/19, an email was sent to the New York System Operators notifying them of the event at CMP and reminding them to closely monitor the health of the

- Spectrum system and made appropriate notifications timely if any portion of the system encounters health problems.
- ECC supervisors and managers have also shared the information during staff meetings held on 9/18/19 and also during the October 8th monthly ECC compliance update meeting.
- Since the occurrence of this event, CMP has implemented new independent alarming for the GE RTCA application. This new alarming is active and performing in the EMS real-time operations. This will involve texting an alert to OSG and Operations personnel. – completed 9/24/19.
- Update OSG TOP Procedures to specify discussions with Operations during SE/RTCA issues - In progress due by 11/30/2019

Provide details to prevent recurrence:

Revision 10, Figure #3 of AOI-01 - Augusta Instructions for Emergency Reporting by Operators, has a broader set of conditions to trigger decision making for events that threaten the System Operator's ability to perform Real-time Assessments (RTA). In the note box at the bottom of Figure #3 is a reference to items that may contribute to the System Operator's decision to consider the RTA tool unreliable. The expectation is that CMP will consider the RTA tool unreliable sooner and confirm/log that ISO-NE is performing Real-time Assessments for Maine. It was reiterated to the System Operators by ECC management that it is within the System Operators' authority and responsibility to do this at any time, even before troubleshooting RTA reliability, especially if there is any delay in confirming RTA performance. This aligns with other Avangrid procedures where System Operators have authority to take direct action without first taking intermediate actions, based on system conditions. The Siemens Spectrum platform that is used in Avangrid's New York control rooms has independent alarms/health monitors for the SE and RTCA applications. When CMP changes its EMS platform from the current - GE to Siemens Spectrum in 2020, the independent SE and RTCA alarms will be in place at CMP. An independent RTCA failure alarm has been added to the GE EMS system for the System Operator.

Date Mitigating Activities (including activities to prevent recurrence) are expected to be completed or were completed:

11/30/2019

MITIGATING ACTIVITIES

Title	Due Date	Description	Prevents Recurrence
No data available in table			

Potential Impact to the Bulk Power System: Moderate

Actual Impact to the Bulk Power System: Minimal

Provide detailed description of Potential Risk to Bulk Power System:

The unreliable SE and RTCA event was not an impediment to CMP's System Operators' ability to manage the power system. SE continued to solve during the period 10:08 to 10:57. Starting at 11:00, by mutual agreement, ISO-NE performed Real-time Assessments for the Maine BES upon request by the CMP System Operator. However, during the period of 10:08 and 10:57 (a 49 minute gap) no Real-time Assessment was performed by the CMP System Operator. In addition, no events on the system occurred that required emergency actions by the CMP System Operator. Had an event occurred on the system requiring CMP System Operator emergency action, ISO-NE would have contacted the CMP System Operator promptly if no necessary actions were noted by ISO-NE on their SCADA.

Provide detailed description of Actual Risk to Bulk Power System:

The unreliable SE and RTCA event was not an impediment to CMP's System Operators' ability to manage the power system. SE continued to solve during the period 10:08 to 10:57. Starting at 11:00, by mutual agreement, ISO-NE performed Real-time Assessments for the Maine BES upon request by the CMP System Operator. However, during the period of 10:08 and 10:57 (a 49 minute gap) no Real-time Assessment was performed by the CMP System Operator. A self-report is being prepared and filed with NPCC for TOP-001-4 R13. In addition, no events on the system occurred that required emergency actions by the CMP System Operator.

Additional Comments:

NOTE: While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation. (See NERC Rules of Procedure, Appendix 4C, Section 6.4.)

Attachment C

CMP's Self-Report for TOP-001-4 R13 dated May 7, 2020

This item was submitted by Michele Tondalo (Michele.Tondalo@uinet.com) on 5/7/2020

Please note that the circumstances under which an Entity would submit a Scope Expansion form are different from what would require a new Self-Report. Please review the material in [this link](#) to see clarifying information and examples of these differences before continuing with this form.

