

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 Entergy – Nuclear and Entergy Fossil & Hydroelectric Generation,
FERC Docket No. NP21- _-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty¹ regarding Entergy - Nuclear (EntergyNUC) and Entergy – Fossil & Hydroelectric Generation (EntergyFHG) (collectively, Entergy), NERC Registry IDs# NCR11166 and NCR11167 respectively,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 SERC Reliability Corporation (SERC), Northeast Power Coordinating Council (NPCC) and Entergy have entered into a Settlement Agreement to resolve all outstanding issues arising from SERC’s determination and findings of the violations of the Reliability Standards listed below.

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 EntergyNUC was included on the NERC Compliance Registry as a Generator Owner (GO) and Generator Operator (GOP) on September 9, 2011. EntergyFHG was included on the NERC Compliance Registry as a Generator Owner (GO) and Generator Operator (GOP) on September 9, 2011.

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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According to the Settlement Agreement, Entergy admits to the violations, and has agreed to the assessed penalty of four hundred and twenty thousand dollars (\$420,000), in addition to other remedies and actions to mitigate the instant violations and facilitate future compliance under the terms and conditions of the Settlement Agreement.

Under an existing coordinated oversight agreement, Entergy’s penalty will be divided among the Regional Entities as follows. Entergy shall pay \$420,000 to SERC, and SERC shall provide 17.4 percent of the penalty to NPCC.

Statement of Findings Underlying the Violations

This Notice of Penalty incorporates the findings and justifications set forth in the Settlement Agreement, by and between SERC and Entergy. 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/Notice of Confirmed Violation and herein.

Violation(s) Determined and Discovery Method								
<small>*SR = Self-Report / SC = Self-Certification / CA = Compliance Audit / SPC = Spot Check / CI = Compliance Investigation</small>								
NERC Violation ID	Standard	Req.	VRF/VSL	Applicable Function(s)	Discovery Method* & Date	Violation Start-End Date	Risk	Penalty Amount
SERC2017018666	VAR-002-4	R2	Medium/ Severe	GO	SR; 11/17/17	May 2016 ⁵ – 2/19/19	Serious	\$420k
SERC2019021949	VAR-002-2b	R2	Medium/ Severe	GOP	SR; 7/23/19	8/1/14 – 2/19/19	Moderate	

Information about the Entity

⁵ As explained in Attachment A, the exact date of the start of the noncompliance is unknown due to EntergyNUC’s data retention policy, which deleted evidence associated with an update to the voltage schedule.

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Entergy Corporation is an integrated energy company engaged primarily in electric power production and retail distribution operations. Entergy owns and operates power plants with approximately 30,000 megawatts of electric generating capacity in SERC, NPCC, and RF Regions; including nearly 9,000 megawatts of nuclear generation. Entergy Corporation is registered as three distinct entities in the SERC Region: Entergy (NCR01234), Entergy - Fossil & Hydroelectric Generation (Entergy - FH) (NCR11167), and Entergy - Nuclear (EntergyNUC) (NCR11166). Entergy is or was registered as three distinct entities in the NPCC Region: Entergy Nuclear Indian Point 2, LLC (NCR07073) Entergy Nuclear Indian Point 3, LLC (NCR07074) and Entergy Nuclear Generation Company (NCR07072). Entergy is also registered in the RF Region as Entergy Nuclear Palisades, LLC (NCR08052).

VAR-002-4 R2 (SERC2017018666)

SERC determined that Entergy did not maintain the generator voltage or Reactive Power schedule (within each generating Facility's capabilities) provided by the Transmission Operator (TOP), or otherwise meet the conditions of notification for deviations from the voltage. SERC requested that EntergyNUC perform a full extent of condition (EOC) review of all nuclear facilities within Entergy's MRRE footprint, which led to EntergyNUC submitting two scope expansions to SERC. Overall, EntergyNUC identified 1,339 instances of noncompliance with 2,845 hours of voltage exceedance during the reviewed timeframe. Attachment A includes additional facts regarding the violation.

The cause of this violation was the lack of adequate procedural guidance for operators and adequate training on the requirements of VAR-002-4.

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

Entergy submitted its Mitigation Plan to address the referenced violation. Attachment A includes a description of the mitigation activities Entergy took to address this violation. A copy of the Mitigation Plan is included as Attachment C.

Entergy certified that it had completed all mitigation activities. SERC will verify that Entergy has completed all mitigation activities and report its successful completion to NERC. Attachments A and D provide specific information on Entergy's certification of completion of the activities.

VAR-002-2b R2 (SERC2019021949)

SERC determined that EntergyFHG failed to meet the voltage and Reactive Power schedule provided by its Transmission Operator (TOP) and did not give appropriate notice. EntergyFHG discovered this

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violation while conducting an EOC review for a systemic issue with VAR-002-4 R2 (*see* SERC2017018666 above). EntergyFHG conducted an additional EOC by performing a deep dive into its historical records over the past 10 years. The detailed review discovered 378 individual instances of violations, which shows a systemic and pervasive issue. Attachment A includes additional facts regarding the violation.

The cause of this violation was the lack of sufficient internal controls to ensure proper execution of its compliance program.

SERC determined that this violation posed a moderate risk to the reliability of the BPS. Attachment A includes the facts regarding the violation that SERC considered in its risk assessment.

Entergy submitted its Mitigation Plan to address the referenced violation. Attachment A includes a description of the mitigation activities Entergy took to address this violation. A copy of the Mitigation Plan is included as Attachment F.

Entergy certified that it had completed all mitigation activities. SERC will verify that Entergy has completed all mitigation activities and report its successful completion to NERC. Attachments A and G provide specific information on Entergy's certification of completion of the activities.

Regional Entity's Basis for Penalty

According to the Settlement Agreement, SERC has assessed a penalty of four hundred and twenty thousand dollars (\$420,000) for the referenced violations. In reaching this determination, SERC considered the following factors:

1. Entergy self-reported the violations;
2. Entergy was cooperative throughout the compliance enforcement process;
3. Entergy recognized and affirmatively accepted responsibility for its conduct by admitting to the violations;
4. Entergy agreed to settle the violations as described in Attachment A; and
5. There were no other mitigating or aggravating factors or extenuating circumstances that would affect the assessed/would-be penalty.

After consideration of the above factors, SERC determined that, in this instance, the penalty amount of four hundred twenty thousand dollars (\$420,000) is appropriate and bears a reasonable relation to the seriousness and duration of the violations.

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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 SERC and Entergy 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 four hundred twenty thousand dollars (\$420,000) 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 SERC and Entergy executed 2/26/2021, included as Attachment A;
2. Entergy's Self-Report for VAR-002-4 R2 dated 11/17/2017, included as Attachment B;
3. Entergy's Mitigation Plan designated as SERCMIT014830 for VAR-002-4 R2 submitted 11/26/2019, 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).

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4. Entergy's Certification of Mitigation Plan Completion for VAR-002-4 R2 submitted 9/30/2019, included as Attachment D;
5. Entergy's Self-Report for VAR-002-2b R2 dated 7/23/2019, included as Attachment E;
6. Entergy's Mitigation Plan designated as SERCMIT015462 for VAR-002-2b R2 submitted 12/9/2019, included as Attachment F; and
7. Entergy's Certification of Mitigation Plan Completion for VAR-002-2b R2 submitted 12/9/2019, included as Attachment G.

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

<p>Gregory W. Camet* Associate General Counsel Entergy Services, LLC 101 Constitution Avenue NW Suite 200 East Washington, DC 20001 (202) 530-7322 gcamet@entergy.com</p> <p>Christopher A. Peters* VP, Chief Security Officer Entergy Services, LLC 101 Constitution Avenue NW Suite 200 East Washington, DC 20001 (202) 530-7325 cpeter6@entergy.com</p> <p>Holly Hawkins* General Counsel SERC Reliability Corporation 3701 Arco Corporate Drive, Suite 300 Charlotte, NC 28273 704-494-7775 hhawkins@serc1.org</p> <p>Jimmy C. Cline* Managing Counsel – Enforcement SERC Reliability Corporation 3701 Arco Corporate Drive, Suite 300 Charlotte, NC 28273 (704) 414-5259 (704) 357-7914 – facsimile jcclineserc1.org</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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Drew R. Slabaugh*
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*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.

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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
James McGrane
Senior Counsel
Alain Rigaud
Associate Counsel
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cc: Entergy
SERC Reliability Corporation

Attachments

Attachment A

Settlement Agreement by and between SERC and Entergy executed
February 26, 2021

SETTLEMENT AGREEMENT

AMONG SERC RELIABILITY CORPORATION,
NORTHEAST POWER COORDINATING COUNCIL

AND

ENTERGY – NUCLEAR¹,
ENTERGY – FOSSIL & HYDROELECTRIC GENERATION²

I. INTRODUCTION

1. SERC Reliability Corporation (SERC), on behalf of itself and Northeast Power Coordinating Council (NPCC) (collectively, the Regions), and Entergy - Nuclear (EntergyNUC) and Entergy Fossil & Hydroelectric Generation (EntergyFHG) (collectively, the Entergy Companies or Entergy) enter into this Settlement Agreement (Agreement) to resolve Alleged Violations by the Entergy Companies of the below-referenced Reliability Standard and Requirement.

Reliability Standard	Requirement	SERC Tracking No.	NERC Tracking No.
VAR-002-4	R2	SERC2017-402896	SERC2017018666
VAR-002-2b	R2	SERC2019-404855	SERC2019021949

2. The Parties stipulate to the facts in this Agreement for the sole purpose of resolving the Alleged Violations. The Entergy Companies admit that these facts constitute Alleged Violations of the above-referenced Reliability Standard Requirements.

II. OVERVIEW OF ENTERGY

3. Entergy Corporation is an integrated energy company engaged primarily in electric power production and retail distribution operations. Entergy owns and operates power plants with approximately 30,000 megawatts of electric generating capacity in SERC, NPCC, and RF Regions; including nearly 9,000 megawatts of nuclear generation. Entergy Corporation is registered as three distinct entities in the SERC Region: Entergy (NCR01234), Entergy - Fossil & Hydroelectric Generation (Entergy - FH) (NCR11167), and Entergy - Nuclear (EntergyNUC) (NCR11166). Entergy is or was registered as three distinct entities in the NPCC Region: Entergy Nuclear Indian Point 2, LLC (NCR07073) Entergy Nuclear Indian Point 3, LLC

¹ NERC Registry ID No. NCR11166

² NERC Registry ID No. NCR11167

(NCR07074) and Entergy Nuclear Generation Company (NCR07072). Entergy is also registered in the RF Region as Entergy Nuclear Palisades, LLC (NCR08052).

4. Entergy is also a participant in the Coordinated Oversight Program, Coordinated Functional Registration, and Joint Registration.
5. EntergyNUC, EntergyFHG, and Entergy Nuclear Indian Point 3, LLC are registered on the NERC Compliance Registry as Generator Owners (GOs) and Generator Operators (GOPs). Entergy Nuclear Indian Point 3, LLC was registered on the NERC Compliance Registry as a Generator Owner (GO) and Generator Operator (GOP). Entergy, in its capacity as a GO and GOP, is subject to compliance with VAR-002.

