

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Compliance Monitoring and Enforcement Program and Organization Registration and Certification Program Annual Report

February 9, 2022

RELIABILITY | RESILIENCE | SECURITY

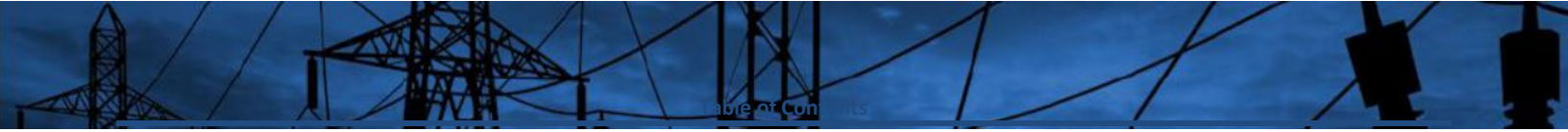


3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com



Table of Contents

Preface.....	iv
Executive Summary.....	5
Chapter 1 : CMEP Activities.....	7
Impact of the COVID-19 Pandemic.....	7
Temporary Expansion of the Self-Logging Program.....	7
Compliance Monitoring During Pandemic Conditions.....	9
Certification Engagements During Pandemic Conditions.....	9
Appendix 4A Audits of Regional Entities.....	9
Align Project and ERO Secure Evidence Locker.....	10
CMEP Implementation Plan.....	11
Harmonization of ERO Enterprise Practices Around Internal Controls.....	12
Compliance Oversight Plans.....	12
ERO Enterprise Staff Training and Industry Outreach.....	12
ERO Enterprise CMEP Staff Training.....	12
Industry Outreach via Webinars and Workshops.....	13
ERO Enterprise Collaboration with Stakeholders on Higher Tier Risks.....	14
Coordinated Oversight Program.....	15
Program Alignment Process.....	15
NERC 2021 CMEP Filings and Postings.....	16
Proposed Revisions to the Compliance Monitoring and Enforcement Program.....	16
Chapter 2 : RE Oversight.....	17
Enforcement Oversight.....	18
Focus on Serious Risk Noncompliance.....	18
Vegetation Management and FAC-003 R2 Violations.....	18
Spreadsheet NOPs.....	18
Streamlined Disposition Methods.....	18
Annual Find, Fix, Track, and Report and Compliance Exception Programs Review.....	19
Compliance Monitoring Oversight.....	19
NERC Oversight Priorities.....	19
Supporting Activities.....	20
Targeted Monitoring.....	20
Results.....	20
Continuous Monitoring.....	21



Technical Feasibility Exceptions..... 21

Certification Oversight 21

 2021 Certification Completions 21

 2021 Accomplishments 22

Registration Oversight..... 22

 2021 Registration Changes 23

 Registration Change Activity..... 23

 Registration Alignment..... 23

 Coordinated Functional Registration Outreach 23

BES Registration Exceptions 23

Improvements in RE Oversight..... 24

 Oversight of Canadian CMEP Efforts 24

Chapter 3 : 2021 Metrics Highlights..... 25

 Average Age of Open Noncompliance..... 25

 Mitigation Completion Status 25

 Self-Logging Program Participation 25

 Serious Risk Issues..... 25

 Streamlined Disposition 25

 Repeat Moderate and Severe Risk Violations 25

 Self-Assessment and Self-Identification of Noncompliance 26

 Compliance Guidance 26

 Reliability Standard Audit Worksheets..... 27

Chapter 4 : Looking Ahead to 2022..... 28

 Priorities for 2022 28

 2022 Metrics 28

Appendix A : Enforcement..... 29

Appendix B : Compliance Assurance..... 47

Appendix C : Registration 48

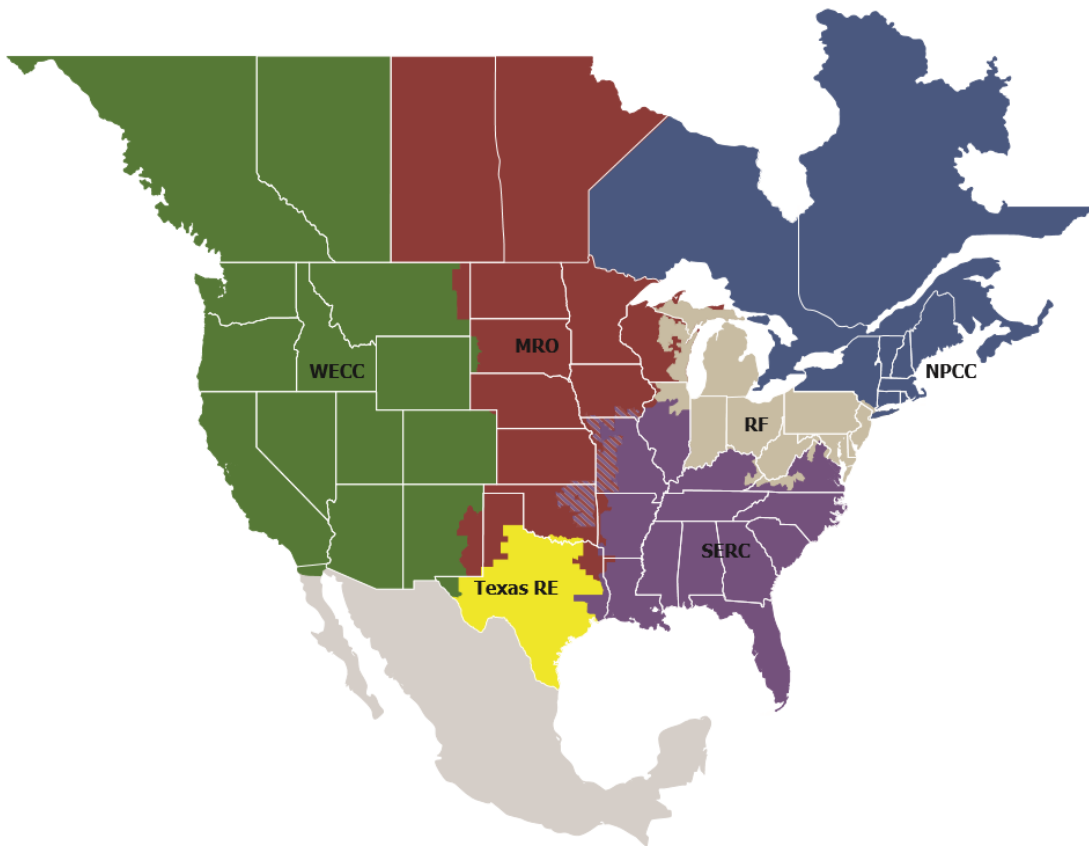
Appendix D : Certification and Bulk Electric System 51

Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us.

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one RE while associated Transmission Owners and Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Executive Summary

This report highlights key ERO Enterprise¹ Compliance Monitoring and Enforcement Program (CMEP) and Organization Registration and Certification Program (ORCP) activities that occurred in 2021, provides information and statistics regarding those activities, and identifies the ERO Enterprise's 2022 CMEP priorities.

In 2021, CMEP activities throughout the ERO Enterprise reflected continuing implementation of a risk-based approach that has enabled the ERO Enterprise to focus resources on risks to the reliability of the BPS, risks specific to registered entities, and risks pertaining to serious noncompliance. In 2021, the ERO Enterprise:

- Continued working with the Federal Energy Regulatory Commission (FERC or Commission) and Canadian provincial authorities to provide regulatory discretion to industry during the novel coronavirus (COVID-19) pandemic and extended the temporary expansion of the Self-Logging Program to address minimal and moderate risk potential noncompliance related to registered entities' COVID-19 response efforts and the deferment of on-site activities to December 31, 2021;
- Analyzed ERO Enterprise data to determine whether there were any increasing risks or impacts to the reliability, security, or resiliency of the BPS due to the COVID-19 pandemic, resulting in the *COVID-19 Metrics and Assessment Project Report* provided to the Operations Leadership Team.
- Went live with Releases 1 and 2 of the Align and Secure Evidence Locker (SEL) tools;
- Commenced development of Release 4 of the Align tool scheduled for release in 2022;
- Released the first quarterly CIP Lessons Learned reports to industry;
- Monitored RE implementation of Compliance Oversight Plans (COPs) for their registered entities;
- Promoted a focus on internal controls in all CMEP activities, ranging from compliance monitoring to mitigation of noncompliance;
- Placed significant emphasis on outreach to industry on topics ranging from common themes seen in significant Critical Infrastructure Protection violations, new and revised Reliability Standards impacting supply chain risk management and low impact Bulk Electric System (BES) Cyber Systems, and trends and best practices seen in higher risk violations of currently enforceable Reliability Standards such as cyber and physical security, Facility Ratings, and vegetation management;
- Endorsed Implementation Guidance addressing transmission operations and data exchange infrastructure and testing, and approved CMEP Practice Guides addressing cold weather preparedness, evaluation of blackstart documented procedures, network monitoring sensors, application of the BES definition to BESS and hybrid resources, virtual networks, virtual storage, and virtual systems;
- Collaborated with FERC and jointly published a white paper, *SolarWinds and Related Supply Chain Compromise*, to help the electric sector implement a series of specific cyber security mitigation actions to better ensure the security of the BPS;
- In collaboration with National Institute of Standards and Technology (NIST), assessed and updated the NERC CIP Reliability Standards mapping to the NIST Cybersecurity Framework; and
- Continued to work on aligning programs across the ERO Enterprise to create greater consistency in its approach to CMEP activities.

¹ The "ERO Enterprise" refers to the affiliation between NERC and the six REs for the purpose of coordinating goals, objectives, metrics, methods, and practices across statutory activities. The operation of the ERO Enterprise does not conflict with obligations of each organization through statutes, regulations, and delegation agreements. The activities discussed in this report relate to compliance monitoring and enforcement performed in connection with United States registered entities. ERO Enterprise activities outside of the United States are not specifically addressed.

In 2022, the ERO Enterprise plans to continue its focus on effective program alignment and harmonization in risk-based compliance monitoring and enforcements. Specific priorities for 2022 include evaluating and filling any gaps created by COVID-related limitations on compliance monitoring, enforcement, registration, and certification; delivering the Align and SEL tools; continuing to embed internal control activities within the compliance monitoring program; working as an ERO Enterprise with stakeholder feedback to evaluate compliance monitoring and enforcement processes for efficiency; and harmonizing processes where appropriate.

Chapter 1: CMEP Activities

In 2021, the ERO Enterprise continued to work towards aligning CMEP activities across the ERO Enterprise and identifying and addressing risks to the reliability of the BPS. Highlights from the year are discussed in more detail below.

