

Staff Report

for the Board of Directors' Meeting of September 11, 2019

TO: Honorable Board of Directors

FROM: Keane Sommers, P.E., Hydroelectric Manager *KSS*
Matt Wheeler, P.E., Compliance Administrator

DATE: August 28th, 2019

SUBJECT: Nevada Irrigation District Internal Compliance Program
2018 Compliance Self-Assessment Summary Report (Consent)

HYDROELECTRIC

RECOMMENDATION:

Receive and file the 2018 Annual Report on NERC Compliance, prepared in accordance with the Nevada Irrigation District Internal Compliance Program, as recommended by the Water and Hydroelectric Operations Committee.

BACKGROUND:

As authorized by NID Board Policy 9400, the NID Internal Compliance Program (Section 5.4) requires that an Annual Compliance Review and Risk Assessment be performed. A summary of the results are to be presented to the General Manager and the Board of Directors. The Annual Risk Assessment was presented to the Water and Hydroelectric Operations Committee in April, then to the Board of Directors in May. The Annual Compliance Review is the subject of this agenda item.

Compliance Self-Assessment Requirement

Nevada Irrigation District is registered with the North American Electric Reliability Corporation (NERC) as a Generator Owner (GO) and Generator Operator (GOP) in the Western Electricity Coordinating Council (WECC) region. NID is responsible for compliance with NERC and WECC mandatory Reliability Standards as a GO/GOP under the authority of the U.S. Electric Power Reliability Act (and amendments).

Upon NERC notification, NID must self-certify its current compliance status with specified NERC Reliability Standards. Self-Certification is an attestation of compliance or non-compliance with specified NERC Reliability Standards for a given time period.

In 2018 no self-certification was required by NERC via the Western Electricity Coordinating Council (WECC)/NID Compliance Oversight Plan. The next self-certification is due in 2020 for the 2019 compliance year. However, NID's Internal Compliance Program requires annual self-assessment for compliance with reliability standards. The attached NID 2018 Annual Report on NERC Compliance (Report) was prepared to satisfy the requirement of the Internal Compliance Program.

Annual Compliance Summary

In total, approximately 322 Requirements were applicable to NID during 2018 as follows:

- 39 Operations and Planning (O&P) Reliability Standards
 - 219 GO-applicable Requirements
 - 87 GOP-applicable Requirements

- 2 Critical Infrastructure Protection (CIP) Reliability Standards
 - 16 additional Requirements

NID has not identified any acts of potential non-compliance for the 2018 calendar year. The attached Report provides additional detail on the applicable Requirements subject to enforcement, and NID's actions to maintain compliance.

NERC Reliability Standards continue to evolve and the rate of change continues to increase year by year. Next year, new Standards and Requirements will become enforceable and require implementation activities including; capital investments, operations & maintenance changes, and increased monitoring & reporting. As new/updated Standards become enforceable, the changing compliance environment will impact the maintenance of NID's procedures/programs/processes and will require additional training for District operations, maintenance, and compliance staff.

Staff presented the information and report at the August 13, 2019 Water and Hydroelectric Operation Committee (WHO Committee) for discussion. The WHO Committee asked about cost projections for ongoing compliance activities, given the ever-changing regulatory environment. It is difficult to accurately project the costs of District labor, equipment upgrades, and consultants necessary to remain in compliance with future regulations. In addition, some of the annual costs associated with Reliability Standard requirements are also considered Best Practices and/or normal maintenance activities (such as vegetation removal or protective equipment maintenance & replacement). However, below are a few examples of specific compliance efforts and associated costs during 2019:

2019 NERC/WECC Compliance Consultant Support Services	\$ 90,000
CPPH and DF2PH PRC-025-2 Compliance Assessment Study	\$ 10,400
CAISO Meter Testing (required every 2 years)	\$ 10,260
PSLF Simulation for CAISO Data Request	\$ 4,000

The WHO Committee received the information and recommended staff present the report to the full Board of Directors as a receive and file item.

This item supports District Strategic Goals 1 and 2 by ensuring compliance with the rules and regulations that govern District activities.

BUDGETARY IMPACT:

No budgetary impact.

KSS

Attachments (1):

NID 2018 Annual Self-Assessment Report on NERC Compliance

NID 2018 Annual Report on NERC Compliance

2/25/2019

Grid Subject Matter Experts

This report presents the findings of a self-assessment conducted to assess NID's state of compliance for calendar year 2018

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Executive Summary

Nevada Irrigation District (NID) is registered as a Generator Owner (GO) and Generator Operator (GOP) in the Western Electricity Coordinating Council (WECC) region. NID is responsible for all applicable GO Reliability Standard Requirements, and some of the GOP Reliability Standard Requirements under its Coordinated Functional Registration (CFR) with Pacific Gas and Electric (PG&E). Based on our review, NID does not have any North American Electric Reliability Corporation (NERC) Reliability Standard compliance gaps for calendar year 2018. In 2018, NID continued to improve its compliance posture and the overall maturity of its NERC compliance program, but the compliance burden is significant and only increasing. It is imperative that NID continue to allocate sufficient resources to the compliance program to avoid reliability and compliance shortfalls. This report summarizes NID’s compliance efforts and GridSME’s evaluation of NID’s compliance position in 2018.

Based on GridSME’s review at the time this 2018 self-assessment report was prepared, Reliability Standard changes listed in the table below will require NID’s focus and attention during 2019 and into 2020 to ensure compliance in advance of the respective enforcement dates. See “Looking Ahead” and GO/GOP “Compliance Findings” sections of this report for details regarding impending changes.

NERC Reliability Standard	Effective/Enforcement Date	NID Functional Registration/System Applicability	New or Revised Standard
EOP-004-4 – Event Reporting	04/01/2019	GO/GOP	Revised Standard – removes NID’s Requirement R3 obligation to validate contacts on an annual basis.
PRC-025-2 – Generator Relay Loadability	10/01/2019	GO	Revised Standard – imposes load-responsive protective relay settings based on evaluation.
CIP-003-7 – Security Management Controls	01/01/2020	Low Impact BES Cyber Systems	Revised Standard – affecting Requirements R1 and R2 and applicable Parts. New topics need to be addressed in NID’s Cyber Security Policy, and new Plans need to be developed and implemented prior to enforcement date.
PRC-026-1 Relay Performance During Stable Power Swings	01/01/2020 (R2 enforcement date)	GO	New Standard –applicability of R2.1 dependent on notification from NID’s Planning Coordinator that certain generation elements fall under R1 criteria listed in the Standard.
PER-006-1 – Specific Training for Personnel	10/1/2020	GOP	New Standard – adds additional training obligations for its applicable personnel.
PRC-027-1 Coordination of Protection Systems for Performance During Faults	10/1/2020	GO	New Standard – imposes additional Protection System study and settings requirements.

NERC Reliability Standard	Effective/Enforcement Date	NID Functional Registration/System Applicability	New or Revised Standard
TPL-007-2 <i>Transmission System Planned Performance for Geomagnetic Disturbance Events</i>	01/01/2022 (R6 enforcement date)	GO	Revised Standard – adds assessment requirements to GOs with applicable BES power transformers (NID applicability subject to further evaluation and action by planning entities).

Introduction

This report represents the 2018 annual report on NID’s compliance with NERC and WECC mandatory Reliability Standards. This annual report is required by the NID Internal Compliance Program (ICP) and serves to inform the NID Board of Directors and management of the status of NID’s NERC and WECC compliance program. The report first provides context for the NERC Reliability Standards by reviewing the history of major power grid events (i.e., blackouts), regulations, and the forming of NERC, as we know it today. Next, the report details the Reliability Standards applicable to a GO and reviews NID’s compliance against each Standard’s Requirement(s) for calendar year 2018. The report then details the same analysis for the GOP Standards applicable to NID, while also addressing the treatment of each GOP Standard Requirement under NID and PG&E’s Coordinated Functional Registration (CFR) agreement. Lastly, the report includes Reliability Standards applicable to a Critical Infrastructure Protection (CIP) low impact registered entity, and reviews NID’s compliance against the applicable CIP Reliability Standards.

Electric Reliability Background

The implementation of first voluntary and, more recently, mandatory Reliability Standards is a tale of cause and effect, action and reaction. In 1965, a blackout cut power to over 30 million people throughout the northeastern U.S. and eastern Canada. Shortly thereafter in 1967, Congress passed the U.S. Electric Power Reliability Act which proposed the creation of a council on power coordination. In 1968, the National Electric Reliability Council (later the North American Electric Reliability Council, then the North American Electric Reliability Corporation) was formed to orchestrate regional power coordination organizations and to exchange operational information and best practices. In 1977, another East Coast blackout led to the first electric reliability legislation which enabled the federal government to propose voluntary standards, an authority never exercised. Then, in August of 1996, two large scale outages on the Western Interconnection led to the creation of the first mandatory reliability standards through the contractual Reliability Management System managed by the Western Systems Coordinating Council (which later became the Western Electricity Coordinating Council). About this time, legislation calling for enforceable mandatory reliability standards was introduced to Congress.