III. EXECUTIVE SUMMARY

6. This Settlement Agreement resolves two Alleged Violations of VAR-002 R2. The first Alleged Violation (SERC2017018666) was discovered by EntergyNUC and self-reported on November 17, 2017. The second Alleged Violation (SERC2019021949) was discovered by EntergyFHG while performing an extent-of-condition review for the EntergyNUC Alleged Violation, which was self-reported on July 23, 2019.
7. SERC determined that EntergyNUC Alleged Violation posed a serious risk and the EntergyFHG Alleged Violation posed a moderate risk to the Bulk Power System. Both Alleged Violations have extended durations and involved multiple facilities where the Entities failed to maintain the unit voltage or Reactive Power schedule (within each generating facility's capabilities) provided by the Transmission Operator (TOP), or otherwise meet the conditions of notification for deviations from the voltage.
8. Regarding the first Alleged Violation involving EntergyNUC, there were 1,399 known instances of noncompliance associated with eight units at six facilities spanning almost three years. Regarding the second Alleged Violation involving EntergyFHG, there were 378 known instances of noncompliance associated with 17 facilities with a duration of five years.
9. The Alleged Violations from EntergyNUC and EntergyFHG both relate to voltage schedules, but their root causes were different. The overarching failure for EntergyNUC's Alleged Violation was organizational siloes and ineffective processes and procedures. Each nuclear facility is responsible for developing and implementing its own individual compliance program. However, there was no coordination or collaboration amongst the various facilities to consolidate compliance efforts. As a result, there was no sharing of best practices and lessons learned on security and compliance matters, which led to inconsistent and ineffective processes and procedures at various facilities. Additionally, EntergyNUC failed to (i) verify that all needed controls had been implemented, (ii) properly train those responsible for implementing compliance procedures, and (iii)

sufficiently audit to determine the effectiveness of its compliance program. As a result, there was inconsistent application of procedures, which led to confusion as to expectation and ownership of specific tasks. On the other hand, EntergyFHG lacked sufficient internal controls to ensure proper execution of its compliance program. Specifically, EntergyFHG failed to implement effective change management practices, which caused VAR-002-4.1 procedures to become out of date, operators monitored the incorrect high side voltages, alarms did not consistently result in notifications, and, in one instance, a communications link failed in a plant switchyard which impaired the plant's ability to receive accurate voltage inputs and adhere to its voltage schedule.

10. To mitigate the Alleged Violations, EntergyFHG and EnergyNUC focused on reviewing their existing compliance program and adding enhancements, primarily through improved internal controls and additional communication. Improved internal controls will detect potential issues prior to becoming violations, and should additional violations occur, minimize the risk to the BES. Further, Entergy developed one common VAR-002 process for both entities. Additional communication through Entergy's compliance groups will increase the effectiveness of the improved internal controls and allow Entergy to use best practices across all business units.

IV. Adjustment factors

11. In addition to the facts and circumstances stated above, SERC considered the following factors in its penalty determination.

Self-Identification and Self-Reporting

12. The Entergy Companies self-reported the Alleged Violations. Effective oversight of the reliability and resilience of the Bulk Electric System (BES) depends upon self-reporting by Registered Entities. SERC seeks to encourage self-reporting of offenses and, therefore, is applying mitigating credit for the violations.

Cooperation

13. Entergy has been highly cooperative throughout the entire enforcement process relating to these violations. Throughout the enforcement process, Entergy voluntarily provided SERC with information that was timely, detailed, thoughtful, organized, and thorough. Entergy fully cooperated in SERC's investigation of the violations and all associated mitigating activities and openly shared information regarding its processes, procedures, internal controls, assets, systems, and organization.

Admission

14. Entergy recognized and affirmatively accepted responsibility for its conduct by admitting to the violations resolved by this Agreement. SERC is applying

mitigating credit because there is independent value in Entergy accepting responsibility for its violations.

Settlement

15. Entergy agreed to settle the violations resolved by this Agreement. SERC is applying mitigating credit because it is important to promote prompt resolution of enforcement actions so that the Entergy's focus is on mitigation and reducing risks to reliability.

V. Other Considerations

Internal Compliance Program (ICP)

16. SERC determined that Entergy has made a significant cultural shift to promote an organizational culture that encourages a commitment to compliance. Senior management is involved in ensuring that Entergy has an effective ICP. Senior management reviews ICP procedure and signs off on substantive changes to the procedure prior to it being published. Entergy's Board is knowledgeable about the ICP and exercises reasonable oversight of the implementation and effectiveness. Entergy's ICP includes training for personnel, including contractors and vendors that have direct responsibility for compliance with NERC Reliability Standards. Entergy's ICP includes internal assessments that are performed throughout each calendar year to assess compliance with currently effective NERC Reliability Standards. This is done to determine Entergy's readiness for new Standard implementation and/or existing processes, and to ensure procedures are effective. Mock audits are also performed by an external third-party entity every three years. Entergy's ICP includes internal controls to prevent, detect, and correct possible violations. Additionally, as part of Entergy's commitment to improving and enhancing its regulatory compliance efforts, it employs a governance, regulatory, and compliance tool as an internal control to help mitigate against reliability risks. The tool provides a comprehensive view of potential risks in the form of a real-time risk assessment for each Standard Requirement. Furthermore, through an annual review of the NERC Compliance Monitoring and Enforcement Program, Entergy develops the three-year self-assessment schedule to address the focus areas to lower the risk of potential violations. Even though the cultural shift was made after the Alleged Violations occurred, this is the type of behavior SERC encourages to reduce risk. While SERC did not give mitigating credit for Entergy's ICP, it is important you recognize the improvements Entergy has made in its compliance program.

VI. PENALTY

17. Based upon the foregoing, Entergy shall pay a monetary penalty of \$420,000 to SERC.

18. SERC shall present an invoice to Entergy within 20 days after the Agreement is approved by the Commission or affirmed by operation of law. Upon receipt, Entergy shall have 30 days to remit payment. SERC will notify NERC if it does not timely receive the payment from Entergy.
19. If Entergy fails to timely remit the monetary penalty to SERC, interest will commence to accrue on the outstanding balance, pursuant to 18 C.F.R. § 35.19a(a)(2)(iii), on the earlier of (a) the 31st day after the date on the invoice issued by SERC to Entergy for the monetary penalty payment or (b) the 51st day after the Agreement is approved by the Commission of operation of law.

VII. ADDITIONAL TERMS

20. The Parties agree that this Agreement is in the best interest of Bulk Electric System (BES) 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. SERC shall report the terms of all settlements of compliance matters 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 SERC will attempt to negotiate with Entergy 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 Alleged Violation 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. Entergy expressly waives its rights to any hearing or appeal concerning any matter set forth herein, unless and only to the extent that Entergy contends that any NERC or Commission action constitutes a material modification to this Agreement.
23. SERC reserves all rights to initiate enforcement action against Entergy in accordance with the NERC Rules of Procedure in the event that Entergy fails to comply with any of the terms or conditions of this Agreement. Entergy retains all rights to defend against such action in accordance with the NERC Rules of Procedure.
24. Entergy consents to SERC'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 Entergy's violation history. Such use may be in any enforcement action or compliance proceeding undertaken by NERC or any Regional Entity or

both, provided however that Entergy 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 Entergy consent to the use of this Agreement by any other party in any other action or proceeding.


25. Entergy 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 SERC enters into this Agreement in express reliance on the representations contained herein, as well as any other representations or information provided by Entergy to SERC during any Entergy interaction with SERC relating to the subject matter of this Agreement.
26. Upon execution of this Agreement, the Parties stipulate that the Possible Violation addressed herein constitutes an Alleged 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. The 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.

SIGNATURE PAGE TO FOLLOW³

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

³ An electronic version of this executed document shall have the same force and effect as the original.

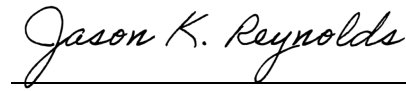
Agreed to and accepted by:



Jason Blake
President and Chief Executive Officer
SERC RELIABILITY CORPORATION

February 26, 2021

Date



Jason K. Reynolds
Vice President, NERC Compliance
THE ENTERGY COMPANIES

February 22, 2021

Date

Attachment A

I. ALLEGED VIOLATIONS – SERC2017018666

A. VAR-002-4 R2

1. VAR-002-4 ensures that generators provide reactive support and voltage control, within generating Facility capabilities, in order to protect equipment and maintain reliable operation of the Interconnection.
2. VAR-002-4 R2 states:
 - R2. Unless exempted by the Transmission Operator, each Generator Operator shall maintain the generator voltage or Reactive Power schedule⁴ (within each generating Facility's capabilities⁵) provided by the Transmission Operator, or otherwise shall meet the conditions of notification for deviations from the voltage or Reactive Power schedule provided by the Transmission Operator.
 - 2.1. When a generator's AVR is out of service or the generator does not have an AVR, the Generator Operator shall use an alternative method to control the generator reactive output to meet the voltage or Reactive Power schedule provided by the Transmission Operator.
 - 2.2. When instructed to modify voltage, the Generator Operator shall comply or provide an explanation of why the schedule cannot be met.
 - 2.3. Generator Operators that do not monitor the voltage at the location specified in their voltage schedule shall have a methodology for converting the scheduled voltage specified by the Transmission Operator to the voltage point being monitored by the Generator Operator.

Description of Alleged Violation and Risk Assessment for SERC2017018666

3. On November 17, 2017, Entergy – Nuclear (EntergyNUC) submitted a Self-Report to SERC stating that, as a Generator Operator (GOP), it was in violation of VAR-002-4 R2. EntergyNUC did not maintain the generator voltage or Reactive Power schedule (within each generating Facility's capabilities) provided by the Transmission Operator (TOP), or otherwise meet the conditions of notification for

⁴ The voltage or Reactive Power schedule is a target value with a tolerance band or a voltage or Reactive Power range communicated by the TOP to the GOP.

⁵ Generating Facility capability may be established by test or other means, and may not be sufficient at times to pull the system voltage within the schedule tolerance band. Also, when a generator is operating in manual control, reactive power capability may change based on stability considerations.

Attachment A

deviations from the voltage. EntergyNUC submitted the Self-Report to SERC under an existing multi-regional registered entity (MRRE) agreement.⁶

4. EntergyNUC discovered the compliance issues at Arkansas Nuclear One (ANO), and during the extent-of-condition (EOC) assessment, it discovered additional compliance issues at: Grand Gulf Nuclear Station (GGNS), Indian Point Energy Center (IPEC), Pilgrim Nuclear Power Station (PNP), River Bend Station (RBS), and Waterford 3 Station (WF3). EntergyNUC owns ANO, GGNS, RBS, and WF3. Entergy Nuclear Generation Company (ENGCO) (NCR07072 – deregistered⁷) owns PNP. Entergy Nuclear Indian Point (ENIP) 2, LLC (NCR07073 – deregistered⁸), and ENIP 3 (NCR07074), LLC own IPEC Unit 2 and IPEC Unit 3, respectively.
5. On June 23, 2017, upon the request of an interconnection customer, EntergyNUC performed a review of an affiliate’s voltage profile and discovered its own noncompliance with VAR-002-4 R2 at ANO.
6. ANO has two nuclear generation units with nameplate ratings of 942.5 MVA and 902.5 MVA and connects to the Bulk Power System (BPS) at a 500 kV switchyard.
7. The voltage schedule assigned to ANO required it to maintain 500 kV bus’s prescribed voltage to plus or minus 5 kV. The assigned voltage schedule required EntergyNUC, as the GOP, to contact the TOP, Entergy, within the specified timeframe (30 minutes)⁹ if it discovered a deviation from ANO’s prescribed schedule tolerance band.
8. During its internal review of the noncompliance, EntergyNUC reviewed the operating records for ANO. EntergyNUC discovered that between April 25, 2016 and April 25, 2017, there were 193 occurrences where ANO exceeded its voltage schedule, did not recover within the specified timeframe, and failed to notify its TOP. Approximately 75% of the deviations were within plus or minus 10 kV of the scheduled voltage parameters (~1% error rate), while the most severe was approximately 17 kV above the voltage band (~2.3% error rate).
9. Following this initial discovery, SERC requested that EntergyNUC perform a full EOC review of all nuclear facilities within Entergy’s MRRE footprint, which led to EntergyNUC submitting two scope expansions to SERC.
10. On May 23, 2018, EntergyNUC, on behalf of itself, ENGCO, ENIP 2, and ENIP 3, submitted an expansion of scope for VAR-002-4 R2 for nuclear units at GGNS, RBS, WF3, PNP, and IPEC.

⁶ MRRE group number 17a on NERC MRRE – Coordinated Oversight Program Participant spreadsheet.

⁷ ENGCO was deregistered as a GO, GOP, and TO on May 31, 2019.