Impact of the COVID-19 Pandemic

In 2021, the ERO Enterprise continued its efforts, begun in March 2020, to ensure that operators of the BPS could focus their resources on keeping people safe and the lights on during the unprecedented public health emergency posed by the COVID-19 pandemic. FERC and NERC continued using regulatory discretion in considering the impact of the COVID-19 outbreak on registered entities' ability to comply with certain Reliability Standards, and REs continued to postpone on-site audits, certifications, and other on-site activities.²

On April 2, 2020, NERC began posting frequently asked questions that NERC and the REs had received from industry regarding the joint NERC-FERC guidance for COVID-19.³

On May 28, 2020, the ERO Enterprise released new guidance temporarily expanding the Self-Logging Program to allow all registered entities to self-log instances of potential noncompliance with minimal or moderate risk related to their COVID-19 response.⁴ Under this temporary expansion of the Self-Logging Program, potential noncompliance related to the pandemic and logged consistently with this guidance were resolved without further action. Once a month, ERO Enterprise CMEP staff reviewed the log and then shared it with FERC staff. To date, FERC has not had any issues with the items logged.⁵ The ERO Enterprise extended the temporary expansion of the Self-Logging Program and deferment of on-site activities several times, with the final expected extension of the guidance ending on December 31, 2021.⁶

Temporary Expansion of the Self-Logging Program

In the months since the pandemic began in March 2020, registered entities submitted 95 instances of potential noncompliance into the Self-Logging Program Expansion, with 83 percent submitted within the first 12 months. The gradual decrease in the number of submissions suggest that registered entities adapted to the changing environment caused by the pandemic. Of the 95 logged instances of potential noncompliance, 94 were assessed by the registered entities as minimal risk; only one was assessed as moderate risk. Figure 1.1 shows the number of self-logged potential noncompliance related to the pandemic reported to the ERO Enterprise over time.

² Joint FERC and NERC Press Release, FERC, *NERC Provide Industry Guidance to Ensure Grid Reliability Amid Potential Coronavirus Impacts* (March 18, 2020), available at <https://www.nerc.com/news/Headlines%20DL/FERC%20NERC%20031820%20final.pdf>.

³ COVID-19 ORC and CMEP Frequently Asked Questions, available at https://www.nerc.com/pa/comp/CAOneStopShop/COVID19_ORC_CMEP%20FAQs_Posted.xlsx.

⁴ NERC Press Release, *ERO Enterprise Releases New Guidance Temporarily Expanding Self-Logging Program Due to Coronavirus Impacts* (May 28, 2020), available at <https://www.nerc.com/news/Pages/ERO-Enterprise-Releases-New-Guidance-Temporarily-Expanding-Self-Logging-Program-Due-to-Coronavirus-Impacts.aspx>.

⁵ *ERO Enterprise Guidance: Potential Noncompliance Related to Coronavirus Impacts*, available at <https://www.nerc.com/pa/comp/CAOneStopShop/ERO%20Enterprise%20Guidance%20Potential%20Noncompliance%20Related%20to%20Coronavirus%20Impacts.pdf>.

⁶ NERC Press Release, *ERO Enterprise Issues Extension of Self-Logging Program Expansion and Deferment of On-Site Activities through Mid-2021*, available at <https://www.nerc.com/news/Pages/ERO-Enterprise-Issues-Extension-of-Self-Logging-Program-Expansion-and-Deferment-of-On-Site-Activities.aspx>.

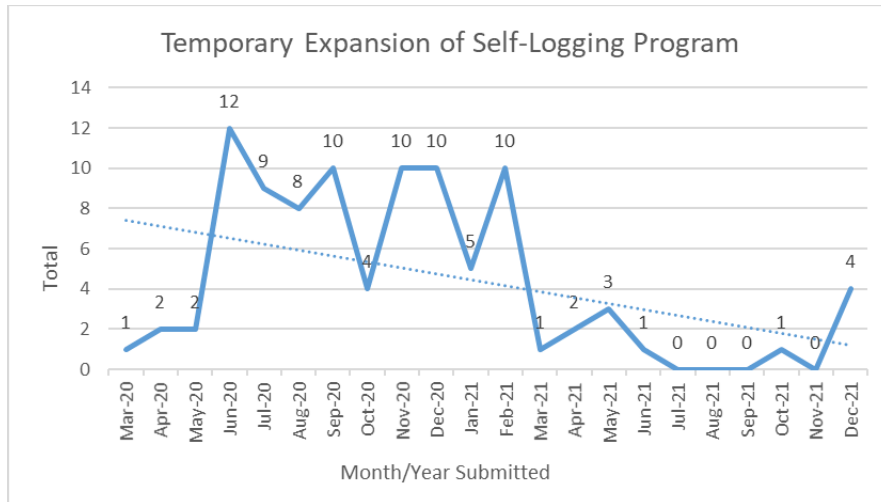


Figure 1.1: Temporary Expansion of Self-Logging Program

Of the 50 non-CIP logged instances of potential noncompliance, PRC-005, which involves protection system maintenance and testing, was the Reliability Standard with the most instances of potential noncompliance. Registered entities were unable to complete maintenance and testing as required because of limitations on social distancing, such as having plant personnel working within six feet of each other for extended periods of time and third-party contractors coming onsite.

Of the 45 CIP logged instances of noncompliance, CIP-003 and CIP-007, which involve security management controls and system security management, were the Reliability Standards with the most instances of potential noncompliance. Registered entities were unable to complete staff-led operational exercises because of limitations on travel and onsite work, such as performing walkthroughs and completing onsite tabletop exercises.

The majority of the other logged potential noncompliance occurred because of restrictions on travel, limiting the ability of either registered entity staff or third-party contractors to be onsite for required activities, which were – or will be – resolved once regular travel resumes and staff is able to complete onsite activities. Figure 1.2 shows logged noncompliance relating to registered entities’ COVID-19 response by Reliability Standard.