On August 14, 2003, a cascading outage affected over 50 million people throughout the northeastern U.S. and eastern Canada. In response, Congress included Section 1211 in the omnibus Energy Policy Act of 2005. This section modified the Federal Power Act to require the creation of an Electric Reliability Organization under the oversight of the Federal Energy Regulatory Commission (FERC), and the development of mandatory and enforceable reliability standards for operations and planning as well as Critical Infrastructure Protection (CIP). NERC would become certified as the Electric Reliability

Organization by FERC the following year. The regulations established under this regime require utilities over the threshold of NERC's Compliance Registry Criteria to register with their Regional Entity, such as WECC, and comply with the reliability standards that apply to their registered functions (e.g. Generator Owner, Generator Operator, or Balancing Authority). The Reliability Standards became effective on June 18, 2007, for the operations and planning standards and on July 1, 2008, for the initial version of the CIP standards.

NID's Registration

For generation, the Registry Criteria require registration with the Regional Entity and NERC for those individual units that are at least 20 MVA, or an aggregate of greater than 75 MVA for dispersed generation units connected at a common interconnection point, that are connected to the Bulk Electric System (BES). As a GO that exceeds the NERC registry criteria (Dutch Flat 2 operates at 26.0 MVA, Chicago Park at 41.5 MVA), NID was required to register as a GO. NID submitted its initial registration application to WECC for its GO function on April 1, 2014, and was entered on the NERC Compliance Registry as both a GO and GOP on May 21, 2014.

According to NERC and WECC, each GO must also have an attendant GOP. PG&E has operated NID's hydroelectric Facilities at Chicago Park and Dutch Flat 2 since their initial construction under the terms of the Partnership Agreement. This underlying relationship between NID and PG&E was reaffirmed under NID's Power Purchase Agreement (PPA) with PG&E (with a term that began on July 1, 2013, and terminates on July 1, 2033), where PG&E remains primarily responsible for the generator operations and also performs the Scheduling Coordinator function for NID in the California Independent System Operator (CAISO) electricity market. It is because of this arrangement that NID challenged its registration as a GOP. In preparing for this registration appeal, NID worked closely with Peter Harman from the Minasian Law Firm and GridSME to put forth legal and technical arguments detailing why NID was incorrectly registered as a GOP. However, NID's GOP registration appeal was denied by the NERC Board of Trustees in April 2015.

In parallel with the appeal, NID also pursued a second track to ensure compliance with the Reliability Standards in the event its registration appeal was not successful. This second track involved the creation of a CFR Agreement between NID and PG&E. Under the CFR, NID and PG&E agreed to allocate the GOP obligations for NID's two registered generation Facilities. A CFR is a type of agreement authorized by the NERC Rules of Procedure "where two or more entities (parties) agree in writing upon a division of compliance responsibility among the parties for one or more Reliability Standard(s) applicable to a particular function, and/or for one or more Requirement(s)/sub-Requirement(s) within particular Reliability Standard(s)."

NID and PG&E reached agreement on the terms of the CFR Agreement in January 2015, and the agreement took effect on May 21, 2014, to coincide with the date on which NID originally registered with NERC. The CFR was revised and updated in 2016, and the revised agreement was executed by both parties in August, 2016. The current CFR Agreement reaffirms PG&E's role as the GOP for the NID hydroelectric Facilities and limits NID's GOP compliance activities (and associated compliance responsibility) to limited specific activities and circumstances.

Recapping 2018

In total, 39 Operations and Planning (O&P) Reliability Standards were applicable to NID as a GO/GOP during 2018. Of those 39 Reliability Standards, 28 contained GO-applicable requirements (219), and 15 contained GOP-applicable requirements (87). Two Critical Infrastructure Protection (CIP) Reliability Standards were applicable to NID as a low impact registered GO/GOP entity, adding an additional 16 requirements to NID's NERC compliance obligations. This equates to a total of approximately 322 requirements applicable to NID during 2018. Overall, as of the date of this assessment, NID has not identified any acts of potential non-compliance for the 2018 calendar year.

In 2017, NID filed a Self-Report for the PRC-019-2 Standard. On August 30, 2018, NID received a "Notice of Compliance Exception" (CE) from WECC for the PRC-019-2 Self-Report. WECC determined that "the referenced issue of noncompliance posed a minimal risk to the reliability of the BPS [Bulk Power System]," and that NID mitigated the issue appropriately. WECC's Notice of CE meant that it was "recorded and mitigated without triggering an enforcement action,"¹ and no penalty was imposed. (See PRC-019-2 section of this report for details regarding the filing.)

Looking Ahead

The NERC Reliability Standards continue to evolve and the rate of change does not appear to be diminishing. NID has retained the support of GridSME for extended compliance support during 2019. 2019 appears to be another busy year as new Standards and Requirements will become enforceable and require implementation activities by NID. In addition, GridSME has identified other key organizations (e.g., Peak RC and CAISO) whose changing roles will result in associated changes to NID's operations and compliance program. This adds to the number of time-sensitive compliance deadlines that must be addressed. In addition to maintaining compliance, generating evidence, and periodic reporting required for the currently enforceable Standards, GridSME will assist NID with staying apprised of developments at FERC, NERC, and WECC. 2019 Standard retirements, revisions, and newly enforceable additions will all impact the maintenance of NID's procedures/programs/processes and may impose additional training obligations, all of which will be monitored by GridSME in coordination with NID. The following list details the currently known changes that NID must address in 2019 to support readiness for upcoming deadlines.

GridSME will work with NID during 2019 to complete or support all documentation, implementation, and training activities needed to address the impending requirement changes.

- **CIP-003-6** (*Security Management Controls*): R2, Attachment 1 Sections 2 and 3: implementation of physical security and electronic access controls for low impact BES Cyber Systems. Original implementation date was 9/1/2018, however:
 - **CIP-003-7** (Update since 2018 report): CIP-003-7 was approved by FERC on April 19, 2018 with an effective date of 1/1/2020. The above-mentioned Attachment 1 implementation was deferred to the effective date of CIP-003-7, which is 1/1/2020. CIP-003-7 includes additional required items as follows:
 - R1.1.6 Declaring and responding to CIP Exceptional Circumstance (Policy)
 - R2 Attachment 1, new section 5: Transient Cyber Asset and Removable Media Malicious Code Risk Mitigation (Policy and Plan)

¹ NERC *Compliance Exception Overview*, March 23, 2016, 2.

- **EOP-004-4** (*Event Reporting*): Effective 4/1/19, this is a revision to the EOP-004 standard. Removes Requirement R3 obligation for performing an annual contact information validation. GridSME will conduct appropriate documentation and process updates in coordination with NID. Impact to operations considered minimal.
- **PRC-025-2** (*Generator Relay Loadability*): Effective 7/1/2018 and enforceable 10/1/2019. – PRC-025-2 Requirement R1 requires a GO to apply the settings provided in Attachment 1 of the standard to each of their applicable protective relays while maintaining reliable fault protection. Any changes deemed necessary to relays already in place require identified adjustments on or before 10/1/2019 (or later depending on the relay functions at issue). NID should first coordinate these recommended changes with CAISO and PG&E, and then incorporate the changes into NID's maintenance plans in early 2019.
- **PRC-026-1** (*Relay Performance During Stable Power Swings*): Effective 1/1/2018 – GO enforceable 1/1/2020. Requirements R2 through R4 are applicable to GOs who receive notification from its Planning Coordinator (PC) that specified generation BES elements meet the criteria listed in R1. In 2019 NID should monitor any notification from its PC to trigger its obligations under R2.1, and GridSME recommends NID conduct due diligence during Q3 2019 to reach out to its PC if no notification is received per the PC's annual R1 obligation. Attestations should be created annually for each year the PC does not notify NID.

The following Standards were approved by FERC during 2018 and are pending implementation:

- **CIP-003-7** (*Cyber Security Management Controls*) REVISED standard – enforceable 1/1/2020: applies to NID as low impact entity. See above section regarding CIP-003-6/7 for details.
- **PER-006-1** (*Specific Training for Personnel*) NEW Standard – enforceable 10/1/2020: applies to NID as GOP. NID will be required to train applicable personnel on the operational functionality of its protection systems. (Part of a NERC project involving PRC-027-1.)
- **PRC-027-1** (*Coordination of Protection Systems for Performance During Faults*) NEW Standard – enforceable 10/1/2020: applies to NID as GO. Imposes additional Protection System study and setting requirements. (Part of NERC project involving PER-006-1)
- **TPL-007-2** (*Transmission System Planned Performance for Geomagnetic Disturbance Events*) REVISED standard – enforceable 7/1/2019: applies to NID as GO (GO enforcement 2022 - to GOs with applicable BES power transformers.); adds power transformer thermal impact assessment requirements. (NID applicability to be evaluated.)

The following new Standard is pending FERC approval as of the date of this report, and may be applicable NID:

- **CIP-012-1** (*Communications between Control Centers*) – NEW Standard: protects Real-time Assessment and Real-time monitoring data transmitted between Control Centers. (If applicable Facility criteria falls within NID's footprint, the standard would apply to NID as GO/GOP.)

Other Industry Changes Affecting NID's Look Ahead

In August 2018, the CAISO updated Section 10 of its Business Practice Manual (BPM) for Transmission Planning Process to impose new generator modeling data requirements. The CAISO BPM for Transmission Planning Process (CAISO BPM TPP) now imposes various data modeling requirements on participating generators within the CAISO footprint. It identifies five categories of generators, based on nameplate

capacity and voltage connection; each category has specific data requirements that must be satisfied on a phased-in schedule. For those larger generators (e.g., Category 1), they must provide more data and on an accelerated schedule.

GridSME is working with NID to ensure CAISO’s implementation of the BPM is monitored and NID is updated on any changes that may affect their obligations with this process, and to ensure that NID’s deadlines are met.