⁸ ENIP2 was deregistered as a GO, GOP on November 20, 2020.

⁹ According to the GOP/TOP agreement.

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11. GGNS, registered under EntergyNUC, has a single unit with a nameplate capacity of 1,372.5 MVA, which connects to a 500 kV switchyard.
12. On January 26, 2017, GGNS revised its operating procedure to remove the requirement to monitor voltage at all times during power operation. This revision directly conflicted the language of the Requirement and because GGNS no longer monitored its voltage, it had no ability to ensure it maintained voltage schedule provided to its TOP, Entergy.
13. Between April 1, 2017 and April 1, 2018, GGNS had 519 occurrences where it exceeded the assigned voltage schedule without notifying its TOP. The most severe deviation from the voltage schedule was approximately -12 kV below the 505 kV lower limit (~2.4% error rate).
14. RBS, under the EntergyNUC registration, has a single unit with a nameplate capacity of 1,035.9 MVA, and connects to a 230 kV substation.
15. Between April 5, 2017 and April 5, 2018, RBS had 94 instances where it operated the output voltage outside of the prescribed range without exemption from its TOP, Entergy, or otherwise met the conditions of notification for deviations from the voltage. RBS operated outside the prescribed range for a total of 386 hours. The longest exceedance duration was approximately 43 hours. The largest deviation was 3.7 kV lower than prescribed (~1.6% error rate).
16. WF3, under the EntergyNUC registration, has a single unit with a nameplate capacity of 1,158 MVA, which connects to a 230 kV switchyard.
17. In May 2016, the TOP for WF3 updated the Voltage Schedule. The precise date of the change is unknown due EntergyNUC's data retention policy which deleted associated evidence with the update. During the update, WF3 failed to incorporate the change into the computer point alarms and operations procedures and therefore was unable to properly maintain its voltage schedule, or otherwise meet the conditions of notification for deviations from the voltage.
18. Between April 5, 2017 and April 5, 2018, WF3 consistently operated its voltage less than its prescribed range for 333 total days, by as much as 6.5 kV below the limit of 232.6 kV (~2.8% error rate).
19. PNP, under the Entergy Nuclear Generation Company registration, has a single unit and its nameplate capacity was 780 MVA. PNP was retired in May 2019.
20. Between April 23, 2017 and April 23, 2018, PNP had 195 instances where output voltage was outside the prescribed range without exemption from its TOP, ISO-NE. The largest divergence was 43.3 kV lower than prescribed (~12.2% error rate). In total, PNP operated outside the prescribed range for 1,819 hours. The single longest divergence duration was approximately 23 hours.

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21. PNP relied on ISO-NE to monitor its voltage and to inform PNP if its voltage was outside of the prescribed range.
22. IPEC has two nuclear generation units, and two registrations, which are ENIP 2 and ENIP 3. The nameplate capacity is 1,439.2 MVA for ENIP 2 and 1,125.6 MVA for ENIP 3. ENIP 2 has been deregistered after Unit 2 at IPEC retired in April 2020. Unit 3 at IPEC is still operational and ENIP 3 is still registered with NPCC. Unit 3 at IPEC is scheduled to be permanently retired in April 2021.
23. In 2016, IPEC's TOP, NYISO, incorporated the Voltage Schedule in its own Dispatch Operations Manual and communicated this through a blast email to all its market participants, including IPEC. However, IPEC was unable to provide evidence that it ever implemented the proper Voltage Schedule referenced in the blast email.
24. Additionally, IPEC has frequent log entries where its TOP requested changes in reactive output and IPEC responded. These actions show that IPEC did not actively monitor voltage and instead relied on its TOP to inform the unit when it had deviated from the voltage schedules.
25. On May 23, 2019, EntergyNUC submitted its second scope expansion. While performing its mitigating activities to address the original Self-Report and first expansion of scope, EntergyNUC discovered additional instances of noncompliance at both ANO and GGNS. On November 11, 2017 and January 2, 2018, ANO failed to notify the TOP that it had deviated from the voltage schedule. On August 8, 2018, September 8, 2018, and February 5, 2019, GGNS failed to notify the TOP that it had deviated from the voltage schedule.
26. Overall, EntergyNUC identified 1,339 instances of noncompliance with 2,845 hours of voltage exceedance during the reviewed timeframe.
27. The root cause of this noncompliance was the lack of adequate procedural guidance for operators and adequate training on the requirements of VAR-002-4. Each of the nuclear generation facilities was responsible for its VAR-002-4 compliance, with some facilities more mature than others. Each nuclear facility is responsible for developing and implementing its own individual compliance program. However, there was no coordination or collaboration amongst the various facilities to consolidate compliance efforts. As a result, there was no sharing of best practices and lessons learned on security and compliance matters, which led to inconsistent and ineffective processes and procedures at various facilities. Additionally, EntergyNUC failed to (i) verify that all needed controls had been implemented, (ii) properly train those responsible for implementing compliance procedures, and (iii) sufficiently audit to determine the effectiveness of its compliance program. As a

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result, there was inconsistent application of procedures, which led to confusion as to expectation and ownership of specific tasks

28. This noncompliance started in May 2016, when EntergyNUC's failed to incorporate the updated voltage schedule at WF3, through February 19, 2019, the last known date when EntergyNUC deviated from a schedule without appropriately notifying its TOP.
29. SERC determined that this Alleged Violation posed a serious risk to the reliability of the bulk power system.¹⁰ EntergyNUC identified 1,339 known instances, spanning nearly three years, of failing to maintain its voltage schedule or to contact its TOP for coordination, which indicates a systemic failure. EntergyNUC failed to monitor voltages as part of normal operating conditions at GGNS, RBS, and IPEC, which put the BES at risk of voltage issues, up to and including voltage collapse.
30. Additionally, EntergyNUC had the incorrect voltage schedules at PNP, WF3 and IPEC. Thus, even had EntergyNUC monitored voltages at these facilities, the incorrect targeted voltage would had resulted in additional noncompliances. Incorrect targets put the BES at risk of voltage issues, up to and including voltage collapse.
31. The largest deviation on record during the Alleged Violation was -43.3 kV on a voltage schedule of 356 kV at PNP. Voltage deviations below the voltage schedule force neighboring units to produce additional voltage support, in the form of MVARs. Should neighboring units be unable to support voltages, system voltage would, voltages in the area would "sink" below their nominal values. If such voltages sink too far, the BPS is in danger of voltage collapse. However, the voltage schedules used by EntergyNUC are more conservative than those used by similar sized Entities.
32. EntergyNUC also had numerous deviations above its upper voltage schedule limit. Again, neighboring units would need to compensate, but in this case absorbing the extra MVARs. Should neighboring units be unable to remove the extra MVARs, the system risks equipment damage or unintentional tripping of equipment. While the potential risks of violating the upper limit of the voltage schedule are not as significant as potential voltage collapse, equipment damage and unintentional tripping still poses a significant risk to the health of the BPS. The number of instances and large deviations and long timeframes associated with this Alleged Violation are substantial. While no harm has been directly contributed to the violations, neighboring systems would have needed to adjust the VAR output from

¹⁰ VAR-002-4 has a VRF of "Medium" pursuant to the VRF Matrix. According to the VSL Matrix, this noncompliance warranted a "Severe" VSL.

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nearby units to account for the missed voltage schedules. In essence, these neighboring units would “prop up” the system voltage near the nuclear units. Should one of the units “propping up” the nuclear units voltage trip offline with an unscheduled outage, neighboring units would be forced to “prop up” both the tripped unit and the burden of the nuclear unit. Should one of the neighboring units be unable to provide the necessary VARs, it would also trip off and could lead to large scale voltage collapse.

Mitigating Actions

33. On September 26, 2019, EntergyNUC submitted a Mitigation Plan addressing the Alleged Violation of VAR-002-4 R2. See Mitigation Plan SERCMIT014830. On July 28, 2020, SERC accepted the Mitigation Plan.
34. To mitigate the Alleged Violation, EntergyNUC performed the following actions across all affected facilities:
 - A. reviewed and updated facility specific procedures related to VAR-002-4 at all nuclear facilities with input from EntergyNUC’s corporate compliance program, with an emphasis on monitoring and logging;
 - B. created and performed operator training for all nuclear facilities and reviewed the importance of maintaining voltage schedules and the updates to the facility specific procedures;
 - C. re-trained all TCC personnel on appropriate responses to Nuclear operations during communications about the voltage schedule deviations;
 - D. updated wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule and to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation, and Transmission); and
 - E. developed one common VAR-002 process for Nuclear and Power Generation.
At ANO facility, EntergyNUC:
 - A. installed an alarm on the Units 1 & 2 control rooms to monitor for grid fluctuations outside of the prescribed voltage schedule.At GGNS facility, EntergyNUC:
 - A. issued a standing order to continuously monitor voltage and stay within range or make notifications;

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- B. revised its procedure change process to ensure proper approvals and process are followed when updating procedures that included compliance NERC requirements; and
- C. revised its Format and Content Procedure, to ensure non-license-related commitments and obligations, including compliance with NERC requirements, are protected from inappropriate procedure revision and sent a change management communication for the revised procedure.

At IPEC facility, EntergyNUC:

- A. updated its internal procedures to ensure all communications from the NYISO to the Entergy Nuclear Power Marketing group go directly to IPEC in the future, creating a proper hand-off for updated voltage schedules;
- B. implemented a special log to monitor the unit output voltage and maintain voltage within the prescribed voltage schedule detailed in the condition report; ensured the log has the required actions to take if voltage is outside the prescribed voltage schedule in accordance with VAR-002; and
- C. revised the Control Room logs to include a log of unit output voltage to comply with VAR-002.

At PNP facility, EntergyNUC:

- A. issued an operations standing order and included direction for hourly voltage logging along with instructions for when and how to notify its TOP.

At RBS facility, EntergyNUC:

- A. revised its “Log Report – Main Control Room” procedure to provide guidance on calling the Transmission Operator and logging in narrative logs if the voltage schedule cannot be met and updated and trained on its training lesson plan.

At WF3, EntergyNUC:

- A. initiated a standing order as temporary implementation of updated NERC voltage Schedule; and
- B. updated the alarm set points to reflect the current NERC voltage schedule of 232.6KV – 237.6KV.

35. On September 30, 2019, EntergyNUC notified SERC that it completed this Mitigation Plan on September 13, 2019. See Certification of Mitigation Completion. SERC will verify EntergyNUC’s completion of the Mitigation Plan and promptly report its successful completion to NERC.

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II. ALLEGED VIOLATION – SERC2019021949

A. VAR-002-2b R2

1. VAR-002-2b ensures that generators provide reactive support and voltage control, within generating Facility capabilities, in order to protect equipment and maintain reliable operation of the Interconnection.
2. VAR-002-2b R2 states:
 - R2. Unless exempted by the Transmission Operator, each Generator Operator shall maintain the generator voltage or Reactive Power schedule¹¹ (within applicable Facility Ratings)¹² as directed by the Transmission Operator
 - 2.1 When a generator’s automatic voltage regulator is out of service, the Generator Operator shall use an alternative method to control the generator voltage and reactive output to meet the voltage or Reactive Power schedule directed by the Transmission Operator.
 - 2.2 When directed to modify voltage, the Generator Operator shall comply or provide an explanation of why the schedule cannot be met.

Description of Alleged Violation and Risk Assessment for SERC2019021949

3. On July 23, 2019, Entergy - Fossil & Hydroelectric Generation (EntergyFHG) submitted a Self-Report to SERC stating that, as a Generator Operator (GOP) it was in violation of VAR-002-4.1 R2. EntergyFHG failed to meet the voltage and Reactive Power schedule provided by its Transmission Operator (TOP) and did not give appropriate notification. SERC later determined that the Alleged Violation extended back to VAR-002-2b.
4. On May 30, 2019, EntergyFHG discovered this Alleged Violation while conducting an extent-of-condition review for a systemic issue with VAR-002-4 R2 across Entergy’s nuclear generator fleet (*see* SERC2017018666 above).
5. EntergyFHG has a total of 29 facilities which are subject to VAR-002, 17 of which had at least one instance of noncompliance for a facility failure rate of 58.6%. The majority of the instances, 15 facilities with a total nameplate capacity of 12,845

¹¹ The voltage or Reactive Power schedule is a target value communicated by the Transmission Operator to the Generator Operator establishing a tolerance band within which the target value is to be maintained during a specified period

¹² When a Generator is operating in manual control, reactive power capability may change based on stability considerations and this may lead to a change in the associated Facility Ratings.

