Nevada Irrigation District

Staff Report

for the Water and Hydroelectric Operations Committee Meeting of July 17, 2020

TO: Water and Hydroelectric Operations Committee

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

DATE: June 2, 2020

SUBJECT: **Nevada Irrigation District Internal Compliance Program - 2019 Compliance Self-Assessment Summary Report**

HYDROELECTRIC

RECOMMENDATION:
Review the 2019 Annual Report on NERC Compliance, prepared in accordance with the Nevada Irrigation District Internal Compliance Program and advance a recommendation to the Board of Directors as appropriate.

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 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.

This year, self-certification for the 2019 compliance year is required by NERC via the Western Electricity Coordinating Council (WECC)/NID Compliance Oversight Plan for the following NERC Standards:

- COM-002
- PRC-005
- VAR-002-WECC-2
- VAR-501-WECC-3.1

In addition, NID's Internal Compliance Program requires annual self-assessment for compliance with (all applicable) reliability standards. The attached NID 2019 Annual Report on NERC Compliance (Report) was prepared to satisfy the requirement of the Internal Compliance Program.

The next NERC/WECC self-certification is due in 2021 for the following NERC Standards during the 2020 calendar year:

- CIP-002
- CIP-003
- MOD-026
- MOD-027
- PRC-001

Annual Compliance Summary
In total, approximately 336 Requirements were applicable to NID during 2019 as follows:

- 41 Operations and Planning (O&P) Reliability Standards
    - 226 GO-applicable Requirements
    - 94 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 2019 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 has chosen to present the information at the Water and Hydroelectric Operation Committee for discussion prior to presenting it to the full Board of Directors.

This item is in alignment with Goal No 1 and 2 of the District's Strategic Plan by ensuring compliance with the rules and regulations that govern District activities.

BUDGETARY IMPACT:

No budgetary impact.

MJW

Attachments: (1)

- NID 2019 Annual Self-Assessment Report on NERC Compliance

Nevada Irrigation District NERC Compliance Assessment

Assessment Prepared on:

2/25/20

Prepared By:

Grid Subject Matter Experts

Annual report on compliance with the NERC and Regional Reliability Standards applicable to Nevada Irrigation District for 2019.

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EXECUTIVE SUMMARY

Site Overview

Nevada Irrigation District (NID / District) is comprised of two NERC-registered generating Facilities: Dutch Flat 2 operating at 26.0 MW and Chicago Park operating at 41.5 MW. Both projects are in Nevada County, CA. NID registered as a Generator Owner (GO) and Generator Operator (GOP) in the NERC Compliance Registry on May 21, 2014. NID interconnects with Pacific Gas & Electric and resides in the CAISO Balancing Authority Area.

NID and PG&E agreed to allocate the GOP obligations for NID's two registered generation Facilities under a coordinated functional registration (CFR). 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)."

The current CFR Agreement reaffirms PG&E's role as the Registered GOP for the NID hydroelectric Facilities and limits NID's GOP compliance activities (and associated compliance responsibility) to limited specific activities and circumstances.

Scope

This report represents the annual assessment of NID's compliance with the North American Electric Reliability Corporation (NERC) and Regional mandatory Reliability Standards.[1] This annual assessment is a required recurring compliance activity per the NID internal compliance program (ICP) and is used to apprise District management of the status of compliance with NID's NERC compliance program.

The report summarizes the reliability compliance efforts put forth by the NID compliance team in **2019** and previews the efforts needed in the year ahead and beyond to comply with the NERC and Regional Reliability Standards. The GridSME compliance team conducted this assessment by reviewing the compliance program evidence located in NID's compliance repository in January of 2020.

Highlights

In total, 41 Operations and Planning (O&P) Reliability Standards were applicable to NID as a GO/GOP during 2019. Of those 41 Reliability Standards, 29 contained GO-applicable requirements (226), and 16 contained GOP-applicable requirements (94). 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 approximately 336 requirements applicable to NID during 2019.

[1] The use of capitalized terms in this document indicates that the term is a defined term from either the *NERC Glossary of Terms Used in Reliability Standards* or *Appendix 2 to the NERC Rules of Procedure: Definitions Used in the Rules of Procedure*.