NID Compliance Activities

NID’s Quarterly Meetings

NID’s quarterly Reliability Oversight Compliance Committee (ROCC) meetings will continue to play a very useful role in monitoring new developments, implementing changes, and maintaining compliance at NID. The addition of GridSME’s extended compliance support will serve to assist NID with the monitoring and maintenance of tasks. While far from easy, NID’s efforts to build a culture of compliance puts the organization on the right footing to achieve its reliability goals and minimize its regulatory risk.

Other Compliance Activities

On January 22, 2014, NID adopted an ICP which established the Reliability Oversight Compliance Committee (ROCC). A robust ICP, such as the one established by NID, is strongly encouraged by FERC, NERC, and WECC. These regulators believe that a well-designed and implemented ICP can help Registered Entities prevent, minimize, and mitigate grid reliability issues. Consequently, NERC and WECC therefore assign mitigating credit to entities with effective ICP’s, thereby reducing penalty assessments following compliance violations. In compliance with its ICP, NID’s ROCC met quarterly in 2018 to discuss NERC and WECC reliability compliance and other associated issues affecting NID. During 2018, the ROCC was comprised of key NID staff including Hydroelectric Manager (Keane Sommers), Assistant General Manager (Greg Jones), Senior Hydroelectric System Technician (Thomas Kluge), the Hydroelectric Compliance Administrator (Jacqueline Longshore), Information Technology Analyst (JR Lewis), and the Hydroelectric Compliance Technician I (Tina Konkle).

To assess the current state of NID’s compliance activities, GridSME conducted a table top “self-assessment” and review of NID’s compliance with the NERC and WECC Reliability Standards applicable to NID’s registrations. GridSME conducted this self-assessment by reviewing NID’s evidence in December 2018. On December 19, 2018, as part of the annual compliance review for NID’s self-certification of compliance, NID and GridSME reviewed the entirety of NID’s compliance with the Reliability Standards for 2018. The results of this exercise are detailed below.

Generator Owner Compliance Findings

2018 Reliability Standards Applicable to a Generator Owner

Reliability Standard	Standard Description	New 2018	Retired 2018
CIP-002-5.1a	Cyber Security – BES Cyber System Categorization	--	--
CIP-003-6	Cyber Security – Security Management Controls	--	--

EOP-004-3	Event Reporting	--	--
FAC-001-2	Facility Interconnection Requirements	--	12/31/2018 (v3 effective 1/1/2019)
FAC-002-2	Facility Interconnection Studies	--	--
FAC-003-4	Vegetation Management	--	--
FAC-008-3	Facility Ratings	--	--
IRO-010-2	Reliability Coordinator Data Specification and Collection	--	--
MOD-025-2	Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability	--	--
MOD-026-1	Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions	--	--
MOD-027-1	Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Functions	--	--
MOD-032-1	Data for Power System Modeling and Analysis	--	--
NUC-001-3	Nuclear Plant Interface Coordination	--	--
PRC-004-5(i)	Protection System Misoperation Identification and Correction	--	--
PRC-004-WECC-2	Protection System and Remedial Action Scheme Misoperation	--	--
PRC-005-1.1b	Transmission and Generation Protection System Maintenance and Testing	--	--
PRC-005-6	Protection System, Automatic Reclosing, and Sudden Pressure Relaying	--	--
PRC-015-1	Remedial Action Scheme Data and Documentation	--	--
PRC-016-1	Remedial Action Scheme Misoperations	--	--
PRC-017-1	Remedial Action Scheme Maintenance and Testing	--	--
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	--	--
PRC-019-2	Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection	--	--
PRC-023-4	Transmission Relay Loadability	--	--
PRC-024-2	Generator Frequency and Voltage Protective Relay Settings	--	--
PRC-025-1	Generator Relay Loadability	--	6/30/2018
PRC-025-2	Generator Relay Loadability	7/1/2018	--
PRC-026-1	Relay Performance During Stable Power Swings	1/1/2018	--

TOP-003-3	Operational Reliability Data	--	--
VAR-002-4.1	Generator Operation for Maintaining Network Voltage Schedules	--	--
VAR-501-WECC-3.1	Power System Stabilizer (PSS)	--	--

CIP-002-5.1a: Cyber Security – BES Cyber System Categorization

The purpose of CIP-002-5.1a is “to identify and categorize BES Cyber Systems and their associated BES Cyber Assets for the application of cyber security requirements commensurate with the adverse impact that loss, compromise, or misuse of those BES Cyber Systems could have on the reliable operation of the BES. Identification and categorization of BES Cyber Systems support appropriate protection against compromises that could lead to misoperation or instability in the BES.”

R1: CIP-002-5.1a R1 requires the identification and documentation of high, medium, and low impact BES Cyber Systems, if any, according to Attachment 1 of the Standard.

NID initially performed the identification and categorization in 2014, modified and updated the categorization in 2015, and again in December 2016. Effective July 1, 2016, the date the CIP version 5 Standards became effective, NID had identified the existence of only low impact BES Cyber Systems at its two BES assets (Dutch Flat and Chicago Park). This identification is documented within NID’s CIP-002-5.1a procedure.

R2: CIP-002-5.1a R2 requires the entity to review and update, if necessary, the identifications made in R1 at least once every 15 calendar months, and obtain the CIP Senior Manager’s approval of the identifications. The 2018 review was conducted in February 7, 2018. This review noted no changes to the categorization of NID’s BES assets and they remain low impact BES Cyber Systems. NID’s CIP Senior Manager (Keane Sommers) approved the identifications. Looking ahead, NID will need to complete the 2019 review of identifications made in R1 and obtain CIP Senior Manager approval on or before May 31, 2019.

CIP-003-6: Cyber Security – Security Management Controls

The purpose of CIP-003-6 is “to specify consistent and sustainable security management controls that establish responsibility and accountability to protect BES Cyber Systems against compromise that could lead to misoperation or instability in the Bulk Electric System (BES).”

R1-R2: Portions of CIP-003-6 became enforceable on July 1, 2016. Requirements R1.2 and R2 became enforceable on April 1, 2017. As a Registered Entity with only low impact BES Cyber Systems, R1.2, R2, R3, and R4 became enforceable to NID during 2018.

R1.2: CIP-003-6 R1.2 requires NID to review and obtain CIP Senior Manager approval once every 15 calendar months for one or more cyber security policies that address:

- Cyber security awareness;
- Physical security controls;
- Electronic access controls for Low Impact External Routable Connectivity; and
- Cyber Security Incident Response.

NID developed and implemented a cyber security policy addressing these areas. Keane Sommers, CIP Senior Manager, signed-off on the reviewed CIP-003 policy in June 2018, and December 2018.

Looking ahead to 2019, NID will need to perform a review of its CIP cyber security policy by March 31, 2020 (within the required 15 calendar month policy review time frame), and obtain CIP Senior Manager approval on or before that date. Note: In light of CIP-003-7 enforcement on January 1, 2020, NID's policy will need to be updated to meet the additional CIP-003-7 security topics, and therefore, the 15 calendar month review cycle subsequent to the 2018 review will be met at that time.

R2: NID also performed a Cyber Security Incident Response Plan (CSIRP) tabletop exercise on March 21, 2017. NID added the next testing date to their compliance calendar to ensure testing occurs on or before March 31, 2020 (within required 36 calendar month testing time frame). Additionally, cyber security awareness is required at least once every 15 calendar months.

NID carried-out several cyber security awareness activities for its personnel in 2018, including the below (with excerpts of the materials):

- *March 21, 2018 – Cyber-attack vectors focusing on Dragonfly cyber espionage campaign*

MITIGATION STRATEGIES:

- Symantec recommends customers use a layered approach to securing their environment, utilizing the latest Symantec technologies, including enterprise-wide security monitoring from Edge to Endpoint.
- Symantec recommends that all customers follow IT security best practices. These will help mitigate the initial infection vectors used by most malware, as well as prevent or slow the spread of secondary infections.
- Minimum Recommended Best Practices Include:
 - Use/Require strong user passwords (8-16+ alphanumeric characters, with at least 1 capital letter, and at least 1 special character)
 - Disable default user accounts
 - Educate users to void following links to untrusted sites
 - Always execute browsing software with least privileges possible
 - Turn on Data Execution Prevention (DEP) for systems that support it
 - Maintain a regular patch and update cycle for operating systems and installed software

- *June 20, 2018 – Malware targeting of Small Office/Home Office network devices*

The E-ISAC is aware of [Cisco's Talos](#) report on malware targeting Small Office/Home Office (SOHO) network devices manufactured by Linksys, MikroTik, NETGEAR and TP-Link, and potentially others. Cisco's Talos attributes the malware and campaign to compromise these devices to Nation-state threat actors. Reuters reports that Talos' cyber intelligence unit said with "high confidence" that "the Russian government is behind the campaign." They also raise the probability that this activity could be in preparation for an attack against Ukrainian assets. [Dragos](#) shared with the E-ISAC that the malware's capabilities include "traffic capture and monitoring for Modbus protocol traffic. Unfortunately, media reporting amplified the ICS capabilities of VPNFilter to include the possibility to launch destructive attacks against the electric grid. Dragos' analysis of available information does not support any claim that VPNFilter malware can be used to disrupt ICS networks, including electric grid operations." The E-ISAC believes, with medium confidence, that the information released by Talos may be accurate but the capabilities against Modbus or other industrial control equipment have not been verified. Additionally, the E-ISAC does not believe this activity changes the risk level for electricity companies in North America.