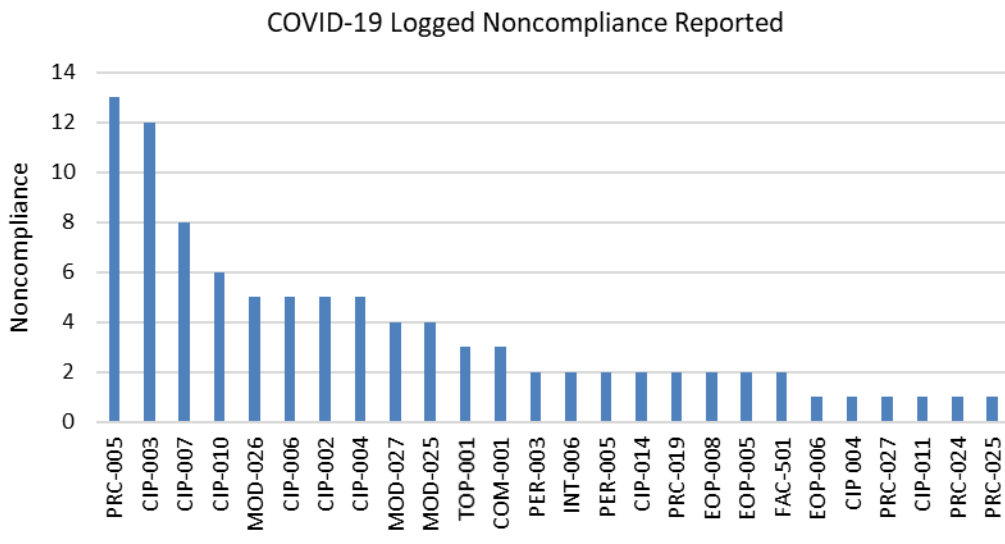


Figure 1.2: Logged Noncompliance related to COVID-19 Response

Compliance Monitoring During Pandemic Conditions

In 2021, the ERO Enterprise performed compliance monitoring engagements off-site using video and audio conference technologies.

The ERO Enterprise scopes the compliance monitoring engagements using a risk-based framework and conducts Subject Matter Expert (SME) interviews via web conferences and/or telephone communications. For cases where the ERO Enterprise typically conducts in-person observation or walk-through assessments, compliance monitoring staff are determining whether further analysis is required when the pandemic conditions no longer exist or if the registered entity provided sufficient evidence during the off-site review for reasonable assurance of compliance. For instances where the ERO Enterprise identifies high-risk areas that cannot be sufficiently reviewed off-site, the ERO Enterprise will schedule additional compliance monitoring engagements for the registered entity, as conditions permit.

Certification Engagements During Pandemic Conditions

In 2021, the ERO Enterprise performed certification engagements (certifications and certification reviews) off-site, or “virtually on-site,” using video and audio conference technologies.

The ERO Enterprise scopes the certification engagements to evaluate an entity’s Reliability Coordinator, Balancing Authority, and Transmission Operator capabilities using a risk-based approach. Engagements include tours (walk-through assessments) of control center facilities, Energy Management System (EMS) functionality demonstrations, and interviews with key entity O&P and CIP personnel. Discussions during certification engagements are more focused, which requires managing subject matter expert attendance and there has been an increase in the formality of documenting considerations. The ERO Enterprise continues to emphasize flexibility in schedule and the control of technology. The successful use of the available technology has prompted consideration for continued use of this approach, when pandemic conditions no longer exist, for engagements with entities that pose a lower risk or are located in remote areas where travel constraints may be an issue.

Appendix 4A Audits of Regional Entities

On July 22, 2019, NERC filed its Five-Year Electric Reliability Organization Performance Assessment (Performance Assessment). On January 23, 2020, the Commission issued an order accepting the NERC Performance Assessment, finding that NERC and the REs continue to satisfy their applicable statutory and regulatory criteria.⁷ In its order, the Commission sought clarification or improvements in the areas of periodic audits of REs’ compliance with the CMEP, among other matters.

On June 1, 2020, NERC submitted its first compliance filing in response to the Commission order, addressing NERC oversight of REs and the NERC guidance development process, among other topics, and provided an update regarding revisions to the NERC Rules of Procedure.⁸ On September 28, 2020, NERC submitted its second compliance filing with the Commission, addressing proposed revisions to the registration and certification processes and Sanction Guidelines, among other topics.⁹

⁷ *Order on Five-Year Performance Assessment*, 170 FERC ¶ 61,029 (2020), available at

<https://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20on%20Five-Year%20Performance%20Assessment.pdf>.

⁸ *Compliance Filing of the North American Electric Reliability Corporation in Response to the Order on the Five-Year Performance Assessment*, Docket No. RR19-7-001, available at

https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Performance%20Assessment%20Compliance%20Filing_PUBLIC.pdf.

⁹ *Second Compliance Filing of the North American Electric Reliability Corporation in Response to the Order on the Five-Year Performance Assessment*, Docket No. RR19-7-001, available at

On January 19, 2021, the Commission issued an order that, among other decisions, denied NERC’s proposal to replace its Appendix 4A audit process with an alternative program and directed NERC to submit completed reports on its audits of all six REs by June 30, 2023.¹⁰

In 2021, NERC Internal Audit developed the audit scope and timeline to conduct six individual Regional Entity (RE) CMEP audits. The audit scope was shared with a broad group of stakeholders, such as the NERC Enterprise Wide Risk Committee (EWRC), Compliance and Certification Committee (CCC), ERO Executive Committee, FERC and RE CMEP teams. An audit announcement memo was issued to all REs on November 15, 2021 to confirm the scope and timing of the audits, which will commence in January 2022.