Overall, as of the date of this assessment, NID has not identified any potential non-compliance events for the 2019 calendar year.

Findings and Recommendations

The NERC Reliability Standards continue to evolve, and the rate of change is not diminishing. NID retained the support of GridSME for extended compliance support during 2019. 2019 was another busy year as new Standards and Requirements became enforceable and required implementation activities by NID. In addition to maintaining compliance, generating evidence, and periodic reporting required for the currently enforceable Standards, GridSME helps NID stay apprised of developments at FERC, NERC, and WECC.

Looking ahead, 2020 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 2020 to support readiness for upcoming deadlines.

Upon completion of our NERC Self-Assessment compliance review, GridSME did not note any non-compliance events during the 2019 calendar year. GridSME will work with NID during 2020 to complete or support all documentation, implementation, and training activities needed to address the impending GO and GOP requirement changes.

COMPLIANCE ACTIVITIES - YEAR IN REVIEW

ICP Activities

NID's Quarterly ROCC 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 the 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 2019 to discuss NERC and WECC reliability compliance and other associated issues affecting NID. During 2019, 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

(Matthew Wheeler), Information Technology Analyst (JR Lewis), Information Technology Supervisor (Kriss Butcher), and the Hydroelectric Compliance Technician I (Tina Konkle).

To assess the current state of NID's compliance activities, GridSME conducted a tabletop "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 2019. On December 11, 2019, 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 2019. The results of this assessment are detailed below.

Self-Reports

NID had no self-reports in 2019.

GENERATOR OWNER RELIABILITY STANDARDS COMPLIANCE

Generator Owner Reliability Standards Applicable to NID

To meet compliance with applicable in-scope Reliability Standards and their requirements, NID maintains documented processes related to the Reliability Standard requirements (e.g., procedures, plans, programs, and policies), signed attestations, supporting technical evidence (e.g. engineering documentation and analysis), and programmatic evidence (e.g. evidence of completed data submittals). Listed below are the NERC and Regional Reliability Standards that are applicable to NID as a registered GO and GOP and for which they maintain evidence of compliance.

Reliability Standard [2]	Title	New 2019	Retired 2019
CIP-002-5.1a	Cyber Security — BES Cyber System Categorization		
CIP-003-7 CIP-003-6	Cyber Security — Security Management Controls	1/1/2020 --	-- 12/31/19
EOP-004-4 EOP-004-3	Event Reporting	4/1/19 --	-- 3/31/19
FAC-001-3	Facility Connection Requirements	1/1/19	
FAC-002-2	Coordination of Plans for New Facilities		
FAC-003-4	Transmission 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		

[2] Two Standards per row denotes that the Reliability Standard was revised during the compliance period. The most current Standard appears first.

Reliability Standard [2]	Title	New 2019	Retired 2019
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		
PRC-002-2	Disturbance Monitoring and Reporting Requirements		
PRC-004-5(i)	Protection System Misoperation Identification and Correction		
PRC-004-WECC-2	Protection System and Remedial Action Scheme Misoperation		
PRC-005-6	Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance		
PRC-015-1	Remedial Action Scheme Data and Documentation Special Protection System Data and Documentation		
PRC-016-1	Remedial Action Scheme Misoperations Special Protection System Misoperations		
PRC-017-1	Remedial Action Scheme Maintenance and Testing Special Protection System 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-025-2	Generator Relay Loadability		
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. NID identified the existence of only low impact BES Cyber Systems at its two BES assets (Dutch Flat and Chicago Park by July 1, 2016 (the date the CIP version 5 Standards became effective).) This identification is documented within NID's CIP-002-5.1a procedure.

R2: CIP-002-5.1a R2 requires the entity to review and (if necessary) update the identifications made in R1 at least once every 15 calendar months and obtain the CIP Senior Manager's approval of the identifications. The 2019 review was completed in May 2019. 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 2020 review of identifications made in R1 and obtain CIP Senior Manager approval on or before August 31, 2020.

CIP-003: 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.

In 2019, NID prepared for and implemented an updated CIP-003 policy and associated plans that address the technical security control requirements for physical access, electronic access, and transient cyber asset and removable media management required by CIP-003-7. CIP-003-7 became enforceable on January 1, 2020. The CIP Senior Manager signed-off on these new CIP-003 policies and plans in December 2019 ahead of the January 1, 2020 enforcement date.