- September 5, 2018 – E-ISAC reported incidents, MS-ISAC top 10 malware review, email & password protocol, suspicious email reporting, Change Management policy review

Trust No Senders / Recent Examples

- Do not open anything that you're not explicitly expecting
- Do not open anything from senders that you don't know
- Do not open any links without verifying them first
- Do not ignore errors, warnings, and prompts
- If something seems 'off' it probably is
- Check Times, Senders, Hover over links
- Report to IT Immediately

NEVADA IRRIGATION DISTRICT

Phishing Reporting Process

- Create a new Email to ITSupport@nidwater.com
- Put 'Suspicious Email' in the subject
- In the body provide specific information about the email
 - When it was received, who was the sender
 - Indicate if the email was 'read' as in previewed, opened, or if any links were clicked within the email
 - Straight forward honesty is incredibly important here as it will help us to determine how to respond
- IT may ask you to forward the email as an attachment if they are unable to locate a copy of the original

NEVADA IRRIGATION DISTRICT

Passwords

- Which password is more secure?
- P@sswOrd! – Four weeks, Hard to Remember
- SwimRun20 – Four Days, Easy to Remember
- MySuperSecurePassword2018! – 263 Decillion Years, Easy to Remember
- Longer password is better than difficult password

NEVADA IRRIGATION DISTRICT

Passwords

NEVADA IRRIGATION DISTRICT

- November 28, 2018 – Emotet malware, associated password reuse and risk, password tips

Phishing sites are focusing on credential gathering, and Trojans like Emotet are still successful and destructive. NID has a password policy that you are forced to adhere to, but it doesn't mean that you aren't using the same bad password at NID that you are using for your personal email, banking site, candy crush account, etc.

Please stop reusing passwords. IT recently had an employee come to us because they received a personal email that had a portion of their computer password in it, and the email was essentially blackmail. The user was taken in, and we don't know for sure if money was exchanged. But we do know that because of their password reuse, it was impossible for the user to actually know if their computer was compromised, or just their Instagram account.

We have some suggestions....

- Come up with new passwords for every service, site, and need
 - Use a password manager (if you trust one)
 - Incorporate a key word or phrase and a system into your password selections
 - Use another easy to get to method of recording the passwords like email, or contact list, but never spell them out

An example for consideration.. Say your key phrase is "PumpkinSpice". Maybe the password for your home computer could be "PumpkinSpiceHomePC2018!"?

Chase account? "PumpkinSpiceChaseChecking2018!"

NID? "PumpkinSpiceLoveMyJob2018!"

What happens when you need to change your password in 90 days? "PumpkinSpiceLoveMyJob2019Q1!"

Based on the date of the last cyber security awareness distribution, NID will need to conduct its next cyber security awareness activity on or before February 28, 2020 to ensure the 15 calendar month requirement is met.

R3: CIP-003-6 R3 requires NID to identify a CIP Senior Manager and document any changes within 30 calendar days of the change. NID has met R3 by designating Keane Sommers as the CIP Senior Manager. There were no changes to this designation during 2018.

R4: CIP-003-6 R4 requires a documented process if the CIP Senior Manager were to delegate CIP Senior Manager authority where allowed by the CIP Standards. Keane Sommers did not delegate any CIP Senior Manager authority during 2018.

EOP-004-3 – Event Reporting

The purpose of EOP-004-3 is “to improve the reliability of the Bulk Electric System by requiring the reporting of events by ‘Responsible Entities.’”

Under the CFR Agreement with PG&E, NID is responsible for EOP-004-3 as it pertains to its own Facilities and operations. Based on GridSME’s review at the time this report was prepared, NID has indicated compliance with this standard for the 2018 calendar year.

R1: EOP-004-3 R1 requires NID to have an event reporting Operating Plan in accordance with Attachment 1 of EOP-004. NID remained compliant with R1 by maintaining its Event Reporting Operating Plan. There were no Reportable Events, suspected or otherwise, in 2018 that required the initiation of NID’s plan.

R2: EOP-004-3 R2 requires NID to report events per their Operating Plan within 24 hours of recognizing an event meeting the threshold for reporting. Since there were no Reportable Events identified during 2018, NID remained compliant with R2.

R3: EOP-004-3 R3 requires NID to validate the third-party contact information contained within the Emergency Operating Plan at least once per calendar year. NID validated the third-party contact information contained within its Event Reporting Operating Plan in July 16, 2018, with an update in November 2018.

Requirement R3 will be retired upon EOP-004-4 implementation on April 1, 2019. It is recommended that NID conduct contact validation prior to April 1, in order to fulfill the contact validation requirement for the portion of 2019 that the requirement remains enforceable.

FAC-001-2 – Facility Interconnection Requirements

The purpose of FAC-001-2 is “to avoid adverse impacts on the reliability of the Bulk Electric System, Transmission Owners and applicable Generator Owners must document and make Facility interconnection requirements available so that entities seeking to interconnect will have the necessary information.”

FAC-001-2 applies to GOs “with a fully executed Agreement to conduct a study on the reliability impact of interconnecting a third party Facility to the [GOs] existing Facility that is used to interconnect to the Transmission system.” NID did not enter into an Agreement to study the reliability impact of interconnecting third party Facilities to NID’s existing Facilities; therefore, FAC-001-2 (R2) was not applicable to NID during 2018. For the 2018 calendar year, NID created an FAC-001-2 attestation stating

this, which has been executed by Keane Sommers. (Note: FAC-001-2 was retired December 31, 2018, replaced by FAC-001-3).

FAC-002-2 – Facility Interconnection Studies

The purpose of FAC-002-2 is “to study the impact of interconnecting new or materially modified Facilities on the Bulk Electric System.”

FAC-002-2 applies to GOs “with a fully executed Agreement to conduct a study on the reliability impact of interconnecting a third party Facility to the [GO’s] existing Facility that is used to interconnect to the Transmission system.”

NID did not enter into an Agreement to study the reliability impact of interconnecting third party Facilities to NID’s existing Facilities; therefore, FAC-002-2 (R2 and R5) did not apply to NID during 2018. For the 2018 calendar year, NID has documented non-applicability with an FAC-002-2 attestation signed by Keane Sommers.

FAC-003-4 – Vegetation Management

The purpose of FAC-003-4 is “to maintain a reliable electric transmission system by using a defense in-depth strategy to manage vegetation located on transmission rights of way (ROW) and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation related outages that could lead to Cascading.”

NID does not own any Facilities in the Applicability criteria for FAC-003-4. NID has documented this in an attestation signed by Keane Sommers.

FAC-008-3 – Facility Ratings

The purpose of FAC-008-3 is “to ensure that Facility Ratings used in the reliable planning and operation of the Bulk Electric System is based on technically sound principles.” These Facility Ratings, in turn, are used to develop System Operating Limits.

R1, R6, R2: FAC-008-3 requires NID to document the determination of its Facility Ratings (R1, R6), and have a documented methodology for determining its Facility Ratings from the step-up transformer up to the point of interconnection (R2). NID documented its Facility Ratings and implemented its Facility Ratings methodology in July 2013. Pertaining to R2, NID did not make any modifications to its Facility Ratings methodology in 2018.

R7, R8: During 2018, NID did not receive any requests from third-party entities pertaining to its Facility Ratings, nor was NID scheduled to provide information to third-party entities in 2018.

IRO-010-2 – Reliability Coordinator Data Specification and Collection

The purpose of IRO-010-2 is “to prevent instability, uncontrolled separation, or Cascading outages that adversely impact reliability, by ensuring the Reliability Coordinator has the data it needs to monitor and assess the operation of its Reliability Coordinator Area.”

R3 through R3.3: IRO-010-2 R3 requires GOs and GOPs to submit data to their Reliability Coordinator (RC) as per the RC’s documented data specifications. NID has executed an attestation stating it has not had any affirmative duties under IRO-010-2 and predecessor Standard versions. Additionally, per Peak Reliability’s Reliability Coordinator Data Request and Specifications for Data Provision, GOs do not have

direct data provisioning requirements under the Standard. Further, PG&E has agreed, per the CFR, to be the responsible party to perform the GOP requirements under IRO-010-2 on behalf of CP and DF2. To the extent that RC services will be provided by CAISO starting in 2019 for its BAA, GridSME will continue to work with NID to make any procedure or program updates to reflect this change.

MOD-025-2 – Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability

The purpose of MOD-025-2 is “to ensure that accurate information on generator gross and net Real and Reactive Power capability and synchronous condenser Reactive Power capability is available for planning models used to assess Bulk Electric System (BES) reliability.”

R1, R2: MOD-025-2 R1 requires a GO to verify the Real Power capability of its facilities and submit a completed Attachment 2 form to its Transmission Planner (TP), which is PG&E, within 90 calendar days of verification. Similarly, R2 requires a GO to verify and complete Attachment 2 regarding the Reactive Power capability of its facilities.

In November 2016, NID performed staged testing at CP and submitted the data to PG&E (as the TP), thereby making NID 50% compliant with MOD-025-2 R1 and R2 at the end of 2016. To maintain compliance with MOD-025-2 in 2017, NID was required to perform the MOD-025-2 staged testing and meet R1 and R2 for DF2 by July 1, 2017, at which time NID needed to meet the 60% phased-in compliance implementation timeline requirement.