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MW, occurred during an assessment period which ran from January 1, 2018 through June 27, 2019.¹³

6. EntergyFHG conducted an additional extent-of-condition by performing a deep dive into its historical records over the past 10 years. EntergyFHG discovered two additional facilities within the historical data with instances of noncompliance, but due to the length of passed time, the records from that time period have gaps.
7. Between August 2014 and January 2015, EntergyFHG's Louisiana facility received and responded to 29 low voltage alarms. On October 1, 2014, VAR-002-3 became effective. Because of the retention requirement associated with VAR-002-3 R2¹⁴, EntergyFHG is unclear how many of these twenty-nine instances of low voltage occurred after the VAR-002-3 effective date and how many resulted in noncompliance. However, based on available evidence, EntergyFHG is confident at least one instance resulted in a violation of the Standard and that it happened after effective date of VAR-002-3.
8. On April 23, 2015, the Calcasieu facility received a low voltage notification at 1:01 p.m. which EntergyFHG did not address until 5:35 p.m., or 4 hours and 34 minutes later. EntergyFHG did not notify its TOP during this time period.
9. Beginning on January 2, 2018 through June 16, 2018, the Waterford 4 facility had 51 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 5.3 kV on a voltage schedule of 234 kV (~2.3% error rate).
10. Beginning on January 7, 2018 through May 5, 2019, the facilities at Sabine 4 and Sabine 5 had 23 instances where the facilities did not meet their voltage schedules and failed to give proper notification. The most severe deviation was 2.04 kV on a 232 kV voltage schedule (~0.9% error rate).
11. Beginning January 12, 2018 through June 14, 2019, the Lewis Creek facility had 61 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.14 kV on a 141 kV voltage schedule (~0.8% error rate).
12. Beginning on January 13, 2018 through February 13, 2019, the Perryville facility had 19 instances where the facility did not meet its voltage schedule and failed to

¹³ The date range for each of the units detailed below is the date range in which EntergyFHG identified noncompliances. Each unit reviewed the entire period from January 1, 2018 through June 27, 2019. Each of the most severe deviations were above the voltage schedule.

¹⁴ See VAR-002-3, Section C(1.2) (emphasis added). *The Generator Owner shall keep its latest version of documentation on its step-up and auxiliary transformers. **The Generator Operator shall maintain all other evidence for the current and previous calendar year.***

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give proper notification. The most severe deviation was 1.87 kV on a 521 kV voltage schedule (~0.4% error rate).

13. Beginning on January 17, 2018 through April 19, 2018, the Toledo Bend facility had three instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 0.27 kV on a 141 kV voltage schedule (~0.2% error rate).
14. Beginning January 17, 2018 through March 22, 2019, the Hot Spring facility had 25 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.36 kV on a 500 kV line (~0.3% error rate).
15. Beginning on February 7, 2018 through May 24, 2019, the NISCO facility had 95 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.6 kV on a 140 kV voltage schedule (~1.1% error rate).
16. Beginning February 19, 2018 through May 28, 2019, the facilities at Ninemile 4 and Ninemile 5 had 26 instances where the facilities did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.17 kV on a voltage schedule of 234 kV (~0.5% error rate).
17. Beginning on February 21, 2018 through May 2, 2019, the Ninemile 6 facility had seven instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.5 kV on a 234 kV voltage schedule (~0.6% error rate).
18. Beginning on April 2, 2018 through March 10, 2019, the Rex Brown facility had 36 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 1.21 kV on a 115 kV voltage schedule (~1% error rate).
19. Beginning on April 19, 2018 through June 17, 2018, the Union generating facility had 26 instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 3.94 kV on a 500 kV line (~0.8% error rate).
20. Beginning on May 14, 2018 through July 10, 2018, the Sterlington facility had three instances where the facility did not meet its voltage schedule and failed to give proper notification. The most severe deviation was 0.44 kV on a 115 kV voltage schedule (~0.4% error rate).
21. On September 10, 2018, the Ouachita facility had once instance where the facility did not meet its voltage schedule and failed to give proper notification. It exceeded its voltage schedule of 521 kV by 1.16 kV (~0.2% error rate).

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22. On September 27, 2018, the White Bluff facility had one instance where the facility did not meet its voltage schedule and failed to give proper notification. It exceeded its voltage schedule on its 500 kV line by 3.72 kV (~0.7% error rate).
23. On November 26, 2018, the Nelson 6 facility had one instance where the facility did not meet its voltage schedule and failed to give proper notification. It exceeded its voltage schedule of 234 kV by 2.6 kV (~1.1% error rate).
24. EntergyFHG had at least 378 instances on noncompliance, but may have had up to 408 instances taking into account the unknown historical instances. The first known issue occurred during 2014, but due to data retention schedules, the extent of these older issues are unclear. The detailed review of voltages schedules ran from January 1, 2018 through June 27, 2019. The detailed review discovered 378 individual instances of violations which shows a systemic and pervasive issue.
25. This noncompliance started on August 1, 2014, the first day which EntergyFHG had historical records, through February 19, 2019, the last known date when EntergyFHG deviated from a schedule without appropriately notifying its TOP.
26. The root cause of this violation was the lack of sufficient internal controls to ensure proper execution of its compliance program. . There are multiple causes of the lack of sufficient internal controls which are: NERC Champions failed to review and update Computer Based Training (CBT), ineffective change management caused VAR-002-4.1 procedures to become out of date, operators monitored the incorrect high side voltages, alarms did not consistently result in notifications, and, in one instance, a communications link failed in a plant switchyard which impaired the plant's ability to receive accurate voltage inputs and adhere to its voltage schedule.
27. NERC Champions, an Entergy specific program in which an individual contributor at a given sitet is made responsible for NERC compliance at a "boots on the ground" level, is a corporate compliance initiative across Entergy. The program removes barriers between compliance departments and their counterparts within Operations & Planning. However, the program is only as effective as its oversight allows and management failed to ensure that some of the NERC Champions were maintaining their training and adherence to VAR-002-4.
28. Entergy has an extensive change management program at a corporate level which includes all compliance functions. However, the change management failed to ensure proper versioning of the VAR-002-4 procedures were in the hands of the Operators responsible for compliance. These issues appear to be limited to procedures and processes around voltage schedules.
29. Some of Entergy's Operators mistakenly monitored the incorrect voltages, showing that Operators were aware of the need to adhere to voltage schedules but did not receive the proper education and training to perform their job functions correctly.

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Management failed to both ensure proper training and verify the training was effective.

30. In addition to ineffective training, some Operators reported incorrect alarming. Alarms are a fundamental internal control which sends notification to Operators when a potential problem exists which allows an investigation and, if necessary, remedial action. When management failed to ensure proper alarming, Operators were left without one of their primary internal controls to ensure compliance to voltage schedules.
31. Finally, at one plant, EntergyFHG failed to ensure good inputs into the control systems that Operators used. Bad inputs at the switchyard level ensured that bad outputs would be given to Operations personal and thus made adherence to voltage schedules challenging.
32. In conclusion, EntergyFHG had a mix of processes, procedures, and internal controls to ensure compliance with VAR-002-4. However, these internal controls were insufficient to ensure the effectiveness of the compliance program.
33. SERC determined that the Alleged Violation posed a moderate risk to the reliability of the bulk power system.¹⁵ EntergyFHG failed to monitor its voltages on over half of its generation fleet. A total of 58.6% of EntergyFHG's generation fleet had at least on instance of voltage deviation without notification. However, the vast majority of these voltage deviations were minor deviations to the schedule and less than 1% outside of the schedule. Additionally, the voltage schedules used by EntergyFHG are more conservative than those used by similar sized Entities. The combination of small deviations and more conservative voltage schedules reduces the potential risk to many instances of the violation to be negligible.
34. Even taking into account the large number of instances with negligible risk due to their small deviations in voltage schedules, EntergyFHG still had a number of instances where there were high deviations to its voltage schedule. Large voltage schedule deviations would have caused voltage neighboring units to compensate for the higher/lower amount of MVARs on the system, and put the BES at risk.
35. EntergyFHG also had numerous deviations above its upper voltage schedule limit. Again, neighboring units would need to compensate, but in this case absorbing the extra MVARs. Should neighboring units be unable to remove the extra MVARs, the system risks equipment damage or unintentional tripping of equipment. While the potential risks of violating the upper limit of the voltage schedule are not as significant as potential voltage collapse, equipment damage and unintentional tripping still poses a significant risk to the health of the BPS. The number of

¹⁵ VAR-002-2b has a VRF of "Medium" pursuant to the VRF Matrix. According to the VSL Matrix, this noncompliance warranted a "Severe" VSL.

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instances and large deviations and long timeframes associated with this Alleged Violation are substantial. While no harm has been directly contributed to the violations, neighboring systems would have needed to adjust the VAR output from nearby units to account for the missed voltage schedules. In essence, these neighboring units would “prop up” the system voltage near the nuclear units. Should one of the units “propping up” the nuclear units voltage trip offline with an unscheduled outage, neighboring units would be forced to “prop up” both the tripped unit and the burden of the nuclear unit. Should one of the neighboring units be unable to provide the necessary VARs, it would also trip off and could lead to large scale voltage collapse.

Mitigating Actions

36. On December 9, 2019, EntergyFHG submitted a Mitigation Plan addressing the Alleged Violation of VAR-002-2b R2. See Mitigation Plan SERCMIT015462. On March 19, 2021, SERC accepted the Mitigation Plan.
37. To mitigate the Alleged Violation, EntergyFHG performed the following actions:
 - A. emailed all plant managers of the Power Generation fleet to re-enforce the criticality of compliance with VAR-002-4.1 and to establish interim guidance on the expectations and requirements;
 - B. held a conference call with the Power Plant Operations Lead Team and all Power Generation plant managers to field any questions in order to ensure everyone is aligned on all actions moving forward;
 - C. had all 15 Power Generation plants involved in the possible violation perform a causal map and a Human Performance Learning Opportunity to identify causes of the possible violation within each plant and the circumstances and deficiencies in the plant’s processes that lead to the human performance aspect of the possible violation. These actions were reviewed by Power Generation Risk & Compliance;
 - D. had plant engineers and Power Generation Risk & Compliance review the switchyard display¹⁶ for correct monitoring parameters, alarm settings, and functionality. All issues have been corrected and are currently aligned with the current voltage schedule;
 - E. set up automatic email notifications to notify the Transmission Control Center (TCC) when the Power Generation plant is out of their voltage schedule for 25 minutes (for the Power Generation fleet). The TCC sends an acknowledgement email when they receive notification.

¹⁶ The switchyard display is the screen in the control room that displays the voltage to the control room operator.