In 2022, the RE CMEP audits will be executed in two phases, with three REs scheduled for the first phase (MRO, RF and SERC), and three REs scheduled for the second phase (TRE, WECC and NPCC).

Align Project and ERO Secure Evidence Locker

The Align project team continues to conduct extensive outreach to keep industry apprised of the status of the Align project. This outreach included updates in the NERC News,¹¹ Align newsletters,¹² and webinar.¹³ NERC has also set up a training site for Align and other tools that provide training for NERC, RE, and registered entity staffs on a variety of topics related to Align.¹⁴

In Q1 2021, the Align tool and ERO Secure Evidence Locker (SEL) went live with Release 1, consisting of Self-Report, Self-Logging, and Mitigation, for NERC, MRO, and Texas RE in March, and the remaining Regions went live with Release 1 in May 2021.

In Q3 2021, Align Release 2, consisting of Periodic Data Submittals, Technical Feasibility Exceptions, and Self Certifications, went live with a phased rollout of adoption of functionality across the REs. In September 2021 the Align User Group (AUG) kicked off with its first meeting.

In Q4 2021, the NERC Standards department updated the reports on the Reliability Standards webpage so that all reports are updated and auto-generated from Align on a daily basis. The Align project team commenced development of Release 4 on November 1, 2021. Release 4 will encompass functionality originally scheduled for Release 3: Inherent Risk Assessments (IRAs), Compliance Oversight Planning (COP), and enhancements to audits, audit planning, and scheduling. In December 2021, Align Release 3, consisting of core capabilities for audits, audit planning, and scheduling, was deployed to production but is not yet accessible by registered entities. REs will adopt Release 3 in 2022 and training plans for Release 3 will be announced in Q1 2022.

<https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Second%20Compliance%20Filing%20on%20Five-Year%20Order.pdf>.

¹⁰ Order on Compliance Filings, 174 FERC ¶ 61,030 (2021), available at

https://elibrary.ferc.gov/elibrary/filelist?document_id=14923127&accessionnumber=20210119-3072.

¹¹ See, e.g., November 2021 NERC News (posted December 1, 2021) at p. 2, available at

<https://www.nerc.com/news/newsletters/Newsletters/NERCNews-2021-11.pdf>; October 2021 NERC News at pp. 5-6 (posted November 2, 2021), available at <https://www.nerc.com/news/newsletters/Newsletters/NERCNews-2021-10.pdf>; and September 2021 NERC News (posted October 4, 2021) at pp. 4-5, available at <https://www.nerc.com/news/newsletters/Newsletters/NERCNews-2021-9.pdf>.

¹² Align: Registered Entity Newsletter (November 2021), available at

https://www.nerc.com/ResourceCenter/Align%20Documents/Align%20Registered%20Entity%20Newsletter_Nov2021.pdf.

¹³ ERO Enterprise Align and ERO SEL Lessons Learned (posted September 28, 2021), available

<https://www.nerc.com/ResourceCenter/Align%20Documents/ERO%20Enterprise%20Align%20and%20SEL%20Webinar.pdf>.

¹⁴ NERC Systems Training, available at <https://training.nerc.net/>.

CMEP Implementation Plan

In 2021, NERC posted the *2022 ERO Enterprise CMEP Implementation Plan*.¹⁵ The CMEP Implementation Plan (CMEP IP) focuses on risk elements. NERC identified the risk elements listed below using the risk element development process.¹⁶ The development process considered data, reports, and publications that identified reliability risks that translate into priorities for compliance monitoring. Risks considered came from the Reliability Issues Steering Committee's (RISC) report,¹⁷ the State of Reliability Report,¹⁸ the Long-Term Reliability Assessment, other publications from the RISC, special assessments, and ERO Event Analysis insights.

The following are the risk elements in 2022:

- Remote connectivity;
- Supply chain;
- Models impacting Long-term and Operational Planning;
- Gaps in Program Execution;
- Protection System Coordination; and
- Extreme Events.

The 2022 risk elements reflect the continued maturation of the risk-based approach to compliance monitoring. The discrete risks identified within the risk elements provide focus for measuring current state and validating registered entity progress. By tracking improvements, industry and the ERO Enterprise can justify focusing on different risks in the future. The ERO Enterprise intends that the 2022 risk elements will provide better guidance to industry and REs through its areas of focus. The updated CMEP IP also includes lists of registered functions and asset types related to the areas of focus and the description of the risk elements. Similar to 2020 and 2021, the ERO Enterprise developed a consolidated Implementation Plan and does not include RE-specific Implementation Plans as appendices.

The REs evaluate the relevance of the risk elements to the registered entity's facts and circumstances as they plan CMEP activities throughout the year. For a given registered entity, requirements other than those in the CMEP IP may be more relevant to assist mitigating the risk, or the risk may not apply to the entity at all. The ERO Enterprise tailors its focus, as needed, depending on regional distinctions or registered entity differences. In its 2022 oversight activities, NERC will continue to review how REs are tailoring compliance monitoring activities based on the risk elements and Compliance Oversight Plans.

Risk related to inaccuracies in Facility Ratings continues to be a focus for the ERO Enterprise in 2022, as part of the "Gaps in Program Execution" risk element, in response to the uptick in moderate and serious risk violations of the NERC Reliability Standard for Facility Ratings (FAC-008/FAC-009), which is discussed in more detail below.