To meet the 60% phased-in compliance requirement, NID performed the remaining MOD-025 staged test at DF2 in April 2017. The Attachment 2 data was compiled, and the report prepared and submitted to PG&E shortly thereafter, making NID 100% compliant with MOD-025-2 at that time.

In February 2018, a Power System Stabilizer (PSS) was installed on DF2. NID determined via the installation vendor that MOD-025-2 testing was not required as the PSS installation did not change real or reactive power capability by more than 10%.

MOD-026-1 – Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions

The purpose of MOD-026-1 is to “verify that the generator excitation control system or plant volt/var control function1 model (including the power system stabilizer model and the impedance compensator model) and the model parameters used in dynamic simulations accurately represent the generator excitation control system or plant volt/var control function behavior when assessing Bulk Electric System (BES) reliability.”

In the Western Interconnection, MOD-026-1 is applicable to individual generating units greater than 75 MVA (gross nameplate rating). Therefore, this Standard and its Requirements are not applicable to NID’s CP and DF2 generators. NID has documented non-applicability with a MOD-026-1 attestation signed by Keane Sommers.

MOD-027-1 – Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Functions

The purpose of MOD-027-1 is to “verify that the turbine/governor and load control or active power/frequency control model and the model parameters, used in dynamic simulations that assess Bulk

Electric System (BES) reliability, accurately represent generator unit real power response to system frequency variations.”

Just the same as MOD-026-1, MOD-027-1 is applicable to individual generating units in the Western Interconnection greater than 75 MVA (gross nameplate rating). Therefore, this Standard and its Requirements are not applicable to NID’s CP and DF2 generators. NID has documented non-applicability with a MOD-027-1 attestation signed by Keane Sommers.

MOD-032-1 – Data for Power System Modeling and Analysis

The purpose of MOD-032-1 is to “establish consistent modeling data requirements and reporting procedures for development of planning horizon cases necessary to support analysis of the reliability of the interconnected transmission system.”

R2: MOD-032-1 R2 requires a GO to provide steady-state, dynamics, and short circuit modeling data to its Planning Coordinator (PC) (CAISO) and Transmission Planner (TP) (PG&E), as scheduled or upon request. The relevant data was last provided to CAISO and PG&E under the WECC Generating Unit Model Validation Policy. For CP, there have been no changes since and no communications from either the PC or TP regarding requests for new data or technical concerns regarding the existing data. NID has made no changes to the CP facility that would necessitate resubmitting or updating the existing model, in accordance with the ISO-PG&E MOD-032-1 Requirements document titled “CAISO & PG&E Joint Transmission Planning Base Case Preparation Process,” dated September 2017.

The excitation system upgrade at DF2 did necessitate an update to DF2’s steady state and dynamic model data. NID worked on model data updates with its third-party vendors. These model updates were completed and submitted to CAISO and PG&E in April 2018, within the 180-day data requirement.

NUC-001-3 – Nuclear Plant Interface Coordination

The purpose of NUC-001-3 is to “[require] coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown.”

NID does not provide services related to Nuclear Plant Interface, therefore NUC-001-3 is not applicable to NID as a GO.

PRC-004-5(i) – Protection System Misoperation Identification and Correction

The purpose of PRC-004-5(i) is to “identify and correct the causes of Misoperations of Protection Systems for Bulk Electric System (BES) Elements.”

R1 through R6: In the event of a Misoperation, all requirements of the standard are applicable to NID as a GO. For each BES interrupting device operation, NID is required to determine if a Misoperation has occurred. If it is determined that a Misoperation occurred, NID is required to notify affected parties, determine the cause of the Misoperation, and develop and implement a Corrective Action Plan to avoid similar Misoperations in the future. NID is also required to report all Protection System operations quarterly via NERC’s MIDAS portal.

NID maintains a detailed log of Protection System operations, and each operation is analyzed to determine its appropriateness. When an operation event occurs, NID prepares a report to document the event, evaluate whether the event was a correct operation or a Misoperation, and then make a determination. The report is then reviewed and approved. These event reports are on file for each operation during 2018.

NID had several Protection System operations during 2018, but only one was determined to be a Misoperation. In May 2018 NID experienced a relay operation (tripping) at Chicago Park. After a thorough evaluation, the operation was deemed a Misoperation of an “unnecessary trip – other than fault” due to an “incorrect setting, logic or design error” (NERC cause labels). The tripping was due to actuation of the 64G2 element while voltage was being lowered on the unit remotely. No other equipment failures were identified. NID developed a Corrective Action Plan (CAP) as required under PRC-004-5(i), and submitted details regarding the Misoperation to WECC via NERC’s Misoperations Information Data Analysis System (MIDAS) portal, as required. The CAP was completed September 28, 2018, and WECC was notified of the completion via MIDAS. To date, aside from WECC requesting a cause code, no further follow-up has been received from WECC, indicating closure of the Misoperation reporting obligation for this event. Additionally, NID conducted all of the required protection system related notifications to appropriate entities as per PRC-001-1.1(i).

NID submitted all other necessary quarterly reports through the MIDAS portal, and all Protection System operations were properly reported via MIDAS.

PRC-004-WECC-2 – Protection System and Remedial Action Scheme Misoperation

PRC-004-WECC-2 is a FERC-approved WECC regional Reliability Standard. The purpose of this standard is to “ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in [the Major WECC RAS table] are analyzed and/or mitigated.”

NID is not subject to PRC-004-WECC-2 as the Regional Standard only applies to generators in the WECC region that own RAS equipment that is part of a Major WECC RAS. Even though NID does not own or operate any RAS equipment, NID is still required to submit, and has submitted, the necessary quarterly reports to WECC via webCDMS. NID has documented non-applicability with a PRC-004-WECC-2 attestation signed by Keane Sommers.

Note: On February 8, 2018, the NERC Board of Trustees approved retirement of PRC-004-WECC-2. WECC and NERC submitted a petition to FERC in March 2018 to approve retirement of PRC-004-WECC-2 stating “the reliability-related content of the standard is covered in other NERC Standards.” WECC also made a request to coordinate the retirement date of PRC-004-WECC-2 with the 1/1/2021 effective date of PRC-012-2.

PRC-005-1.1b – Transmission and Generation Protection System Maintenance and Testing

The purpose of PRC-005-1.1b is “to ensure all transmission and generation Protection Systems affecting the reliability of the Bulk Electric System (BES) are maintained and tested.” PRC-005 is one of the most commonly violated Reliability Standards.

NID’s Protection System Maintenance Program (PSMP) follows the Requirements and associated Tables of PRC-005-6, therefore, PRC-005-1.1b is not applicable to Chicago Park and Dutch Flat 2. NID maintains an attestation signed by Keane Sommers affirming this fact.

PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance

The purpose of PRC-005-6 is “to document and implement programs for the maintenance of all Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying affecting the reliability of the Bulk Electric System (BES) so that they are kept in working order.” PRC-005-6 went into effect January 1, 2016. PRC-

005-6 brought Automatic Reclosing and Sudden Pressure Relaying Devices in-scope for PRC-005. NID's PSMP was updated in 2016 to include Automatic Reclosing and Sudden Pressure Relaying Protection System relays.

R1: PRC-005-6 R1 requires NID to develop and maintain a PSMP.

R2, R4: PRC-005-6 R2 and R4 are applicable to entities using performance-based maintenance intervals in its PSMP. NID has decided to follow a time-based maintenance interval program, therefore, R2 and R4 are not applicable to NID. NID maintains an attestation signed by Keane Sommers affirming this fact.

R3: PRC-005-6 R3 is applicable to entities utilizing time-based maintenance intervals. NID utilizes time-based maintenance intervals, and therefore, is obligated under R3 to perform the minimum maintenance activities within the maximum maintenance intervals provided by the standard.

NID performed all required maintenance activities in 2018, and there were no Unresolved Maintenance Issues identified during 2018. Additionally, NID did not identify any monitoring attributes for its Protection Systems, and therefore uses a more conservative, shorter maintenance time interval for unmonitored components.

R5: PRC-005-6 R5 requires NID to correct identified Unresolved Maintenance Issues, should any arise. NID did not identify any Unresolved Maintenance Issues during 2018, and maintains an attestation signed by Keane Sommers stating that NID had no obligation to comply with PRC-005-6 R5 during 2018.

Due to the complete replacement of CP's relays in 2017, GridSME began working with NID in 2018 to update its PRC-005 component list to reflect the current components associated with NID's PRC-005 PSMP. The updated list is expected to be complete during Q1 of 2019.

NID has done an excellent job of maintaining and testing its Protection Systems in accordance with its PSMP. Jacqueline Longshore and Tina Konkle maintained an evidence folder of all maintenance and testing activities performed by NID maintenance and operations staff during 2018.

PRC-015-1 – Remedial Action Scheme Data and Documentation

The purpose of PRC-015-1 is to “ensure that all Remedial Action Schemes (RAS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”

NID does not own any Remedial Action Schemes (RAS) and is therefore not subject to this standard. NID maintains attestations signed by Keane Sommers affirming this fact.

PRC-016-1 – Remedial Action Scheme Misoperations

The purpose of PRC-016-1 is to “ensure that all Remedial Action Schemes (RAS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”

PRC-016-1 requires that responsible entities perform an analysis of operations that occur on their RAS. NID does not own any RAS and is therefore not subject to this standard. NID maintains attestations signed by Keane Sommers affirming this fact.

PRC-017-1 – Remedial Action Scheme Maintenance and Testing

The purpose of PRC-017-1 is to “ensure that all Remedial Action Schemes (RAS) are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.”