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- F. verified and updated all programmed phones and signage as required to ensure the correct phone number is used to contact the TCC on a recorded phone line;
- G. performed a fleet-wide Causal Determination to identify the common causes of the possible violation across the Power Generation fleet;
- H. performed a fleet-wide Human Performance Learning Opportunity to identify the common circumstances and deficiencies in the plants' processes that led to the human performance aspect of the possible violation across the Power Generation fleet;
- I. ensured all Power Generation control rooms have functioning audible and visual alarms;
- J. created a screen for the TCC Real-Time Analysis desk that will display all Power Generation voltage statuses. Alarms will be generated on the display to notify the TCC that a generating unit has been outside its published voltage schedule for 25 minutes. When the TCC operator acknowledges the unit condition, an automatic email will be sent in response back to the Power Generation plant;
- K. reviewed all units' operating voltages and requested changes to 17 units' voltage schedules in the fleet that consistently have issues maintaining their published voltage schedule. Transmission Planning has worked with Transmission Operations to ensure that the proposed changes do not pose any risk to the BES;
- L. re-trained all Power Generation control room personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in Power Generation procedure;
- M. re-trained all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations;
- N. performed periodic table-top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario;
- O. updated wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule and to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation, and Transmission);
- P. reviewed and updated the Power Generation's VAR-002 procedure to ensure the procedure reflects any necessary changes due to the mitigation plan;
- Q. trained the Power Generation fleet on the VAR-002 procedure;

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- R. modified the Power Generation Shift Turnover process to include voltage deviations, voltage alarm reviews, and a discussion of actions needed by the oncoming shift; and
 - S. developed one common VAR-002 process for Nuclear and Power Generation.
38. On December 9, 2019, EntergyFHG notified SERC that it completed this Mitigation Plan on August 31, 2019. See Certification of Mitigation Completion. SERC will verify EntergyFHG's completion of the Mitigation Plan and promptly report its successful completion to NERC.

Attachment B

Entergy's Self-Report for VAR-002-4 R2 dated November 17, 2017

This item was submitted by Valeria Wright (vwright@entergy.com) on 11/17/2017

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: Entergy - Nuclear

NERC Registry ID: NCR11166

JRO ID:

CFR ID:

Entity Contact Information: Valeria Wright

REPORTING INFORMATION

Applicable Standard: VAR-002-4

Applicable Requirement: R2.

Applicable Sub Requirement(s):

Applicable Functions: GOP

Has a Possible violation of this standard and requirement previously been reported or discovered: No

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

Date Possible Violation was discovered: 6/23/2017

Beginning Date of Possible Violation: 3/7/2016

End or Expected End Date of Possible Violation: 6/23/2017

Is the violation still occurring? No

Provide detailed description and cause of Possible Violation:

ANO units 1 and 2 have not been following procedure for notifying the Transmission Operator when their voltage is outside the prescribed voltage schedule and the Unit cannot get back within the acceptable band within 30 minutes. This was discovered during review of the past year's North and South Bus voltages for an Entergy Transmission Planning's inquiry that was triggered by an interconnection customer's request for the voltage profile data at ANO. This condition resulted in a potential violation of VAR-002-4 Requirement 2

The cause of this condition is that Operations have not had barriers in place to make them aware of voltage deviations from the voltage schedule tolerance band.

Are Mitigating Activities in progress or completed? Yes

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:

The ANO operations manager communicated to ANO operations 1 and 2 the importance of maintaining the 500KV Ring bus voltage schedule; 8/30/2017.

Provide details to prevent recurrence:

An alarm has been put in place on the Units 1 & 2 control rooms to monitor for grid fluctuations outside of the prescribed voltage schedule.

The procedure verbiage for both OP-1102.004 and OP-2106.009 have been updated with more clarifying information to include a Procedure Improvement Form (PIF) for both units to maintain the 500KV bus voltage in the required range for scheduled voltage.

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

8/30/2017

MITIGATING ACTIVITIES

Title	Due Date	Description	Prevents Recurrence
No data available in table			

Potential Impact to the Bulk Power System: Minimal

Actual Impact to the Bulk Power System: Minimal

Provide detailed description of Potential Risk to Bulk Power System:

Entergy considers the risk impact due to this condition to be minimal since the Transmission Operator monitors grid voltage. At any time a unit is not controlling their bus voltage and it begins to cause voltage issues, the Transmission Operator will contact the unit and give instructions for voltage support.

Provide detailed description of Actual Risk to Bulk Power System:

Based on a review of available information, there was no risk to the Bulk Power System as a result of ANO units 1 and 2 not controlling voltage on the 500kv bus. The Transmission Operator did not contact either ANO units for them to adjust their voltage.

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

Entergy's Mitigation Plan SERCMIT014830 for
VAR-002-4 R2 submitted November 26, 2019

This item was signed by Scott Cameron (scamer1@entergy.com) on 9/26/2019

This item was marked ready for signature by Valeria Wright (vwright@entergy.com) on 9/26/2019

MITIGATION PLAN REVISIONS

Requirement	NERC Violation IDs	Regional Violation Ids	Date Submitted	Status	Type	Revision Number
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	11/17/2017	Revision Requested	Informal	
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	10/22/2018	Revision Requested	Informal	1
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	03/27/2019	Revision Requested	Informal	2
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	03/28/2019	Revision Requested	Informal	3
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	04/15/2019	Revision Requested	Informal	4
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	05/13/2019	Revision Requested	Informal	5
VAR-002-4 R2.	SERC2017018666	SERC2017-402896		Revision Requested	Informal	6
VAR-002-4 R2.	SERC2017018666	SERC2017-402896	09/26/2019	Region reviewing Mitigation Plan	Formal	7

SECTION A: COMPLIANCE NOTICES & MITIGATION PLAN REQUIREMENTS

A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "[Attachment A - Compliance Notices & Mitigation Plan Requirements](#)" to this form.

[Yes] A.2 I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

SECTION B: REGISTERED ENTITY INFORMATION

B.1 Identify your organization

Company Name:

Company Address:

Compliance Registry ID:

B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name:

SECTION C: IDENTIFICATION OF ALLEGED OR CONFIRMED VIOLATION(S) ASSOCIATED WITH THIS MITIGATION PLAN

C.1 This Mitigation Plan is associated with the following Alleged or Confirmed violation(s) of Reliability Standard listed below.

Standard:

Requirement	Regional ID	NERC Violation ID	Date Issue Reported
R2.	SERC2017-402896	SERC2017018666	11/17/2017

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above:

Provide a brief summary of the violation:

ANO Units 1 and 2 failed to notify the Transmission Operator when the voltage was outside of the prescribed voltage schedule and notification was required under the conditions provided by the Transmission Operator (i.e., the unit cannot get back within the acceptable band within 30 minutes of discovery).

The scope the self-report was expanded to include six (6) more plants which failed to notify the Transmission Operator when output voltage was outside the prescribed voltage schedules for those units and notification was required under the conditions provided by the applicable Transmission

- Operator:
- Grand Gulf Nuclear Station
 - Indian Point Energy Center, Units 2 and 3
 - Pilgrim Nuclear Power Plant
 - River Bend Station
 - Waterford 3

How were the issues discovered?

This was discovered during a review of the past year's North and South Bus voltages at ANO for an Entergy Transmission Planning's inquiry that was triggered by an interconnection customer's challenge for the voltage profile data at ANO. The other six (6) units were discovered during the ensuing extent of condition review.

How was the Extent-of- Condition/Scope established?

The extent of condition looked at all of the nuclear plants in the fleet.

Root-cause (apparent cause) summary:

ANO 1 & 2:

1. Operations have not had barriers in place to make them aware of voltage deviations from the voltage schedule tolerance band since existing alarm was extended outside the voltage schedule band.

Grand Gulf Nuclear Station:

1. 06-OP-1000-D-0001 was erroneously revised to remove the requirement to log GGNS generator voltage during all operating modes of the Automatic Voltage Regulator (AVR). It was applicable only when the AVR was in Manual Mode.

Indian Point Energy Center, Units 2&3:

1. The control room operators were not aware of the requirement to monitor and maintain 345kV system voltage.
2. Ineffective communication between Entergy Nuclear Power Marketing and IPEC on voltage schedules established by the NYISO.

Pilgrim Nuclear Power Plant:

1. Operations personnel did not understand requirements for notifying Eversource when the unit was outside of the voltage schedule tolerance band. By following PNPS 1.4.4. Operators believed Eversource was monitoring the Voltage Schedule for PNPS. Also, PNPS 1.4.4 did not establish sufficient measures for Control Room personnel to ensure systematic monitoring and logging of the station's output voltage and to ensure logging of deviations from the Operational Voltage Schedules.

River Bend Station:

1. There was vague procedural guidance on the necessary steps to take once it is identified that voltage is out of the scheduled band. The Operator Rounds procedure for logging voltage did not have a prompt for the operators to use the System Operating procedure guidance when non-compliance to the voltage schedule is identified. The System Operating procedure had the action and notification guidance. This was due to poor change management when the new voltage schedule was put into effect in 2014

Waterford 3:

1. The Voltage Schedule was revised by Entergy Transmission however the alarm settings were not updated by the plant. This was due to poor change management when the new voltage schedule was transmitted by the Entergy Transmission.

[Attachments \(\)](#)

C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this MitigationPlan:

Entergy also conducted a review of voltage schedule adherence for the Power Generation fleet. Based on the findings of this review, Entergy submitted self report SERC ID 2019-404855.

[Attachments \(\)](#)

SECTION D: DETAILS OF PROPOSED MITIGATION PLAN

D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the Alleged or Confirmed violations identified above in Part C.1 of this form:

ANO 1 & 2

1. The ANO operations manager communicated to ANO operations 1 and 2 the importance of maintaining the 500KV Ring bus voltage schedule. Completion date: 8/30/2017
2. An alarm has been put in place on the Units 1 & 2 control rooms to monitor for grid fluctuations outside of the prescribed voltage schedule. Completion date: 8/16/2017
3. The procedure verbiage for both OP-1102.004 and OP-2106.009 have been updated with more clarifying information to include a Procedure Improvement Form (PIF) for both units to maintain the 500KV bus voltage in the required range for scheduled voltage. Completion date: 8/16/2017

4. Change management communication action and operator requalification training lesson plan update. Completion Date: 5/29/2019

Grand Gulf Nuclear Station

1. Issued standing order for interim action to ensure compliance with voltage schedule. A standing order is an instruction from Operations Management of continuing applicability to Operations personnel. (Standing Order 18-0003). Completion Date: 4/2/2018
2. Issued revision 008 to 01-S-02-9, Procedure Change Process, to ensure an appropriate barrier is in place to protect non-license-related commitments and obligations from inappropriate procedure revisions. Completion Date: 6/14/2018 Change management communication completed for revised procedures on 4/19/2019.
3. Issued revision 009 to 06-OP-1000-D-0001 to require monitoring and logging generator voltage during all operating modes of the AVR. Completion Date: 7/28/2018
4. Issued revision 006 to 01-S-02-10, Format and Content Procedure, to ensure non-license-related commitments and obligations, including NERC requirements, are protected from inappropriate procedure revision. Completion Date: 10/3/2018 Change management communication completed for revised procedures on 4/19/2019.