¹⁵ 2022 ERO Enterprise CMEP IP, Version 1.0 (October 2021), available at <https://www.nerc.com/pa/comp/CAOneStopShop/ERO%20CMEP%20Implementation%20Plan%20v1.0%20-%202022.pdf>.

¹⁶ Appendix C, ERO Enterprise Guide for Compliance Monitoring (October 2016), available at <https://www.nerc.com/pa/comp/Reliability%20Assurance%20Initiative/ERO%20Enterprise%20Guide%20for%20Compliance%20Monitoring.pdf>.

¹⁷ RISC 2021 ERO Reliability Risk Priorities Report (August 2021), available at https://www.nerc.com/comm/RISC/Documents/RISC%20ERO%20Priorities%20Report_Final_RISC_Approved_July_8_2021_Board_Submitted_Copy.pdf.

¹⁸ NERC 2021 State of Reliability Report (August 2021), available at https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2021.pdf.

Harmonization of ERO Enterprise Practices Around Internal Controls

The ERO Enterprise continues its efforts to harmonize ERO Enterprise practices for evaluating internal controls as part of compliance monitoring activities. The harmonization efforts focus on the following topics:

- Approaches for reviewing registered entities' testing, design, and implementation of internal controls during CMEP engagements;
- Documenting results of internal control evaluations and providing feedback to registered entities; and
- Incorporating internal control evaluations from CMEP engagements into revised COPs.

In Q3 2021, the ERO Enterprise finished developing a common template that will help CMEP staff document and assess internal controls in a consistent and structured manner. The ERO Enterprise organized training for CMEP staff beginning in Q4 2021 on the internal control assessment template.

Compliance Oversight Plans

The ERO Enterprise uses COPs to convey the compliance monitoring oversight strategy for each registered entity. Each entity's COP tailors compliance monitoring activities based on entity-specific performance factors such as compliance history and events, with an emphasis on understanding an entity's internal controls. The ERO Enterprise uses COPs to provide comparative assessments and thereby shape oversight planning and resource allocation of ERO Enterprise staff.

Throughout 2021, the ERO Enterprise focused on implementation of the enhanced COP process, which includes the following:

- Six oversight strategies that convey the frequency of monitoring activities and type of compliance monitoring tool to be used;
- Thirteen risk categories that convey entity-specific risks intended to provide areas for continuous improvement as well as focus for ERO Enterprise staff in scoping its compliance monitoring activities; and
- A common report template that combines the Inherent Risk Assessment (IRA) and COP summary.

The ERO Enterprise developed and published a webinar and FAQ document highlighting the improvements included in the enhanced COP process in November 2020.¹⁹ As the ERO Enterprise increases its use of Align, it will continue to look for enhancement opportunities.

ERO Enterprise Staff Training and Industry Outreach

NERC CMEP staff provide training to ERO Enterprise staff through workshops, instructor-led training events, eLearning opportunities, and oversight of the training and education activities of the REs. These opportunities focus on identifying gaps in staff knowledge and capabilities related to the risk-based CMEP. Training and educational opportunities concerning Reliability Standards, compliance monitoring and enforcement processes, and other supporting reliability functional areas are provided to other NERC staff, RE staff, and industry participants at various events through the year. These programs are intended to enhance the knowledge and capabilities of the ERO Enterprise and industry in identifying and addressing risk, thereby improving the reliability of the BPS.

ERO Enterprise CMEP Staff Training

In accordance with Rules of Procedure (ROP) Sections 402 and 502, and Appendix 4C, NERC staff conducted Audit and Certification Team Lead Training in April 2021 and October 2021. The virtual training consisted of two sessions conducted over one week and was attended by 34 ERO Enterprise CMEP personnel. During the October 2021 Audit

¹⁹ Compliance Oversight Plan Process Enhancements webinar, available at <https://vimeopro.com/nerclearning/compliance-webinars/video/452622182>;

Compliance Oversight Plan Frequently Asked Questions, available at <https://www.nerc.com/pa/comp/CAOneStopShop/COP%20FAQ.pdf>.

and Certification Team Lead Training, a dry run was conducted on a new format to the training that will be rolled out in Spring 2022. The new format consists of training, and certificates of completion, for team leads and team members.

NERC conducted the 2021 Annual ERO Enterprise CMEP Staff Workshop in April 2021. As in 2020, the workshop was hosted as a virtual event due to the COVID-19 pandemic. The ERO Enterprise modified the workshop format from an all-day event to a weeklong event with opportunities to take different tracks. More than 250 ERO Enterprise CMEP staff attended the workshop. The theme for the workshop was “Our Maturing CMEP – The Next Step”. The workshop covered topics that are essential to the successful implementation of the new Align and Secure Evidence Locker (SEL) tools, and a renewed focus on entity practices and controls. A key focus of the workshop was to ensure CMEP staff clearly understood, and applied, the expectations around documentation. A renewed focus on entity practices and controls assists in ensuring a reliable and secure BPS, and requires CMEP staff to ask questions that go beyond basic compliance. Having a clear understanding of practices and controls assists the ERO Enterprise in better understanding the risk an entity poses, how the entity may perform in the future, and provides valuable feedback to the entity. The ERO Enterprise’s compliance monitoring, enforcement, registration, and certification collaboration groups also continued their work throughout 2021 to ensure processes remained in sync.

The ERO Enterprise scheduled the 2022 Annual ERO Enterprise CMEP Staff Workshop for April 2022, and as in 2021, staff will attend virtually. The workshop theme will be “The Evolving Role of CMEP Staff” with continued focus on the transformation of the CMEP and will include training on CMEP aspirations and concepts, process changes, new tools, documentation enhancement, internal controls, and technical training on Reliability Standards.