FORM INFORMATION

Registered Entity: Central Maine Power Company

NERC Registry ID: NCR07029

JRO ID:

CFR ID:

Entity Contact Information: Julie King

REPORTING INFORMATION

Applicable Standard: TOP-001-4

Applicable Requirement: R13.

Applicable Sub Requirement(s):

Applicable Functions: TOP

Has a Possible violation of this standard and requirement previously been reported or discovered: Yes

If yes, provide NERC Violation ID (if known):

NPCC2019022452

Date Reported to Region or Discovered by Region:

11/6/2019

Monitoring Method for previously reported or discovered:

Self-Report

Has this Possible Violation previously been reported to other Regions: No

Date Possible Violation was discovered: 2/13/2020

Beginning Date of Possible Violation: 2/12/2020

End or Expected End Date of Possible Violation: 2/12/2020

Is the violation still occurring? No

Provide detailed description and cause of Possible Violation:

On 2/12/2020, during a planned evacuation drill from the Central Maine Power (CMP) primary Energy Control Center (ECC), the swap over to the backup CMP Energy Management System (EMS) failed, causing a loss of monitoring and control for more than 30 consecutive minutes. CMP performs 12 evacuation drills annually as part of its standard System Operator cycle training program. For each of the 6 training weeks in the Winter and Summer, CMP System Operators all participate in at least one evacuation drill. This has been CMP's standard training plan since CMP became a TOP. Part of the System Operator's process at the initiation of the evacuation drill is notification to ISO-NE that the drill is commencing.

The total duration of the event was from 07:16 to 08:53 hours, a total of 1 hour and 37 minutes. The EMS and all tools were restored at 08:53. By mutual agreement ISO-NE performed Real-time Assessments (RTAs) for the Maine BES for the period from 08:04 – 08:53.

CMP attempted to restore RTA within the TOP-001-4 R13 30-minute period prior to requesting ISO-NE to perform a RTA.

As described in the events below, CMP initially believed that the event started at 07:36, requiring a RTA to be performed no later than 08:06. At 08:04, CMP notified ISO-NE to begin performing RTAs to stay compliant with TOP-001-4 R13. However, CMP was unaware the event had actually started at 07:16, which would have required RTA to be performed or ISO-NE to be notified no later than 07:46 (determined after the fact). As described in the mitigation below, CMP (and the Avangrid Networks New York companies) immediately implemented a change to this assumption.

Below is a sequence of specific events that occurred between 07:06 and 09:00:

- 07:06 System Operator 2 takes evacuation bag and leaves for the backup ECC (BECC) in Fairfield; Training Supervisor also in route to the BECC.
- 07:15 System Operator 1 (at primary ECC) makes notifications per AOI-11 and starts the Evacuation Drill by commencing AOI-11 Attachment A-1; initiated failover at 07:16.
- OSG Tech 1 who was assigned to accompany the operators to the BECC was in the Control Room while System Operator 1 started the EMS failover.
- 07:21 The EMS restarted and appeared to be stable (no Real-time Contingency Analysis (RTCA) alarms), OSG Tech 1 left for the BECC to assist System Operator 2 if

any EMS/corporate computer issues happened at the BECC.

- 07:25 EMS Failed. OSG Tech 2 was alerted to the issue and came into the Control Room and asked System Operator 1 to restart the EMS.
- 07:30 System Operator 1 gave Substations personnel orders to turn OFF reclosing to K385-1 and K385-2 and install NRA tags on the controls and 79CO. Did so at once.
- 07:32 EMS restarted and tools appeared to be working. No RTCA alarms.
- 07:36 The EMS failed unexpectedly for a second time, at which time OSG Tech 2 asked System Operator 1 not to touch the EMS until System Operator 1 heard from OSG Tech 2.

OSG Tech 2 went back out to his desk to work on the problem.