Indian Point Energy Center Units 2&3

1. Worked with Entergy Nuclear Power Marketing to ensure all further communications from the NYISO are distributed to the appropriate personnel at IPEC, or ensure all communications from the NYISO to the Entergy Nuclear Power Marketing group go directly to IPEC in the future. Completion Date: 8/4/2018
2. Implemented a special log to monitor the Generator output voltage and maintain voltage within the prescribed voltage schedule detailed in this Condition Report. Ensured Log has the required actions to take if Voltage is outside the prescribed voltage schedule in accordance with the NERC standard VAR-002 requirement 2. Completion Date: 5/24/2018
3. Revised the ESOMS Control Room rounds to include a log of generator output voltage to comply with NERC standard VAR-002. Completion Date: 7/9/2018
4. Update Operations procedure(s) to include the guidance for compliance with the NERC standard for maintaining the proper voltage schedule. Completion Date: 10/18/2018
5. Change management communication action and operator requalification training lesson plan update. Completion Date: 5/23/2019

Pilgrim Nuclear Power Station

1. Operations Standing Order 18-07 was issued effective 5/24/2018 and included direction for hourly voltage logging along with instructions for when and how to notify Eversource. (Intent: Provide interim guidance to ensure compliance with NERC regulations on Voltage Schedule) Standing orders are reviewed at the beginning of each shift. Completion Date: 5/24/2018.
2. Issued revision 67 to PNPS 2.1.35 (see attached Training Lesson Plan.pdf and Attendance Roster.pdf) to include direction for hourly verification of compliance with the voltage schedule, along with instructions for when and how to notify Eversource. (Intent: Ensure compliance with NERC regulations on Voltage Schedule) Completion Date: 7/16/2018
3. Issued revision 31 to PNPS 1.4.4, New England Power Grid Operations/Interfaces, to provide instructions amplifying NERC VAR-002 requirements. (Intent: Ensure compliance with NERC regulations on Voltage Schedule) Completion Date: 7/17/2018

River Bend Station

1. Issued revision 043 to OPS-0027, Log Report- Main Control Room to provide guidance on calling the Transmission Operator and logging in narrative logs if the voltage schedule cannot be met. Training lesson plan was updated and training was completed. (see attached RFI Attendance records.pdf and Training Lesson Plan.pdf) Completion Date: 5/24/2018
2. Revised ARP-808-86A-H01, Grid Trouble, to provide guidance on actions to be taken when voltage is not in compliance with the voltage schedule. Training lesson plan updated and training is complete. See training lesson plan slides 20-27 and attendance record attached to #1. Completion Date: 7/24/2018

Waterford 3

1. Initiated a standing order as temporary implementation of updated NERC voltage Schedule. Completion Date: 5/23/2018
2. Issued revision 331 to OP-010-004 (Power Operations) to reflect the current NERC voltage schedule. The intent of this action was to update operation's procedures with the values of the current voltage schedule. Procedure revision was communicated to all operators. (see attached Post Procedure Revision Communication.pdf) Completion Date: 5/24/2018
3. Updated the alarm set points of PMC computer points S59300 and S59301 to reflect the current NERC voltage schedule of 232.6KV – 237.6KV. The intent of this action was to alert operations personnel when the limits of the current voltage schedule are not being met. Completion Date: 7/2/2018

Fleet Adverse Condition Analysis

1. Discussed this Adverse Condition Analysis with the Site Functional Area Managers (SFAMs). Completion Date: 11/28/2018
2. Perform an effectiveness review of site actions to ensure completed mitigation action are effective in adhering to the voltage schedule. Completion date: 4/19/2019
3. Revise EN-OP-117 Operations Assessments Resources to include an annual audit to confirm site procedures, monitoring capabilities and alarms are sufficient to support the current voltage schedule supplied by the Transmission Operator. Completion date: 7/10/2019
4. Installing permanent alarms (annunciators or computer points visual and audible) with operator required response for voltage schedule monitoring. Completion date: 9/13/2019
5. Review existing training through performance analysis to identify if additional NERC training with focus on Operations responsibility and ownership is needed. Initiate additional actions if determined they are needed based on the results of the performance analysis. Completion date: 3/27/2019
6. Develop a consistent communication method (working with Entergy Transmission, ISO NE, NY ISO, and ITC) to communicate voltage schedule update. Completion date: 5/30/2019
7. Review existing Operations procedures and ensuring NERC requirements are addressed sufficiently and logically to adhere to the requirements targeted. Completion date: 3/27/2019

[Attachments \(71\)](#)

D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above.

State whether the Mitigation Plan has been fully implemented:

9/13/2019

D.3 Enter Milestone Activities, with due dates, that your organization is proposing, or has completed, for this Mitigation Plan:

Milestone #1

Milestone Completed (Due: 4/19/2019 and Completed 4/19/2019)

Complete Grand Gulf Change Management Communication.

Milestone 2

Milestone Completed (Due: 4/30/2019 and Completed 4/19/2019)

Performing an effectiveness review of site actions to ensure completed mitigation action are effective in adhering to the voltage schedule.

ANO Change Management Communication

Milestone Completed (Due: 7/2/2019 and Completed 5/29/2019)

Complete change management communication action and operator requalification training lesson plan updates

IPEC Change Management Communication

Milestone Completed (Due: 7/2/2019 and Completed 5/23/2019)

Complete change management communication action and operator requalification training lesson plan updates

SECTION E: INTERIM AND FUTURE RELIABILITY RISK

E.1 Abatement of Interim BPS Reliability Risk: While your organization is implementing this Mitigation Plan the reliability of the Bulk Power Supply (BPS) may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take to mitigate this increased risk to the reliability of the BPS. (Additional detailed information may be provided as an attachment):

The violation was discovered on 6/23/2017 and all mitigating activities are currently complete except for one. During the timeframe when the mitigating activities were being implemented, risk was minimal because at any time a unit is not controlling their bus voltage and it begins to cause voltage issues on the grid, the Transmission Operator will contact the unit and give instructions for voltage support. Risk is also minimal for the one mitigating activity that remains (Install permanent alarms (annunciators or computer points visual and audible) with operator required response for voltage schedule monitoring) since 6 out of 8 units are complete and the two units that remain are taking hourly voltage readings and have multiple communications with the TOP daily.

Attachments ()

E.2 Prevention of Future BPS Reliability Risk: Describe how successful completion of this Mitigation Plan will prevent or minimize the probability that your organization incurs further risk of Alleged violations of the same or similar reliability standards requirements in the future. (Additional detailed information may be provided as an attachment):

The alarms that have been installed will assist the operators in identifying when they are outside of the voltage schedule tolerance band. The procedure revisions provide clearer direction on how to react to voltage excursions. Operator requalification training will refresh operator knowledge. Communication protocol ensures consistent methods and two-way responsibility when changing the voltage schedule. Annual internal audits have been set up as a control to confirm: (1) site procedures, (2) monitoring capabilities, and (3) alarms are sufficient to support the current voltage schedule.

Attachments ()

SECTION F: AUTHORIZATION

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits this Mitigation Plan for acceptance by SERC and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
 - I am Scott Cameron of Entergy - Nuclear
 - I am qualified to sign this Mitigation Plan on behalf of Entergy - Nuclear
 - I understand Entergy - Nuclear's obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure, including Appendix 4 (Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation (NERC CMEP))
 - I have read and am familiar with the contents of this Mitigation Plan
 - Entergy - Nuclear agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by SERC and approved by NERC

SECTION G: REGIONAL ENTITY CONTACT

SERC Single Point of Contact (SPOC)

Attachment D

Entergy's Certification of Mitigation Plan Completion for VAR-002-4 R2
submitted September 30, 2019

This item was signed by Scott Cameron (scamer1@entergy.com) on 9/30/2019



This item was marked ready for signature by Valeria Wright (vwright@entergy.com) on 9/26/2019



MEMBER MITIGATION PLAN CLOSURE

All Mitigation Plan Completion Certification submittals shall include data or information sufficient for SERC to verify completion of the Mitigation Plan. SERC may request such additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6) Data or information submitted may become part of a public record upon final disposition of the possible violation, therefore any confidential information contained therein should be marked as such in accordance with the provisions of Section 1500 of the NERC Rules of Procedure.

Name of Registered Entity submitting certification:

Entergy - Nuclear

Name of Standard of mitigation violation(s):

VAR-002-4

Requirement	Tracking Number	NERC Violation ID
R2.	SERC2017-402896	SERC2017018666

Date of completion of the Mitigation Plan:

9/13/2019

Milestone #1

Milestone Completed (Due: 4/19/2019 and Completed 4/19/2019)

[Attachments \(0\)](#)

Complete Grand Gulf Change Management Communication.

Milestone 2

Milestone Completed (Due: 4/30/2019 and Completed 4/19/2019)

[Attachments \(0\)](#)

Performing an effectiveness review of site actions to ensure completed mitigation action are effective in adhering to the voltage schedule.

ANO Change Management Communication

Milestone Completed (Due: 7/2/2019 and Completed 5/29/2019)

[Attachments \(0\)](#)

Complete change management communication action and operator requalification training lesson plan updates

IPEC Change Management Communication

Milestone Completed (Due: 7/2/2019 and Completed 5/23/2019)

[Attachments \(0\)](#)

Complete change management communication action and operator requalification training lesson plan updates

Summary of all actions described in Part D of the relevant mitigation plan:

Procedures and processes have been revised and implemented to mitigate this issue as summarized in the mitigation plan actions.

Description of the information provided to SERC for their evaluation *

Evidence of completed actions is attached along with Mitigation plan summary and citation documents.

Attachment E

Entergy's Self-Report for VAR-002-2b R2 dated submitted July 23,

2019

This item was submitted by Valeria Wright (vwright@entergy.com) on 7/23/2019

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: Entergy - Fossil & Hydroelectric Generation

NERC Registry ID: NCR11167

JRO ID:

CFR ID:

Entity Contact Information: Valeria Wright

REPORTING INFORMATION

Applicable Standard: VAR-002-4.1

Applicable Requirement: R2.

Applicable Sub Requirement(s):

Applicable Functions: GOP

Has a Possible violation of this standard and requirement previously been reported or discovered: No

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

Date Possible Violation was discovered: 5/30/2019

Beginning Date of Possible Violation: 1/1/2018

End or Expected End Date of Possible Violation: 6/27/2019

Is the violation still occurring? No

Provide detailed description and cause of Possible Violation:

Resulting from an Extent of Condition triggered by the Entergy Nuclear self-report SERC2017-402896, Entergy Power Generation discovered that several sites (15 out of 29 total) operated outside of their prescribed voltage schedules without making the required notification for deviations to the Transmission Control Center (TCC). Additionally, during our evaluation of this issue, Entergy identified in our corrective action program database instances in 2015 at 2 generation facilities that were not reported, but have similarities to the issues identified in our recent review of fleet performance for this self-report (See Additional Comments section for more information about this instance).

Power Generation Risk & Compliance performed a Causal Determination and the following causes were identified. Entergy will report to SERC if any other violations are identified.

Cause-1: Power Generation Plant NERC Champions failed to review/update plant employee Computer Based Training (CBTs) profiles to include NERC related CBTs.

Cause 2: Ineffective Change Management between the Transmission Operator and the owner of the Power Generation VAR-002 procedure. When Entergy consolidated their System Operation Center and Transmission Control Centers into the new TCCs, the direct phone numbers to the new Real-Time desks were changed; however the owner of Power Generation's VAR-002 procedure was not informed and did not update the procedure.

Cause-3: The incorrect high-side voltage was identified to be monitored at some units.

Cause-4: Alarms did not consistently result in notifications. Alarm deadbands in the Distributed Control System were not set to allow adequate re-alarmed or audible alarm functionality in the control system.

Cause-5: Communications link failure in the plant switchyard caused a bad input for both voltage readings, resulting in the plant not monitoring their voltage.