Industry Outreach via Webinars and Workshops

In 2021, the ERO Enterprise provided numerous outreach opportunities to industry stakeholders through workshops, monthly newsletters, assist visit programs, webinars, podcasts²⁰, and other events. These outreach events focused on a variety of topics, including – but not limited to – the following:

- Risks to grid security;
- Align and the Secure Evidence Locker (SEL);
- Audit best practices;
- Documenting work paper conclusions and feedback loops;
- Compliance Oversight Plans;
- Assessing effectiveness of entity practice and controls;
- Common themes seen in serious risk CIP violations;
- CIP emerging technologies;
- CIP supply chain;
- O&P transmission planning;
- O&P studies and assessments;
- Risk & Enforcement PNC Review Manual;
- Risk & Enforcement Sanction Guidelines and Penalty Tools;
- New or revised Reliability Standards that will be enforceable in the near future; and
- Shared trends and best practices involving currently enforceable Reliability Standards that have traditionally posed a higher risk to the reliability and security of the BPS.

²⁰ Currently Compliant Podcast, which is available at <https://vimeopro.com/nerclearning/currently-compliant-podcast/>

REs also provided outreach on Reliability Standards that are currently enforceable and pose a higher risk to the reliability and security of the BPS, sharing trends and best practices to mitigate risks. Multiple REs also highlighted FERC lessons learned from the FERC-led CIP audits of registered entities.²¹

These outreach efforts should help more registered entities achieve the reliability and security goals that the Reliability Standards were intended to support and help registered entities demonstrate compliance.

ERO Enterprise Collaboration with Stakeholders on Higher Tier Risks

In 2021, the ERO Enterprise continued collaborating with stakeholders, specifically the North American Transmission Forum (NATF), the Compliance and Certification Committee (CCC), and the Reliability and Security Technical Committee (RSTC) to advance mutual objectives, leverage complementary strengths, and minimize duplication of effort. This coordination focused on identified higher tier risks such as Facility Rating inaccuracies and selected supply chain risks for mitigation by registered entities.

Over the past several years through compliance monitoring and enforcement activities, the ERO Enterprise identified an uptick in moderate and serious risk violations of the NERC Reliability Standard for Facility Ratings (FAC-008/FAC-009), noting a correlation between accuracy of equipment inventory and change management. The discrepancies identified thus far include some significant and widespread discrepancies across the ERO Enterprise. This information suggests that registered entities with strong controls and change management procedures typically have better data that results in more accurate Facility Ratings than those entities that have not taken meaningful steps to develop strong controls, focus on change management, or validate field conditions with Facility Ratings databases. Those entities are most prone to discrepancies that may result in noncompliance.

The ERO Enterprise has messaged its focus on this risk through the CMEP Implementation Plan, which added a specific risk element, “Gaps in Program Execution,” in the 2019 and 2020 CMEP Implementation Plans intended to highlight the nexus of controls and performance in contributing toward change management weaknesses commonly observed as contributing to violations. This Risk Element has remained, appropriately, as part of the 2021 and 2022 CMEP Implementation Plans. In addition, significant RE outreach continued, along with evolved monitoring practices, in particular to understand extent of condition, best practices, and means of effective monitoring.

Throughout 2021, the NATF continued to work with its members to implement best practices related to Facility Ratings. The CCC Facility Ratings Task Force, started in 2020, became a joint CCC and Reliability and Security Technical Committee (RSTC) Task Force that focused on addressing the issues raised by the problem statement developed by the ERO Enterprise, in conjunction with the NATF.

This collaboration between the ERO Enterprise and stakeholders can help entities develop a risk-informed approach for evaluating the status of and developing strategies for ongoing management of their Facility Ratings program. This effort can also accelerate efforts to share best practices, including controls to ensure accurate Facility Ratings are established and maintained, and thereby address the risk posed by incorrect Facility Ratings.

Likewise, the ERO Enterprise has identified certain risks to reliability that are associated with supply chain risk management. Throughout 2021, the NATF worked with its members to develop streamlined, effective, and efficient industry practices that can address supply cyber security risks. In addition, they are examining existing third-party

²¹ FERC has issued several lessons learned reports from its CIP Reliability Audits, which are available at <https://www.ferc.gov/media/2021-report-commission-led-cip-audits> (2021 staff report); <https://cms.ferc.gov/sites/default/files/2020-10/2020%20CIP%20Audits%20Report.pdf> (2020 staff report); <https://www.ferc.gov/legal/staff-reports/2019/2019-report-audits.pdf> (2019 staff report); <https://www.ferc.gov/legal/staff-reports/2019/2018-report-audits.pdf> (2018 staff report); and <https://www.ferc.gov/legal/staff-reports/2017/10-06-17-CIP-audits-report.pdf> (2017 staff report).

certifications that might provide additional assurance in addressing supply chain risks and assist registered entities in developing an efficient cohesive supply chain cyber security program.

In conjunction with the Facility Ratings Task Force, the CCC also created a Supply Chain Task Force (SCTF) to collect and respond to industry concerns around the implementation and expectations concerning the new Supply Chain Standards. The SCTF provided suggestions on issues for discussion and recommendations to NERC on Supply Chain readiness issues and possible outreach opportunities to address industry concerns. In addition, the SCTF held a webinar to highlight some of the concerns and possible compliance approaches.

The ERO Enterprise also released a report in Q2 2021 concluding a joint FERC/NERC/Regional Entity study of Real Time Assessments.