R2: NID performed a Cyber Security Incident Response Plan (CSIRP) tabletop exercise on March 21, 2017. NID staff 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 period). Note: The latest CSIRP tabletop exercise was performed during February 2020.

Additionally, R2 requires the performance of a cyber security awareness activity once every 15 calendar months.

NID carried-out quarterly cyber security awareness activities for its personnel during 2019. Each quarterly cyber security topic covered a recent cyber security event, lessons learned from the event, and key takeaways for how NID can protect itself from similar attacks. Overall, each quarterly cyber security awareness touch point strengthened in personnel's minds the importance of staying alert and diligent in protecting NID's critical cyber assets.

Based on the date of the last cyber security awareness training, NID will need to conduct its next cyber security awareness activity on or before February 29, 2021 to ensure the 15-calendar month requirement is met. NID plans to continue delivering to its personnel quarterly cyber security awareness topics.

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 in 2019.

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 2019.

EOP-004 – Event Reporting

Note: EOP-004-4 replaced EOP-004-3 on April 1, 2019. EOP-004-4 does not include the R3 annual validation of third-party contact information contained within the Emergency Operating Plan.

The purpose of EOP-004-4 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-004-4 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 2019 calendar year.

R1: EOP-004-4 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 2019 that required the initiation of NID's plan.

R2: EOP-004-4 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 2019, 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 March 2019.

Requirement R3 was then retired upon EOP-004-4 implementation on April 1, 2019. Regardless, NID plans to continue conducting conduct contact validation annually.

FAC-001-3 – Facility Interconnection Requirements

The purpose of FAC-001-3 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-001-3 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." In 2019, NID did not enter into an Agreement to study the reliability impact of interconnecting third party Facilities to NID's existing Facilities. Therefore, FAC-001-3 (R2) was not applicable to NID during 2019. For the 2019 calendar year, NID created an FAC-001-3 attestation stating this, which has been executed by Keane Sommers.

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 2019. For the 2019 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 2019.

R7, R8: During 2019, 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 2019.

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.

On July 1, 2019, CAISO West assumed the Reliability Coordinator function for the CAISO Balance Authority Area (BAA) within which NID's BES assets interconnect. This change necessitated only administrative procedure and attestation updates.

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 to the unit nor the CP steady-state and dynamic files since that time. 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.

In late 2018, CP did receive a Transmission Planning Process (TPP) generator model validation data request from CAISO, as the Planning Coordinator. This data request required NID to compile and report on the generator models and model data for CP. This data request was due May 30, 2019. NID responded on time and has since exchanged communications with CAISO to ensure CAISO has the needed information.

The excitation system upgrade in late 2017 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.

DF2's CAISO TPP generator model validation CAISO data request is due August 30, 2020. NID will compile the DF2 generator models and model data and complete the data request by the deadline.

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 2019.

NID had several Protection System operations during 2019 but none was determined to be a Misoperation. NID maintains a log of each operation and detailed records supporting its correct operation versus Misoperation determination. 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. In 2019, NID updated its PSMP documentation to improve record keeping and administration of the program.

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 2019, and there were no Unresolved Maintenance Issues identified during 2019. 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 2019, and maintains an attestation signed by Keane Sommers stating that NID had no obligation to comply with PRC-005-6 R5 during 2019.

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 component list update was completed in 2019.

NID has done an excellent job of maintaining and testing its Protection Systems in accordance with its PSMP. NID's compliance team maintains an evidence folder of all maintenance and testing activities performed by NID maintenance and operations staff during 2019.

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, which it was then addressed.

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."

In September 2019, relay settings at DF2 were updated. Following this outage, an updated PRC-019-2 analysis was performed for DF2 demonstrating compliance with the Standard.

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 2019 NID reviewed CAISO's "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, at least 80% by July 1, 2018, and 100% by July 1, 2019. 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.

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. There were no PRC-024-2 components added or replaced during 2019. NID maintains a 2019 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."

On July 1, 2018, PRC-025-2 went into effect and is not enforceable until October 1, 2019.

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 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 to meet the requirements of PRC-025.