This standard is very similar to PRC-005, in that it requires a maintenance and testing plan, but is only for RAS. NID does not own any RAS and is therefore not subject to this standard. NID maintains an attestation signed by Keane Sommers affirming this fact.

PRC-018-1 – Disturbance Monitoring Equipment Installation and Data Reporting

The purpose of PRC-018-1 is to “ensure that Disturbance Monitoring Equipment (DME) is installed and that Disturbance data is reported in accordance with regional requirements to facilitate analyses of events.”

PRC-018-1 sets forth requirements for disturbance monitoring equipment installation and data reporting. NID does not own any disturbance monitoring equipment (DME), has not been requested to install DME, and is therefore not subject to this Standard. NID maintains an attestation signed by Keane Sommers on affirming this fact.

PRC-019-2 – Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection

The purpose of PRC-019-2 is “to verify coordination of generating unit Facility or synchronous condenser voltage regulating controls, limit functions, equipment capabilities and Protection System settings.”

R1: PRC-019-2 R1 requires NID to coordinate its applicable voltage regulating system controls with the settings of the applicable Protection Systems at least every five years.

R2: PRC-019-2 R2 requires NID to perform the coordination described in R1 upon implementation of systems or settings that will affect the current coordination. PRC-019-2 follows a staged implementation timeline, which required GOs to meet the compliance Requirements for at least 40% of its applicable Facilities by July 1, 2016, and at least 60% of its applicable Facilities by July 1, 2017.

The coordination analysis of CP’s voltage regulating system controls with the settings of the applicable Protection Systems was documented in 2016 by Sage Engineers. The finding of this coordination analysis is that CP relays and in-service limiters were properly coordinated.

Recap and update regarding 2017 PRC-019-2 Self-Report: to meet the 60% or greater July 1, 2017, phased-in compliance threshold, NID performed and documented this coordination analysis for DF2 in early 2017. However, the analysis showed that DF2’s UEL could not be confirmed to be above the stator limiting curve and protective trip elements. This finding did not necessarily demonstrate DF2’s UEL to be out-of-compliance with PRC-019, but rather that NID could not positively affirm DF2’s UEL to be compliant with PRC-019. Because it could not positively affirm compliance with the PRC-019 60% phased-in compliance threshold, NID filed a self-report with WECC in September 2017. In the self-report, NID demonstrated to WECC that the non-compliance event did not pose a reliability risk to the Bulk Power System (BPS), at no time did DF2 disconnect from the BES during the noncompliance period due to the in-service limiters failing to operate prior to the DF2 Protection Systems, and that the matter would be addressed in the upcoming fall 2017 outage with the DF2 excitation system upgrade.

After the 2017 fall outage, NID re-performed the PRC-019 analysis for DF2 using the MOD-025 staged test data. The PRC-019 analysis and report confirmed compliance with the Standard and NID became 100% compliant with PRC-019 on November 27, 2017. The resulting Mitigation Plan was subsequently shared with WECC on January 9, 2018. WECC accepted NID's Mitigation Plan on April 20, 2018 and verified its completion on May 17, 2018. NID received a Notice of Compliance Exception from WECC on August 30, 2018. WECC determined that "the referenced issue of noncompliance posed a minimal risk to the reliability of the BPS and [had] been appropriately mitigated."

PRC-023-4 – Transmission Relay Loadability

The purpose of PRC-023-4 is to maintain protective relays within the following parameters: "protective relay settings shall not limit transmission loadability; not interfere with system operators' ability to take remedial action to protect system reliability and; be set to reliably detect all fault conditions and protect the electrical network from these faults."

PRC-023-4 addresses transmission relay loadability, but only applies to a limited set of generators that have a load-responsive phase protection system(s). NID does not own any of the equipment listed in Attachment A of this standard, and is, therefore, not an applicable entity for the Standard.

To verify this, in 2017 NID obtained from CAISO the "CAISO List of Facilities below 100 kV Potentially Subject to PRC-023-3 Transmission Relay Loadability for Compliance with Requirements R6, R6.1, R6.2 of PRC-023-3" document, and verified that NID facilities are not listed. Additionally, NID maintains a PRC-023-4 attestation signed by Keane Sommers affirming this fact.

PRC-024-2 – Generator Frequency and Voltage Protective Relay Settings

The purpose of PRC-024-2 is to "Ensure Generator Owners set their generator protective relays such that generating units remain connected during defined frequency and voltage excursions."

R1 through R4: PRC-024-2's implementation plan required that GOs meet R1 through R4 for at least 60% of its applicable Facilities by July 1, 2017, and at least 80% by July 1, 2018. Requirements R1 and R2 require a GO to set any frequency and voltage protective relaying to not trip in the "no-trip zone" designated by the Standard. Requirement R3 requires a GO to document and communicate to its PC and TP if it is unable to set its protective relaying to not trip in the "no trip zone," while R4 requires the GO to provide its trip settings to a PC or TP upon request. Completion of 100% of applicable Facilities is due on or before July 1, 2019.²

There were no PRC-024-2 components added or replaced during 2018. NID maintains a 2018 PRC-024-2 attestation signed by Keane Sommers affirming this fact.

PRC-025-1 and PRC-025-2 – Generator Relay Loadability

The purpose of PRC-025-1/2 is "to set load-responsive protective relays associated with generation Facilities at a level to prevent unnecessary tripping of generators during a system disturbance for conditions that do not pose a risk of damage to the associated equipment."

² NID contracted with Kyle Baskin during the second quarter of 2016 to assess and document its compliance with PRC-024-2. Mr. Baskin's report found CP and DF2 to be fully compliant (100% of applicable Facilities completed) with PRC-024 as of the July 1, 2016 enforcement date.

On July 1, 2018, PRC-025-2 went into effect and is not enforceable until October 1, 2019 (superseding the July 1 enforcement date of PRC-025-1).

R1: PRC-025-2 has only one requirement, R1, which requires a GO to apply the settings provided in Attachment 1 of the standard to each of their applicable protective relays while maintaining reliable fault protection.

In early 2018, the pickup settings on the DF2 11TA and 11TB relays were modified to meet the requirements of PRC-025. In February 2018, following the 2017 CP relay replacement and upgrade project, Kyle Baskins performed a PRC-025-1 analysis for CP, and prepared a report documenting his findings. Mr. Baskin's analysis found that overcurrent or distance pickup changes *are* recommended at CP. NID will need to make any changes and document appropriate relay setting changes prior to PRC-025-2's October 1, 2019, enforcement date (or later depending on the relay functions within scope under PRC-025-2's Implementation Plan). NID should first coordinate these recommended changes with CAISO and PG&E, and then incorporate the changes into NID's maintenance plans in early 2019.

PRC-026-1 - Relay Performance During Stable Power Swings

The purpose of PRC-026-1 is to "ensure that load-responsive protective relays are expected to not trip in response to stable power swings during non-Fault conditions." PRC-026-1 went into effect January 1, 2018. GO applicable requirements within the Standard are enforceable January 1, 2020; applicability is dependent on notification (annually) from the GO's Planning Coordinator (PC) pursuant to R1.³

R2: Requirement R2 requires a GO to determine within 12 calendar months of notification from its PC, whether its identified load-responsive protective relay(s) applied to its BES Element meets the criteria in PRC-026-1 – Attachment B (for BES Elements not evaluated pursuant to PRC-026-1 – Attachment B in the last five calendar years). For Generator, transformer, or transmission line BES Elements that trip in response to stable or unstable power swings "due to the operation of its protective relay(s)," Requirement R2.2 requires GOs to "determine whether its load-response relay(s) applied to that BES Element meets the criteria in PRC-026-1 – Attachment B."

R3: If a GO determines a load-responsive protective relay does not meet the PRC-026-1 – Attachment B criteria as per Requirement R2, Requirement R3 requires the GO to develop a Corrective Action Plan (CAP) within six full calendar months of that determination. The CAP must meet one of the criteria listed in the PRC-026-1 R3 Requirement description.

R4: Requirement R4 requires the GO to implement the CAP developed per Requirement R3, and "update each CAP if actions or timetables change until all actions are complete."

Based on GridSME's review at the time this report was prepared, NID has not received notice from its PC that it has BES generation Elements identified pursuant to Requirement R1. If NID does not receive notification from its PC during the remainder of 2019, an attestation should be created in 2020 affirming that the PC did not notify NID that it has applicable BES Elements during 2019, such that NID had no

³ PRC-026-1 R1: *Each Planning Coordinator shall, at least once each calendar year, provide notification of each generator, transformer, and transmission line BES Element in its area that meets one or more of the following criteria, if any, to the respective Generator Owner and Transmission Owner [See PRC-026-1 R1 for criteria].*

compliance obligation pursuant to Requirement R2.1, and subsequent obligations required under R3 and R4.

TOP-003-3 – Operational Reliability Data

The purpose of TOP-003-3 is to “ensure that the Transmission Operator and Balancing Authority have data needed to fulfill their operational and planning responsibilities.”

R5 through R5.3: TOP-003-3 R5 is the only TOP-003 requirement applicable to GOs. It requires that a GO receiving a data specification in Requirement R3 or R4 satisfy the data request obligation using a mutually agreeable format, process for resolving data conflicts, and security protocol. CAISO’s TOP-003-3 Data Specifications procedure 3140, and the associated 3140A attachment (CAISO’s TOP-003 data specifications documents), are applicable to NID as a GO in CAISO’s BA territory. In the CAISO 3140A Operating Procedure Attachment, only request number 6.8.1 applies to a GO. NID meets the data request 6.8.1 as it has provided CAISO with CP and DF2’s connectivity, gross and net MW maximum and reactive capabilities, MVAR minimum and maximum capabilities, a list of units normally on AVR, and voltage setpoints with high and low ranges representing voltage regulation criteria.