- Both times System Operator 1 made it as far as Action 7 of AOI-11 Attachment A-1 before the EMS crashed ("verify that all communication channels and RTUs are online").
- At this time (07:36) System Operator 1, System Operator 3, and Control Room Supervisor agreed that the TOP-001-4 R13 30-minute period had started to ensure RTA is performed. System Operator 1 and the Control Room Supervisor were unaware that RTCA had stopped solving at 07:16 (see last bullet "Subsequent research by the CMP EMS Support group....").
- 07:41 System Operator 1 gave Eversource NRA protection on Section 385.
- 07:43 System Operator 1 received a call with no response from caller.
- 07:45 System Operator 1 receives call from System Operator 2 at BECC asking what the status is of the EMS. System Operator 1 told System Operator 2 he had no word from OSG Tech 2.
- 07:58 System Operator 1 checks with OSG Tech 2 and is told that he is still working on the problem. System Operator 1 calls ISO-NE to notify them that EMS had failed. ISO-NE asked if CMP could shed load and System Operator 1 responded no, CMP could not shed load.
- 08:04 System Operator 1 called ISO-NE again to request they perform RTAs for the Maine BES.
- 09:00 System Operator 2 logged into the EMS at the BECC.
- At no time did System Operator 1 leave the upper Switcher Console as he was still responsible for answering incoming phone calls.
- System Operator 3 was at the lower Switcher console going over his next day and weekend workload and not directly participating in the Evacuation Drill. This was System Operator 3's spare week; he was not one of the two System Operators on rotation.
- Control Room Supervisor arrived at work around 06:50 and was either in the Control Room or in his adjoining office with the door open 20 feet away from System Operator 1 until 07:40 when his ride arrived to pick up a rental vehicle. The Supervisor returned at approximately 08:25. Control Room Supervisor's company iPhone is setup to receive text and email alerts when SE fails to converge or RTCA has not run in seven minutes. The Supervisor did not receive any such messages during the event which corresponded with the EMS not giving any contingency tool alarms during the two intervals that it came back online. Thus, the conversation and agreement that the TOP-001-4 R13 30-minute time period started at 07:36.
- On 2/12/2020 research by the CMP EMS Support group determined that although State Estimator (SE) and RTCA were available from 07:21 to 07:25 and from 07:32 to 07:36, neither tool ran during this timeframe due to a programmed 5-minute start delay. This was confirmed by GE on 2/13/2020. The System Operator believed the system was up and running both times and that RTCA was successfully solving. As a result of the GE programmed 5-minute start delay and the faulty assumption that RTCA had functioned normally, a RTA was not performed for more than 30 minutes (from 07:16 to 08:04). As described in the sequence of events above, the System Operator believed RTCA stopped solving at 07:36.

Are Mitigating Activities in progress or completed? Yes

i An informal Mitigation Plan will be created upon submittal of this Self-Report with mitigating activities. If you would like to formalize that Mitigation Plan, please contact the Region.

If Yes, Provide description of Mitigating Activities:

ECC Management has revised its procedure to include a request and confirmation that ISO-NE will perform RTAs for the Maine BES while the CMP EMS failover is in progress for the transition to the BECC. The System Operator will log the request/notification to ISO-NE.

When the CMP System Operators have taken full control at the BECC and verified all systems are operational, the System Operator will notify ISO-NE that CMP is now performing RTAs for the Maine BES. ECC Management has agreement from ISO-NE to request this of ISO-NE during all CMP Evacuation Drills.

Copies of AOI-11 and AOI-01 have been revised to reflect the change and were issued to all System Operators. CMP System Operators have been directed to immediately notify ISO-NE when they detect any issues with the EMS, SE and/or RTCA; this change has also been implemented at all Avangrid Networks New York Companies.