In 2019, NID first coordinated these recommended changes with CAISO and PG&E. After gaining approval from CAISO and PG&E, NID then updated the CP protective relay settings in September 2019, prior to the PRC-025-2 October 1, 2019 enforcement date.

Also in 2019, NID retained a third-party consultant, RAI, to perform a full review of the PRC-025-2 compliance documentation for both CP and DF2. Following the September 2019 CP relay updates, RAI delivered to NID a report verifying CP and DF2's compliance with PRC-025-2.

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. An attestation has been created and made effective January 1, 2020 affirming NID has not received notice from its Planning Coordinator (CAISO) that any generator BES Elements are applicable to PRC-026-1, and that NID has no 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."

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[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].

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 2019, 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. NID did not enact any changes to its VAR-501-WECC-3.1 Operating Procedure in 2019.

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. No changes to the PSS occurred in 2019 that required action to maintain compliance with R3.

R4: The enforcement of 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 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 timeframe stipulated in R4. No further events occurred in 2019 that necessitated action to maintain compliance with 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 and DF2 PSS remained capable of meeting the tuning requirements throughout 2019, NID maintained compliance with R5.

GENERATOR OPERATOR RELIABILITY STANDARDS COMPLIANCE

2019 Reliability Standards Applicable to a Generator Operator

Reliability Standard	Standard Description	CFR Treatment	New 2019	Retired 2019
COM-001-3	Communications	PG&E only	--	--
COM-002-4	Operating Personnel Communications Protocol	PG&E and NID (Normal)	--	--
EOP-005-3 EOP-005-2	System Restoration from Blackstart Resources	N/A	4/1/19 --	-- 3/31/19
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-001-4	Transmission Operations	PG&E only	--	--
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-001-5	Voltage and Reactive Control	PG&E only (E.A.17 N/A)	1/1/2019	--
VAR-002-4.1	Generator Operation for Maintaining Network Voltage Schedules	PG&E and NID (R1-R3: PG&E Full; R4: Partial)	--	--
VAR-501-WECC-3.1	Power System Stabilizer (PSS)	PG&E and NID (Partial)	--	--

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 2019, NID added two new employees, one of which is an operator. NID logs all training activity delivered to its personnel. The operator received COM-002 three-part communication training on July 18, 2019, prior to performing unsupervised operations. NID's policy 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.

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 NID operators routinely use three-part communication. 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. Each operator maintains his or her own log journal and each powerhouse has a station logbook onsite.

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 maintains an attestation on file 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 2019, 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 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.

R1: PRC-001-1.1(ii) requires each GOP be familiar with the purpose and limitations of Protection System schemes applied in its area. To meet this objective, 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 sessions 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. Further, for any 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 2019, 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 July 18, 2019.

R3: PRC-001-1.1(ii) requires that NID coordinate new Protection Systems and changes to existing Protections with its TOP and host BA. NID implemented relay setting changes at CP and DF2 in September 2019. Prior to implementing these changes, NID notified PG&E of the setting changes and gained PG&E's approval. From there, PG&E is responsible for notifying the TOP and BA, per the CFR.

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-001-4 – 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."

TOP-001-4 requires 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.

PG&E has, under the terms of the CFR Agreement, accepted full responsibility for the GOP-applicable Requirements under TOP-001-4. 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: R5 through R5.3 are the only Requirements applicable to GOPs under TOP-003-3, 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 full responsibility for compliance with one and partial responsibility for compliance with six CAISO data request and specification requirements. These CAISO generator data request requirements are generally triggered upon a unit de-rate or outage or an AVR or PSS outage event. Any such events are logged and responded to by NID operating personnel in a timely manner. NID maintains written logs on file of such events.

VAR-001-5 – 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 and VAR-001-5 became effective on January 1, 2019. The Standard imposed two 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); and (3) meet certain control loop specifications if control loops are used external to the Automatic Voltage Regulators to manage MVar loading (E.A. 17). PG&E is responsible for E.A. 15 under the terms of the CFR.

Per the CFR, NID is responsible for compliance with E.A. 17. NID has documented in an attestation that E.A. 17 is not applicable to NID as no control loops are used to control NID's hydroelectric Facilities.

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 2019, 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-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. In 2019, NID did not identify any PSS events that meet the reporting criteria for R2.