VAR-002-4.1 – Generation Operation for Maintaining Network Voltage Schedules

The purpose of VAR-002-4.1 is to “ensure generators provide reactive support and voltage control, within generating Facility capabilities, in order to protect equipment and maintain reliable operation of the Interconnection.”

R5 and R6: VAR-002-4.1 R5 and R6 requires GOs to provide their Transmission Operator (TOP) and TP with certain information regarding its step-up and auxiliary transformers within 30 calendar days of a request, and ensure that transformer tap positions are changed according to the specifications provided by the TOP. In 2018, NID did not received a request from its TOP regarding step-up or auxiliary transformer information. Further, NID did not make changes to transformer tap positions or settings during the year.

VAR-501-WECC-3.1 – Power System Stabilizers (PSS)

The purpose of Regional Reliability Standard VAR-501-WECC-3.1 is “to ensure the Western Interconnection is operated in a coordinated manner under normal and abnormal conditions by establishing the performance criteria for WECC power system stabilizers.”

NID owns and maintains PSS. NID installed PSS capabilities on DF2 in February 2018.

R1: VAR-501-WECC-3.1 R1 requires a GO provide its TOP with the GO’s written Operating Procedure or other document(s) describing those known circumstances during which the GO’s PSS will not be providing an active signal to the Automatic Voltage Regulator (AVR). Further, R1 also requires a GO provide the same Operating Procedure or other document to its TOP within 180 days of a new PSS’s Commercial Operation date, or any changes to the PSS operating specifications.

R3: VAR-501-WECC-3.1 R3 places PSS tuning requirements on the GO. The DF2 PSS was installed in February 2018, and NID was able to meet the R3 tuning requirements.

R4: The enforcement of new requirement VAR-501-WECC-3/3.1 R4 in 2017 forced NID into a material capital expenditure and the alteration of an outage in February 2018. R4 requires a GO to install and complete start-up testing of a PSS on its generator within 180 days of either of the following events (phased-in during 2017):

- The GO connects a generator to the BES, after achieving Commercial Operation, or
- The GO replaces the voltage regulator on its existing excitation system, after achieving Commercial Operation for its generator that is connected to the BES.

As the DF2 excitation system was completely replaced in September 15, 2017, R4 became applicable to NID. As DF2 returned from the excitation system replacement outage on October 10, 2017, it had 180 days from that date to replace the excitation system. NID installed the PSS on DF2 on February 22, 2018; therefore, NID met the 180-day time-frame stipulated in R4.

R5: VAR-501-WECC-3.1 R5 requires a GO to repair or replace a PSS within 24 months of that PSS becoming incapable of meeting the tuning requirements specified in R3. As the CP PSS remained capable of meeting the tuning requirements throughout 2018, NID maintained compliance with R5.

Generator Operator Compliance Findings

2018 Reliability Standards Applicable to a Generator Operator

Reliability Standard	Standard Description	CFR Treatment	New 2018	Retired 2018
CIP-002-5.1a	BES Cyber System Categorization	PG&E and NID	--	--
CIP-003-6	Security Management Controls	PG&E and NID	--	--
BAL-005-0.2b	Automatic Generation Control	PG&E only	--	12/31/2018 (Removed GOP obligation)
COM-001-3	Communications	PG&E only	--	--
COM-002-4	Operating Personnel Communications Protocol	PG&E and NID (Normal)	--	--
EOP-005-2	System Restoration from Blackstart Resources	N/A	--	--
IRO-001-4	Reliability Coordination Responsibilities and Authorities	PG&E only	--	--
NUC-001-3	Nuclear Plant Interface Coordination	N/A	--	--
PER-005-2	Operations Personnel Training	N/A	--	--
PRC-001-1.1(ii)	System Protection Coordination	PG&E and NID (Normal and Partial)	--	--
TOP-001-3	Transmission Operations	PG&E only	--	6/30/2018
TOP-001-4	Transmission Operations	PG&E only	7/1/2018	--
TOP-003-3	Operational Reliability Data	PG&E and NID (R5 Normal for both PG&E and NID w/ individual DR items partial or PG&E-full depending on the DR#)	--	--
VAR-001-4.2	Voltage and Reactive Control	PG&E only (E.A.18 N/A)	--	12/31/2018 (V5 effective 1/1/19)
VAR-002-4.1	Generator Operation for Maintaining Network Voltage Schedules	PG&E and NID (E.A.15, E.A.16: PG&E Full; R4: Partial)	--	--
VAR-002-WECC-2	Automatic Voltage Regulators	PG&E and NID (Partial)	--	9/5/2018 (Entire standard retired)
VAR-501-WECC-3.1	Power System Stabilizer (PSS)	PG&E and NID (Partial)	--	--

BAL-005-0.2b – Automatic Generation Control

The purpose of BAL-005-0.2b was to “[establish] requirements for Balancing Authority Automatic Generation Control (AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing Area so that balancing of resources and demand can be achieved.”

R1, R1.1: BAL-005-0.2b R1.1 required a GOP to ensure its Facilities are within the metered boundaries of a Balancing Authority (BA). Per the CFR, this Standard was the sole responsibility of PG&E. NID did not need to take any action to comply with this Standard during 2018.

Note: BAL-005-0.2b was retired by NERC on December 31, 2018, and was replaced by BAL-005-1 on January 1, 2019. The retirement of BAL-005-0.2b removed GOP applicability altogether, but particularly R1.1 requiring a GOP with generation facilities operating in an Interconnection to ensure facilities are included in metered boundaries of a BA Area (BAA). The crux of obligations for ensuring applicable facilities are within a BAA's metered boundaries are addressed in FAC-001-3 (not GOP applicable).

COM-001-3 – Communications

The purpose of COM-001-3 is “to establish Interpersonal Communication capabilities necessary to maintain reliability.”

This standard requires a GOP to maintain Interpersonal Communication capabilities with its BA and TOP. Additionally, if a failure of those capabilities is detected the GOP is required to work with the affected entity(ies) to restore those capabilities. This requirement is to be performed solely by PG&E under the terms of the CFR agreement.

COM-002-4 – Operating Personnel Communications Protocol

The purpose of COM-002-4 is to “improve communications for the issuance of Operating Instructions with predefined communications protocols to reduce the possibility of miscommunication that could lead to action or inaction harmful to the reliability of the Bulk Electric System (BES).”

The standard requires that a GOP train all applicable operating personnel to properly receive “oral two-party, person-to-person” Operating Instructions and, during an emergency, follow three-part communication protocols. Both PG&E and NID separately and wholly maintain compliance to this Standard under the terms of the CFR Agreement. PG&E and NID are both required to comply with COM-002-4 GOP requirements (“Normal”).

R3: COM-002-4 R3 requires NID to conduct initial three-part communication training for each of its operating personnel who can receive an oral two-party, person-to-person Operating Instruction prior to that individual operator receiving an oral two-party, person-to-person Operating Instruction. NID first conducted three-part communication training for all operating personnel in April 2016 in advance of the July 1, 2016, effective date. From that time forward, NID must, and has, delivered three-part communications training to new operating personnel before they begin normal, unsupervised work.

In February 2018, NID added one new operator to its workforce, which required initial COM-002-4 R3 (three-part communications) training. The new operator received this training prior to the close of March 2018. NID's best practice is to supervise new operators for at least six months prior to allowing unsupervised operations, and operators are not permitted to receive Operating Instructions until completion of supervised operations. Since the new operator received three-part communications prior to the end of his six-month supervised work, NID fulfilled its COM-002-4, R3 training obligation. Although not required, on June 27, 2018, NID reinforced communications protocols to its operating personnel by conducting refresher training (delivered by GridSME).

R6: COM-002-4 R6 requires NID operators that receive an oral two-party, person-to-person Operating Instruction during an Emergency to use three-part communication. Further, those operators must also document and generate evidence that they used three-part communication during such events. Through our discussions with NID personnel, we noted that three-part communication is routinely used by NID operators. NID has compiled evidence to demonstrate that three-part communication was used during events meeting NERC's "Operating Instruction during an Emergency" requirements. This evidence is in the form of operator logs that denote "3PC" whenever the operator uses three-part communication when speaking with third-party reliability entities, which is essentially all communications with PG&E's Drum and Sloan operations centers.

EOP-005-2 – System Restoration from Blackstart Resource

The purpose of EOP-005-2 is to "Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection."

EOP-005-2 addresses system restoration from a Blackstart Resource. Except for R18, the requirements addressing GOPs and Blackstart Resources are not applicable to NID. NID does not own or operate Blackstart units. NID has completed an attestation documenting this fact.

R18: EOP-005-2 R18 requires NID to participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator (RC). NID did not receive a request from its RC to participate in any such drills during 2018, and maintains an attestation signed by Keane Sommers stating that fact.

IRO-001-4 – Reliability Coordination – Responsibilities and Authorities

The purpose of IRO-001-4 is to "establish the responsibility of Reliability Coordinators to act or direct other entities to act."