Description of Mitigating Activities:

Mitigation Description	Status (completed, in progress, not started)	Completion Date
.Revise CMP Operator Instruction document AOI-01.	Complete	2/20/2020
.Revise CMP Operator Instruction document AOI-11.	Complete	2/28/2020
.Email to System Operators to immediately notify ISO-NE of any problems with EMS, SE or CA.	Complete	2/14/2020
.Revised Evacuation Drill procedure to request ISO-NE perform Real-time Assessments in advance of an evacuation drill (request at same time notify ISO-NE of commencement of drill).	Complete	2/14/2020
.Face to face discussions with System Operators regarding loss of EMS, SE, CA, rules and proper procedures.	Complete	2/28/2020
.Equivalent to a safety stand down in ECCs in Maine and New York.	Complete	2/24/2020
.Notification to New York System Operators of events in Maine.	Complete	2/24/2020
.Reporting and Notification training (Includes AOI-01 with simulations).	Complete (cycle 1-training)	3/2/2020
.Review NY evacuation drill procedure.	In progress	4/1/2020
.Additional Reporting and Notification Training.	To be complete in cycle 2-training	4/21/2020-5/29/2020
.OSG observation of GE system and hardware during failover events.	Ongoing	Until new system implemented
.OSG to implement new Spectrum system.	In progress	Q4, 2020
.Evaluating other options for System Operator SE/RTCA enhanced awareness	In progress	6/1/2020

Provide details to prevent recurrence:

ECC Management has revised its procedure to include a request and confirmation that ISO-NE will perform RTAs for the Maine BES while the CMP EMS failover is in progress for the transition to the BECC. The System Operator will log the request/notification to ISO-NE.

When the CMP System Operators have taken full control at the BECC and verified all systems are operational, the System Operator will notify ISO-NE that CMP is now performing RTAs for the Maine BES. ECC Management has agreement from ISO-NE to request this of ISO-NE during all CMP evacuation drills. Copies of AOI-11 and AOI-01 have been revised to reflect the change and issued to all System Operators.

In addition to requesting ISO-NE to perform RTAs proactively during evacuation drills, CMP System Operators have been directed to immediately notify ISO-NE of any issues with EMS, SE and/or RTCA and request assistance from ISO-NE. An equivalent of a safety stand-down on this topic was done at CMP and in New York to reiterate the importance of this issue.

Unfortunately, none of the prior mitigation activities regarding alarms and automated text messaging were triggered by this specific event. No alarms were received on the EMS or via text message. Many of the prior mitigating activities are not applicable in this particular event as CMP was not aware of the programmed 5-minute start delay for SE and RTCA.

Date Mitigating Activities (including activities to prevent recurrence) are expected to be completed or were completed:

6/1/2020

MITIGATING ACTIVITIES

Title	Due Date	Description	Prevents Recurrence
No data available in table			

Potential Impact to the Bulk Power System: Moderate

Actual Impact to the Bulk Power System: Moderate

Provide detailed description of Potential Risk to Bulk Power System:

The failure to ensure a RTA is performed at least once every 30 minutes increases the risk that System Operators could be unaware of changing system conditions or parameters at hand and therefore would not allow them to proactively mitigate system conditions that could result in instability, uncontrolled separation, or cascading outages.

In this case, no RTA for its transmission system was performed by the CMP System Operator during the period of 07:16 – 08:04 (a total of 48 minutes). No events on the system occurred during this time that required emergency actions by the CMP System Operator.

Provide detailed description of Actual Risk to Bulk Power System:

In this case, failure to ensure that a RTA is performed at least once every 30 minutes was exacerbated because CMP did not notify ISO-NE of the failure of SE and RTCA.

The Compliance Responsibility Matrix between ISO-NE and the LCCs (including CMP) establishes ISO-NE's capabilities and responsibilities to assist CMP under TOP-001-4 R13 with performing a RTA. Verbal communication between CMP and ISO-NE remained and if an event requiring assistance occurred during the violation period ISO-NE would have contacted CMP to coordinate a response.

The system conditions during this violation period were normal and there were no emergencies that occurred during the event. No actual harm is known to have occurred because of CMP's violation.

Additional Comments:

NOTE: While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation. (See NERC Rules of Procedure, Appendix 4C, Section 6.4.)