Are Mitigating Activities in progress or completed? Yes

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:

- The Power Plant Operations Lead Team emailed all plant managers of the Power Generation fleet to re-enforce the criticality of compliance with VAR-002-4.1 and to establish interim guidance on the expectations and requirements.
- A conference call was held on 6/27/2019 with the Power Plant Operations Lead Team and all Power Generation plant managers to field any questions in order to ensure everyone is aligned on all actions moving forward. (Complete)
- All 15 Power Generation plants involved in the possible violation performed a causal map and a Human Performance Learning Opportunity to identify the cause(s) of the possible violation within each plant and the circumstances and deficiencies in the plant's process(es) that lead to the human performance aspect of the possible violation. These actions are under review by Power Generation Risk & Compliance. (Complete) NOTE: The remaining unaffected plants were not required to perform these actions since they did not have any incidents to review. However, they will be included in all mitigating actions regarding these issues.
- The switchyard display is the screen in the control room that displays the voltage to the control room operator. The switchyard display has been reviewed by plant engineers and Power Generation Risk & Compliance for correct monitoring parameters, alarm settings, and functionality. All issues have been corrected and are currently aligned with the current voltage schedule. (Complete)
- Automatic email notifications have been set up to notify the TCC when the Power Generation plant is out of their voltage schedule for 25 minutes (for the Power Generation fleet). The TCC sends an acknowledgement email when they receive notification. (Complete)
- All programed phones and signage have been verified and updated as required to ensure the correct phone number is used to contact the TCC on a recorded phone line. (Complete)
- Power Generation Risk & Compliance has performed a fleet-wide Causal Determination to identify the common causes of the possible violation across the Power Generation fleet. (Complete)
- Power Generation Risk & Compliance has performed a fleet-wide Human Performance Learning Opportunity to identify the common circumstances and deficiencies in the plant's process(es) that led to the human performance aspect of the possible violation across the Power Generation fleet. (Complete)
- Ensured all Power Generation control rooms have functioning audible and visual alarms. (Complete)

Provide details to prevent recurrence:

- A PI ProcessBook screen will be created for the TCC Real-Time Analysis desk that will display all Power Generation voltage statuses. Alarms will be generated on the display to notify the TCC that a generating unit has been outside its published voltage schedule for 25 minutes. When the TCC operator acknowledges the unit condition, an automatic email will be sent in response back to the Power Generation plant. (due 8/31/2019).
- Power Generation Risk & Compliance is extending the extent of condition to cover the period of 4/1/2019 – 6/30/2019 (due 7/31/2019).
- Power Generation Risk & Compliance has reviewed all units' operating voltages and requested changes to 17 units' voltage schedules in the fleet that consistently have issues maintaining their published voltage schedule. Transmission Planning has worked with Transmission Operations to ensure that the proposed changes do not pose any risk to the BES. 13 units have been reviewed and approved by Transmission Planning and revised voltage schedules will be effective 7/23/19. 4 units remain under review (due 8/31/2019)
- Re-training will be provided to all Power Generation control room personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in Power Generation procedure EF-PR-NERC-VAR-002. (due 7/31/2019)
- Re-training will be provided to all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations. (8/29/19)
- Power Generation will perform periodic table top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario. (8/26/19)
- Transmission Planning will update wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule. (7/31/2019)
- Transmission Planning will update the Voltage Schedule Policy to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation and Transmission). (7/30/2019)
- Power Generation Risk & Compliance will review Power Generation procedure EF-PR-NERC-VAR-002 to ensure the procedure reflects any necessary changes due to these actions. (due 7/31/2019)
- Power Generation Risk & Compliance will train the Power Generation fleet on the procedure EF-PR-NERC-VAR-002 revision. (Due 8/31/2019)
- Power Generation Risk & Compliance will ensure the Power Generation Shift Turnover process is modified to include voltage deviations, voltage alarm reviews, and a discussion of actions needed by the oncoming shift. (Due 7/31/2019)
- As a result of Nuclear self-report (SERC2017-402896) and this self-report, one VAR-002 process is being developed and will be common between Nuclear and Power Generation. Power Generation has reviewed the actions taken as a result of the Nuclear self-report (SERC2017-402896) and is taking advantage of Nuclear actions and Nuclear is reviewing the Power Generation actions in order to have one comprehensive VAR-002 program across the Entergy generation fleet. (8/31/2019)

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

10/31/2019

MITIGATING ACTIVITIES

Title	Due Date	Description	Prevents Recurrence
Update Voltage Schedule Policy Clarity	7/30/2019	ransmission Planning will update the Voltage Schedule Policy to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation and Transmission).	Yes
Update wording on the Voltage Schedule Policy	7/31/2019	Transmission Planning will update wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule.	Yes
Review Power Generation procedure EF-PR-NERC-VAR-002	7/31/2019	Review procedure to ensure it reflects any necessary changes due to these actions	Yes
Shift Turnover	7/31/2019	PGEN to ensure the PGEN shift turnover proess is modified to include voltage deviations, voltage alarm reviews, and discussion of actions needed by the oncoming shift	Yes
Retraining of PGEN Control Room Staff	7/31/2019	Re-Train PGEN control romm personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in EF-PR-NERC-VAR-00	Yes
Table Drills	8/26/2019	Power Generation will perform periodic table top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario	Yes
Re-Train TCC personnel	8/29/2019	Re-training will be provided to all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations.	Yes
PGEN Fleet Training	8/31/2019	PGEN Risk and Compliance will train PGEN fleet on EF-PR-NERC-VAR-002 revision	Yes
VAR-002 Process development	8/31/2019	As a result of Nuclear self-report (SERC2017-402896) and this self-report, one VAR-002 process is being developed and will be common between Nuclear and Power Generation. Power Generation has reviewed the actions taken as a result of the Nuclear self-report (SERC2017-402896) and is taking advantage of Nuclear actions and Nuclear is reviewing the Power Generation actions in order to have one comprehensive VAR-002 program across the Entergy generation fleet	Yes

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:

Entergy considers the potential risk due to this condition to be moderate since almost 50% of the Power Generation fleet and 86% of the Nuclear fleet had incidences where they did not complete the required notifications of deviations as prescribed by the Transmission Operator. However, Entergy is taking fleetwide actions to quickly arrest this issue going forward. Transmission operators continuously monitor grid voltage. At any time a unit is not controlling their bus voltage and it begins to cause voltage issues, the transmission operator will contact the unit and give instructions for voltage support.

Provide detailed description of Actual Risk to Bulk Power System:

Based on a review of available information, there was minimal risk to the Bulk Power System as a result of the voltage deviations by the 15 Power Generation plants. The Transmission Operator reviewed the grid voltage during the times of the plant voltage deviations and found that 1-2% of the total deviations occurred during times in which voltage issues existed on the BPS. The review concluded that the probability the plant deviations contributed to or adversely affected the BPS was low.

Additional Comments:

During the evaluation of the Power Generation VAR-002 issues, a compliance employee identified reference to two 2015 condition reports involving Calcasieu and Louisiana Station generating facilities.

CR-PGEN-2015-15 identified an instance where a plant operator identified that the Calcasieu plant had been out of the tolerance band for approximately 3 hours and 34 minutes on April 23, 2015. A low voltage alarm had been received in the control room at 13:01 but was not noticed by the operator at the time of the alarm. At turnover, the oncoming operator noticed the alarm and notified the System Operations Center (SOC) at 16:35. The operator raised voltage upon discovery and contacted the Transmission Operator at the SOC and verified that the low voltage did not result in any grid problems. Although documentation is limited, our review of this instance identified that the causes appear to be related to effectiveness of the alarms and awareness of the board operator.

The issue was not previously submitted as a self-report. The reportability review results indicate that the notification requirements as described in the Transmission Operators voltage schedule were met. These consist of 1) within 30 minutes of discovery, and 2) the plant has exhausted all means of controlling voltage. The conclusion is not clearly stated in the documentation, but it appears that the reviewer concluded that discovery occurred at 16:35 upon turnover and not at 13:01 when the alarm came in. Based on the current staff's review of this issue, we believe that Entergy should disclose this to SERC as a potential noncompliance.

CR-PGEN-2015-5 identified that Louisiana station should have identified and responded to multiple low voltage alarms (approximately 29) between August 2014 and January 2015. It is not clear how many of these occurrences were since the October 1, 2014 effective date of VAR-002-3 where the requirement was revised to specify the voltage schedule and notification requirements. The issue was determined to be related to setup of the audible alarms and operator awareness. This issue was also not submitted as a self-report in 2015. Based on the current staff's review of this issue, we believe Entergy should disclose this to SERC as a potential noncompliance.

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 F

Entergy's Mitigation Plan SERCMIT015462 for VAR-002-2b R2
submitted December 9, 2019

This item was signed by Scott Cameron (scamer1@entergy.com) on 12/9/2019

This item was marked ready for signature by Valeria Wright (vwright@entergy.com) on 12/9/2019

MITIGATION PLAN REVISIONS

Requirement	NERC Violation IDs	Regional Violation Ids	Date Submitted	Status	Type	Revision Number
VAR-002-4.1 R2.	SERC2019021949	SERC2019-404855	07/23/2019	Revision Requested	Informal	
VAR-002-4.1 R2.	SERC2019021949	SERC2019-404855	12/09/2019	Region reviewing Mitigation Plan	Formal	1

SECTION A: COMPLIANCE NOTICES & MITIGATION PLAN REQUIREMENTS

A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "[Attachment A - Compliance Notices & Mitigation Plan Requirements](#)" to this form.

[Yes] A.2 I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

SECTION B: REGISTERED ENTITY INFORMATION

B.1 Identify your organization

Company Name:

Company Address:

Compliance Registry ID:

B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name:

SECTION C: IDENTIFICATION OF ALLEGED OR CONFIRMED VIOLATION(S) ASSOCIATED WITH THIS MITIGATION PLAN

C.1 This Mitigation Plan is associated with the following Alleged or Confirmed violation(s) of Reliability Standard listed below.

Standard:

Requirement	Regional ID	NERC Violation ID	Date Issue Reported
R2.	SERC2019-404855	SERC2019021949	7/23/2019

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above:

Summary of the violation:

Resulting from an Extent of Condition triggered by the Entergy Nuclear self-report SERC2017-402896, Entergy Power Generation discovered that several sites (15 out of 29 total) operated outside of their prescribed voltage schedules without making the required notification for deviations to the Transmission Control Center (TCC).

How were the issues discovered?

During an Extent of Condition triggered by the Entergy Nuclear self-report SERC2017-402896.

How was the Extent-of- Condition/Scope established?

Risk & Compliance SME looked at control data for every plant in the Power Generation fleet and pulled every voltage excursion over 30 minutes and compared to NERC Log entries showing where notification had been made to the TCC.

Root-cause (apparent cause) summary:

Power Generation Risk & Compliance SME performed a Causal Determination and the following causes were identified:

Cause-1: Power Generation Plant NERC Champions failed to review/update plant employee Computer Based Training (CBTs) profiles to include NERC related CBTs.

Cause 2: Ineffective Change Management between the Transmission Operator and the owner of the Power Generation VAR-002 procedure. When Entergy consolidated their System Operation Center and Transmission Control Centers into the new TCCs, the direct phone numbers to the new Real-Time desks were changed; however the owner of Power Generation's VAR-002 procedure was not informed and did not update the procedure.

Cause-3: The incorrect high-side voltage was identified to be monitored at some units.

Cause-4: Alarms did not consistently result in notifications. Alarm deadbands in the Distributed Control System were not set to allow adequate re-alarms or audible alarm functionality in the control system.

Cause-5: Communications link failure in the plant switchyard caused a bad input for both voltage readings, resulting in the plant not monitoring their voltage.

C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan:

None.

[Attachments \(\)](#)

SECTION D: DETAILS OF PROPOSED MITIGATION PLAN

D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the Alleged or Confirmed violations identified above in Part C.1 of this form:

1. The Power Plant Operations Lead Team emailed all plant managers of the Power Generation fleet to re-enforce the criticality of compliance with VAR-002-4.1 and to establish interim guidance on the expectations and requirements. (Completed on 6/26/2019)
2. A conference call was held on 6/27/2019 with the Power Plant Operations Lead Team and all Power Generation plant managers to field any questions in order to ensure everyone is aligned on all actions moving forward. (Completed on 6/27/2019)
3. All 15 Power Generation plants involved in the possible violation performed a causal map and a Human Performance Learning Opportunity to identify the cause(s) of the possible violation within each plant and the circumstances and deficiencies in the plant's process(es) that lead to the human performance aspect of the possible violation. These actions were reviewed by Power Generation Risk & Compliance. (Completed on 6/14/2019) NOTE: The remaining unaffected plants were not required to perform these actions since they did not have any incidents to review. However, they will be included in all mitigating actions regarding these issues.
4. The switchyard display is the screen in the control room that displays the voltage to the control room operator. The switchyard display has been reviewed by plant engineers and Power Generation Risk & Compliance for correct monitoring parameters, alarm settings, and functionality. All issues have been corrected and are currently aligned with the current voltage schedule. (Completed on 7/1/2019)
5. Automatic email notifications have been set up to notify the TCC when the Power Generation plant is out of their voltage schedule for 25 minutes (for the Power Generation fleet). The TCC sends an acknowledgement email when they receive notification. (Completed on 7/1/2019)
6. All programed phones and signage have been verified and updated as required to ensure the correct phone number is used to contact the TCC on a recorded phone line. (Completed on 7/8/2019)
7. Power Generation Risk & Compliance has performed a fleet-wide Causal Determination to identify the common causes of the possible violation across the Power Generation fleet. (Completed on 7/18/2019)
8. Power Generation Risk & Compliance has performed a fleet-wide Human Performance Learning Opportunity to identify the common circumstances and deficiencies in the plant's process(es) that led to the human performance aspect of the possible violation across the Power Generation fleet. (Completed on 7/1/2019)
9. Ensured all Power Generation control rooms have functioning audible and visual alarms. (Completed on 7/26/2019)
10. A PI ProcessBook screen will be created for the TCC Real-Time Analysis desk that will display all Power Generation voltage statuses. Alarms will be generated on the display to notify the TCC that a generating unit has been outside its published voltage schedule for 25 minutes. When the TCC operator acknowledges the unit condition, an automatic email will be sent in response back to the Power Generation plant. (Completed on 8/19/2019)
11. Power Generation Risk & Compliance is extending the extent of condition to cover the period of 4/1/2019 – 6/30/2019. (Completed on 7/23/2019)
12. Power Generation Risk & Compliance has reviewed all units' operating voltages and requested changes to 17 units' voltage schedules in the fleet that consistently have issues maintaining their published voltage schedule. Transmission Planning has worked with Transmission Operations to ensure that the proposed changes do not pose any risk to the BES. 13 units have been reviewed and approved by Transmission Planning and revised voltage schedules will be effective 7/23/19. (Completed on 7/11/2019)
13. Re-training will be provided to all Power Generation control room personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in Power Generation procedure EF-PR-NERC-VAR-002. (Completed on 7/10/2019)
14. Re-training will be provided to all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations. (Completed on 8/19/19)
15. Power Generation will perform periodic table top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario. (Completed on 8/24/19)
16. Transmission Planning will update wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule. (Completed on 7/31/2019)
17. Transmission Planning will update the Voltage Schedule Policy to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation and Transmission). (Completed on 7/29/2019)
18. Power Generation Risk & Compliance will review Power Generation procedure EF-PR-NERC-VAR-002 to ensure the procedure reflects any necessary changes due to these actions (sections 6, 7.1.6, 7.2.1, 7.3.1, 7.2.2, 7.2.4, 7.2.5, 7.2.6). (Completed on 7/26/2019)
19. Power Generation Risk & Compliance will train the Power Generation fleet on the procedure EF-PR-NERC-VAR-002 revision. (Completed on 8/21/2019)
20. Power Generation Risk & Compliance will ensure the Power Generation Shift Turnover process is modified to include voltage deviations, voltage alarm reviews, and a discussion of actions needed by the oncoming shift. (Completed on 7/29/2019)
21. As a result of Nuclear self-report (SERC2017-402896) and this self-report, one VAR-002 process is being developed and will be common between Nuclear and Power Generation. Power Generation has reviewed the actions taken as a result of the Nuclear self-report (SERC2017-402896) and is taking advantage of Nuclear actions and Nuclear is reviewing the Power Generation actions in order to have one comprehensive VAR-002 program across the Entergy generation fleet. (Completed on 8/7/2019)

[Attachments \(1\)](#)

D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented:

8/31/2019

D.3 Enter Milestone Activities, with due dates, that your organization is proposing, or has completed, for this Mitigation Plan:

[Update Voltage Schedule Policy Clarity](#)

Milestone Completed (Due: 7/30/2019 and Completed 7/29/2019)

Transmission Planning will update the Voltage Schedule Policy to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation and Transmission).

[Update wording on the Voltage Schedule Policy](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/31/2019)

Transmission Planning will update wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule.

[Review Power Generation procedure EF-PR-NERC- VAR-002](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/26/2019)

Review procedure to ensure it reflects any necessary changes due to these actions

[Shift Turnover](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/29/2019)

PGEN to ensure the PGEN shift turnover process is modified to include voltage deviations, voltage alarm reviews, and discussion of actions needed by the oncoming shift

[Retraining of PGEN Control Room Staff](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/10/2019)

Re-Train PGEN control room personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in EF-PR-NERC-VAR-00

[Table Drills](#)

Milestone Completed (Due: 8/26/2019 and Completed 8/24/2019)

Power Generation will perform periodic table top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario

[Re-Train TCC personnel](#)

Milestone Completed (Due: 8/29/2019 and Completed 8/19/2019)

Re-training will be provided to all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations.

[PGEN Fleet Training](#)

Milestone Completed (Due: 8/31/2019 and Completed 8/21/2019)

PGEN Risk and Compliance will train PGEN fleet on EF-PR-NERC-VAR-002 revision

[VAR-002 Process development](#)

Milestone Completed (Due: 8/31/2019 and Completed 8/7/2019)

As a result of Nuclear self-report (SERC2017-402896) and this self-report, one VAR-002 process is being developed and will be common between Nuclear and Power Generation. Power Generation has reviewed the actions taken as a result of the Nuclear self-report (SERC2017-402896) and is taking advantage of Nuclear actions and Nuclear is reviewing the Power Generation actions in order to have one comprehensive VAR-002 program across the Entergy generation fleet

SECTION E: INTERIM AND FUTURE RELIABILITY RISK

E.1 Abatement of Interim BPS Reliability Risk: While your organization is implementing this Mitigation Plan the reliability of the Bulk Power Supply (BPS) may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take to mitigate this increased risk to the reliability of the BPS. (Additional detailed information may be provided as an attachment):

The violation was discovered on 5/30/2019 and all mitigating activities were quickly assigned and completed by 8/24/2019. During the timeframe when the mitigating activities were being implemented, risk was minimal because the plants were immediately assigned an action to complete a cause analysis which increased awareness of VAR-002 requirements. Risk was also minimal during this time because at any time a unit is not controlling their bus voltage and it begins to cause voltage issues on the grid, the Transmission Operator will contact the unit and give instructions for voltage support.

[Attachments \(\)](#)

E.2 Prevention of Future BPS Reliability Risk: Describe how successful completion of this Mitigation Plan will prevent or minimize the probability that your organization incurs further risk of Alleged violations of the same or similar reliability standards requirements in the future. (Additional detailed information may be provided as an attachment):

The alarms that were already in place but verified as a mitigating action will assist the operators in identifying when they are outside of the voltage schedule tolerance band and therefore need to make the notification requirements to the TCC. The automatic email notifications that have been set up to notify the TCC when the Power Generation plants are out of their voltage schedule for 25 minutes will prevent the risk of the TCC not knowing when a unit is out of their voltage schedule. The Human Performance Learning Opportunity analyses that were conducted to identify the common circumstances and deficiencies in the plant's processes that led to the human performance aspect of the possible violation will help minimize human performance errors in the future. Generation and Transmission operator re-training and periodic table top drills with operators have refreshed operator knowledge of VAR-002 compliance. Revisions to voltage schedules for units that consistently have issues maintaining their published voltage schedule will help the units stay within their voltage tolerance band. Revisions to and training on the VAR-002 Power Generation procedure (EF-PR-NERC-VAR-002) increased Power Generation employee knowledge of VAR-002 requirements. Updating the Power Generation Shift Turnover process to include voltage deviations, voltage alarm reviews, and a discussion of actions needed by the oncoming shift will keep operator VAR-002 awareness at the forefront of each shift.

[Attachments \(\)](#)

SECTION F: AUTHORIZATION

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits this Mitigation Plan for acceptance by SERC and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
 - I am Scott Cameron of Entergy - Fossil & Hydroelectric Generation
 - I am qualified to sign this Mitigation Plan on behalf of Entergy - Fossil & Hydroelectric Generation
 - I understand Entergy - Fossil & Hydroelectric Generation's obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure, including Appendix 4 (Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation (NERC CMEP))
 - I have read and am familiar with the contents of this Mitigation Plan
 - Entergy - Fossil & Hydroelectric Generation agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by SERC and approved

by NERC

SECTION G: REGIONAL ENTITY CONTACT

SERC Single Point of Contact (SPOC)

Attachment G

Entergy's Certification of Mitigation Plan Completion for VAR-002-2b
R2 submitted December 9, 2019

This item was signed by Scott Cameron (scamer1@entergy.com) on 12/9/2019



This item was marked ready for signature by Valeria Wright (vwright@entergy.com) on 12/9/2019



MEMBER MITIGATION PLAN CLOSURE

All Mitigation Plan Completion Certification submittals shall include data or information sufficient for SERC to verify completion of the Mitigation Plan. SERC may request such additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6) Data or information submitted may become part of a public record upon final disposition of the possible violation, therefore any confidential information contained therein should be marked as such in accordance with the provisions of Section 1500 of the NERC Rules of Procedure.

Name of Registered Entity submitting certification:

Entergy - Fossil & Hydroelectric Generation

Name of Standard of mitigation violation(s):

VAR-002-4.1

Requirement	Tracking Number	NERC Violation ID
R2.	SERC2019-404855	SERC2019021949

Date of completion of the Mitigation Plan:

8/31/2019

[Update Voltage Schedule Policy Clarity](#)

Milestone Completed (Due: 7/30/2019 and Completed 7/29/2019)

[Attachments \(0\)](#)

Transmission Planning will update the Voltage Schedule Policy to provide clarity on the expected voltage monitoring point for all entities (Power Generation, Nuclear Generation and Transmission).

[Update wording on the Voltage Schedule Policy](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/31/2019)

[Attachments \(0\)](#)

Transmission Planning will update wording on the Voltage Schedule Policy to clearly specify required conditions for notification for deviations from the voltage schedule.

[Review Power Generation procedure EF-PR-NERC- VAR-002](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/26/2019)

[Attachments \(0\)](#)

Review procedure to ensure it reflects any necessary changes due to these actions

[Shift Turnover](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/29/2019)

[Attachments \(0\)](#)

PGEN to ensure the PGEN shift turnover process is modified to include voltage deviations, voltage alarm reviews, and discussion of actions needed by the oncoming shift

[Retraining of PGEN Control Room Staff](#)

Milestone Completed (Due: 7/31/2019 and Completed 7/10/2019)

[Attachments \(0\)](#)

Re-Train PGEN control room personnel on how to respond to voltage schedule deviations, alarms, and notification requirements outlined in EF-PR-NERC-VAR-00

[Table Drills](#)

Milestone Completed (Due: 8/26/2019 and Completed 8/24/2019)

[Attachments \(0\)](#)

Power Generation will perform periodic table top drills to test all plant personnel's knowledge and response to an out-of-compliance scenario

[Re-Train TCC personnel](#)

Milestone Completed (Due: 8/29/2019 and Completed 8/19/2019)

[Attachments \(0\)](#)

Re-training will be provided to all TCC personnel on appropriate responses to Power Generation operations during communications about the voltage schedule deviations.

[PGEN Fleet Training](#)

Milestone Completed (Due: 8/31/2019 and Completed 8/21/2019)

[Attachments \(0\)](#)

PGEN Risk and Compliance will train PGEN fleet on EF-PR-NERC-VAR-002 revision

[VAR-002 Process development](#)

Milestone Completed (Due: 8/31/2019 and Completed 8/7/2019)

[Attachments \(0\)](#)

As a result of Nuclear self-report (SERC2017-402896) and this self-report, one VAR-002 process is being developed and will be common between Nuclear and Power Generation. Power Generation has reviewed the actions taken as a result of the Nuclear self-report (SERC2017-402896) and is taking advantage of Nuclear actions and Nuclear is reviewing the Power Generation actions in order to have one comprehensive VAR-002 program across the Entergy generation fleet

Summary of all actions described in Part D of the relevant mitigation plan:

Procedures and processes were revised as documented in the mitigation plan.

Description of the information provided to SERC for their evaluation *

Evidence of actions taken is attached to the mitigation plan.

I certify that the Mitigation Plan for the above-named violation has been completed on the date shown above. In doing so, I certify that all required Mitigation Plan actions described in Part D of the relevant Mitigation Plan have been completed, compliance has been restored, the above-named entity is currently compliant with all of the requirements of the referenced standard, and that all information submitted is complete, true and correct to the best of my knowledge.