R2 and R3: IRO-001-4 R2 and R3 require a GOP to comply with its RC's Operating Instructions unless such actions would violate safety, equipment, or regulatory or statutory requirements, and for the GOP to notify the RC if it cannot follow the Operating Instruction.

Under the terms of the CFR Agreement, PG&E has accepted full responsibility for the GOP-applicable Requirements in IRO-001-4. Consequently, NID does not need to perform any actions to comply with this Standard.

NUC-001-3 – Nuclear Plant Interface Coordination

The purpose of NUC-001-3 is to "[require] coordination between Nuclear Plant Generator Operators and Transmission Entities for the purpose of ensuring nuclear plant safe operation and shutdown."

NID does not provide services related to Nuclear Plant Interface, therefore NUC-001-3 is not applicable to NID as a GO/GOP.

PER-005-2 – Operations Personnel Training

The purpose of PER-005-2 is to "ensure that personnel performing or supporting Real-time operations on the Bulk Electric System are trained using a systematic approach."

R6: PER-005-2 R6 requires a GOP to use a systematic approach to the development and implementation of training to applicable operating personnel. This Standard is applicable to GOP “dispatch personnel at a centrally located dispatch center” who receive direction from the GOP’s RC, BA, TOP, or TO, and who “may develop specific dispatch instructions for plant operators under their control.” PER-005-2 is not applicable to GOP “plant operators located at a generator plant site or personnel at a centrally located dispatch center who relay dispatch instructions without making any modifications.” The PG&E CFR is silent on this Standard meaning NID must independently address compliance. NID has appropriately documented why PER-005’s GOP applicability criteria does not apply to NID personnel. NID justified this in a PER-005 attestation signed by Keane Sommers.

PRC-001-1.1(ii) – System Protection Coordination

The purpose of PRC-001-1.1(ii) is to “ensure system protection is coordinated among operating entities.”

NID is currently required to maintain compliance with four PRC-001-1.1(ii) GOP Requirements under the terms of the CFR – R1 (Normal), R2, R3, and R5 (Partial). PRC-001-1.1(ii) R2 and R5 were retired by NERC in 2017. The 2019 CFR will be updated to reflect this.

R1: PRC-001-1.1(ii) requires that each GOP be familiar with the purpose and limitations of Protection System schemes applied in its area. GridSME led training sessions at NID’s Colfax office for NID operators on December 16, 2014, and on June 27, 2018. The training reinforced Protection System familiarity for appropriate staff. The training session provided an overview of the “Protection and Control” (PRC) family of Reliability Standards, and an overview of relay protection schemes and devices, and Protection System best practices. For new operators that fall under the scope of R1, NID ensures those personnel become familiar with the purpose and limitations of Protection System schemes applied in NID’s area through the completion of the PG&E hydro tech training program. In February 2018, NID added one new operator to its workforce, triggering training that falls under the scope of R1. The new operator received Protection System training on June 27, 2018 (delivered by GridSME).

R3: PRC-001-1.1(ii) requires that NID coordinate new Protection Systems and changes to existing Protections with its TOP and host BA. There were no changes to DF2’s relays in 2018. When NID experienced the Misoperation at CP in May 2018, notifications were made to PG&E and CAISO.

If NID is called upon to contact PG&E regarding changes to its Protection Systems, or in the presence of generating or operating conditions that may require changes to PG&E’s Protection Systems, NID maintains evidence of those instances. Evidence demonstrates that NID is coordinating new Protection Systems, as well as generation and operation changes with PG&E.

TOP-001-3 and TOP-001-4 – Transmission Operations

The purpose of TOP-001-3/4 is to “prevent instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Interconnection by ensuring prompt action to prevent or mitigate such occurrences.”

Effective July 1, 2018, TOP-001-3 was replaced by TOP-001-4. Both standards require a GOP to comply with its TOP and BA’s Operating Instructions unless such actions would violate safety, equipment, or regulatory or statutory requirements, and for the GOP to notify the RC if it cannot follow the Operating Instruction. This Standard mirrors IRO-001-4, but refers to the TOP and BA rather than the RC.

For both TOP-001-3 and TOP-001-4, PG&E has, under the terms of the CFR Agreement, accepted full responsibility for the GOP-applicable Requirements. Consequently, NID does not need to perform any actions to comply with this Standard.

TOP-003-3 – *Planned Outage Coordination*

The purpose of TOP-003-3 is to “ensure that the Transmission Operator and Balancing Authority have data needed to fulfill their operational and planning responsibilities.

R5: TOP-003-3 R5 through R5.3 are the only Requirements applicable to GOPs, and requires a GOP receiving a data specification in Requirement R3 or R4 to satisfy the data request (DR) obligation using a mutually agreeable format, process for resolving data conflicts, and security protocol. CAISO’s TOP-003-3 Data Specifications procedure 3140, the associated 3140A attachment, are applicable to NID as a GOP in CAISO’s BA territory. PG&E and NID are responsible for complying with R5 as per the CFR (“Normal” responsibility for each).

Under the terms of the PG&E CFR, NID has partial responsibility for compliance with six CAISO data request and specification requirements.

VAR-001-4.2 – *Voltage and Reactive Control*

The purpose of VAR-001-4.2 is “to ensure that voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in Real-time to protect equipment and the reliable operation of the Interconnection.”

VAR-001-4.2 was retired on December 31, 2018, but was in effect for the entire 2018 year up until then. The Standard imposed three requirements on Western Interconnection GOP’s. Specifically, (1) GOP’s in WECC must convert each voltage schedule provided by the TOP into the voltage set point for the generator excitation system (Equivalent Action “E.A.” 15 – these have the same impact as a Requirement and are employed for Regional Variances); (2) provide its voltage set point conversion methodology within 30 calendar days of a request by its TOP (E.A. 16); and (3) meet certain control loop specifications if control loops are used external to the Automatic Voltage Regulators to manage MVar loading (E.A. 18). PG&E was responsible for E.A.’s 15 and 16 under the terms of the CFR.

Per the CFR, NID is responsible for compliance with E.A. 18. NID has documented in an attestation that E.A. 18 is not applicable to NID as no control loops are used to control NID’s hydroelectric Facilities.

Note: VAR-001-5, effective January 1, 2019, retired VAR-001-4.2 E.A.15. The CFR will be updated to reflect this change.

VAR-002-4.1 – *Generator Operation for Maintaining Network Voltage Schedules*

The purpose of VAR-002-4.1 is “to ensure generators provide reactive support and voltage control, within generating Facility capabilities, in order to protect equipment and maintain reliable operation of the Interconnection.”

R1 through R4: VAR-002-4.1 has six Requirements, four of which must be adhered to by GOPs (R1-R4) and two by GOs (R5-R6 - *see also* the VAR-002-4.1 section in the GO Compliance Findings section of this report). Specifically, a GOP must: (R1) operate each generator connected to the interconnected transmission system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) with certain limited exceptions; (R2) maintain the generator voltage or Reactive

Power schedule (within applicable Facility Ratings) as directed by the TOP; (R3) notify its TOP of a status change on the AVR, power system stabilizer, or alternative voltage controlling device within 30 minutes of the change; and (R4) notify its associated TOP as soon as practical, but within 30 minutes of changes in reactive power capabilities (not including those conditions listed under R3). Under the terms of the CFR agreement, NID only needs to inform PG&E's Drum Operations Center when an issue arises under R4.

NID has a procedure that memorializes R4. In 2018, there were no events that caused a change in reactive capability other than an AVR status change. In fact, CP and DF2's only means of providing reactive power is through their AVRs. NID has an attestation addressing R4 on file.

VAR-002-WECC-2 – Automatic Voltage Regulators

The purpose of VAR-002-WECC-2 was to “ensure that Automatic Voltage Regulators on synchronous generators and condensers shall be kept in service and controlling voltage.”

This standard was retired by WECC on September 5, 2018, stating “the reliability-related issues previously addressed in the standard are adequately addressed by the continent-wide Voltage and Reactive (VAR) Reliability Standards.” Prior to its retirement, GOPs were required to have AVR in service and in automatic voltage control mode 98% of all operating hours for synchronous generators or synchronous condensers. As of 2016, PG&E provided NID with reports that contained information necessary to assess availability and complete the necessary reporting. NID completed and submitted the reports to WECC for Q1 and Q2 in 2018. After retirement of the standard in September, NID was no longer obligated to report AVR status on a quarterly basis.

VAR-501-WECC-3.1 – Power System Stabilizers (PSS)

The purpose of Regional Reliability Standard VAR-501-WECC 3.1 is to “ensure the Western Interconnection is operated in a coordinated manner under normal and abnormal conditions by establishing the performance criteria for WECC power system stabilizers.”

NID owns and maintains PSS. NID installed PSS capabilities on DF2 in February 2018.

R2: VAR-501-WECC-3.1 R2 is the only GOP-applicable Requirement. Requirement R2 requires a GOP to have its PSS in-service while synchronized, except during a component failure, testing of a BES Element affecting or affected by the PSS, a maintenance event, or as agreed upon by the GOP and the TOP. Further, a PSS that is out of service for less than 30 minutes does not create a violation of this Requirement, regardless of cause. Under the terms of the CFR agreement, PG&E and NID are both responsible for GOP compliance with this standard; PG&E and NID each have partial responsibility for R2 compliance. It is PG&E's responsibility to operate the PSS according to R2, compile the operating data to demonstrate compliance, and notify the TO and NID as soon as practicable if an exception-event occurs. NID is responsible for notifying PG&E if they identify or initiate any of the exceptions noted in the Standard.