In Q3 2021, the ERO Enterprise initiated an effort to better understand entities' implementation of CIP-008, specifically how a registered entity defines Reportable Cyber Security Incident and attempts to compromise. In Q4 2021, the ERO Enterprise collaborated with a small number of entities to focus on the practices and controls to evaluate the effectiveness of Incident Response reporting as related to the Reliability Standard requirements (e.g., CIP-008). The ERO Enterprise anticipates that the CIP-008 effectiveness activity will be complete in Q2 2022.

In Q4 2021, the ERO Enterprise initiated an activity to understand how RCs are performing their analysis and determining Interconnection Reliability Operating Limits (IROLs), including how the recommended practices outlined in the Reliability Guideline – Methods for Establishing IROLs have been incorporated. Aggregated information on potential industry best practices and concerns will be outlined in public reports after completion of the activities, which is expected in 2022.

Coordinated Oversight Program

The purpose of the Coordinated Oversight Program is to increase efficiency and eliminate unnecessary duplication of compliance monitoring and enforcement activities for Multi-Region Registered Entities (MRREs). A registered entity operating in or owning assets in two or more REs' jurisdictions with one or more NERC Compliance Registry (NCR) identification number is a potential candidate for inclusion in the voluntary Coordinated Oversight Program. In connection with the program, the ERO Enterprise takes into account reliability considerations such as, but not limited to, a registered entity's registered functions, load and generation capacity, transmission assets, and transmission and generation control centers.

During 2021, the ERO Enterprise granted 50 MRREs entry into the Coordinated Oversight Program. The number of registered entities participating in the Program increased from 211 in 2020 to 261 in 2021. For 2022, the ERO Enterprise will continue to review feedback from Coordinated Oversight CMEP experiences to support additional streamlining and improvements to the program, through program design, revisions to the guidance documents, or outreach enhancements.

Program Alignment Process

Throughout 2021, the ERO Enterprise continued to align CMEP activities across North America. The ERO Enterprise Program Alignment Process²² (Program Alignment) provides a structure for collecting, reviewing, resolving, and communicating differences in practices across the ERO Enterprise. Alignment issues come to the ERO Enterprise from a variety of sources, including industry submittals, NERC oversight, and regional feedback. Examples of issues considered in 2021 included potentially inconsistent assessment criteria for TOP-001-3 and EOP-005-3 applied by an RE.

²² Information about the ERO Enterprise Program Alignment Process is available at <http://www.nerc.com/pa/comp/Pages/EROEnterProAlign.aspx>

The Issues and Recommendations tracking spreadsheet provides transparency on these issues and their associated recommendations or resolutions. NERC continued to use the Issues and Recommendations tracking spreadsheet to track not only entity submissions but also ERO Enterprise alignment efforts, such as CMEP Practice Guides under development.

NERC 2021 CMEP Filings and Postings

In 2021, NERC and the REs addressed a variety of issues and questions through technical filings and analysis of information from across the North American BPS.

Proposed Revisions to the Compliance Monitoring and Enforcement Program

In September 2021, NERC and the REs filed a petition seeking FERC approval of several changes to the NERC Rules of Procedure to further enhance the risk-based approach to the CMEP whereby registered entities and the ERO Enterprise focus on the greatest risks of the reliability and security of the BPS.²³ The proposed revisions to the CMEP seek to (1) refine several rules related to compliance monitoring, especially Compliance Audits, (2) increase the efficiency of resolving minimal risk noncompliance, and (3) otherwise make other provisions of the Rules of Procedure easier to understand, administer, and follow.

Regarding the proposed revisions affecting compliance monitoring, the petition seeks to:

- Tailor the timing and location requirements for Compliance audits of Reliability Coordinators, Balancing Authorities, and Transmission Operators based on reliability and security risks;
- Provide registered entities with at least 270 days' notice of an upcoming Compliance Audit, in lieu of an Annual Audit Plan, with the detailed notice at least 90 days prior to the Compliance Audit;
- Focus registered entity evidence retention requirements on current and future-looking reliability and security;
- Post summary results of Compliance Audits instead of public versions of Compliance Audit reports; and
- Eliminate the posting of an annual Self-Certification schedule in favor of Self-Certifications tailored and scheduled according to specific risks. Registered entities would receive at least 60 days' notice of an upcoming Self-Certification.

Regarding the proposed revisions to increase the efficiency of resolving minimal risk noncompliance, the petition seeks to:

- Exempt properly self-logged items from the Preliminary Screen and subsequent reporting and disposition processes; and
- Adopt a process for reviewing Compliance Exception determinations by exception, instead of the monthly process of submission and duplicative review of all Compliance Exceptions by the Compliance Enforcement Authority (CEA), NERC, and then FERC. NERC and FERC would have the opportunity to review the determinations (by periodic sampling) to evaluate the noncompliance's minimal risk assessment and resolution as a Compliance Exception.

As of the drafting of this report, FERC has not issued an order regarding the September 2021 proposed revisions to the NERC Rules of Procedure.

²³ Petition of the North American Electric Reliability Corporation and the Regional Entities for Approval of Revisions to the NERC Rules of Procedure, available at

https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Petition%20for%20Approval%20of%20CMEP%20ROP%20Revisions_final.pdf.

Chapter 2: RE Oversight

NERC considers criteria developed by the CCC to measure the effectiveness and adherence of the REs to the CMEP, as detailed in CCC procedure document CCCPP10-6.²⁴ As NERC develops the objectives used for performing oversight for the various components of compliance monitoring and enforcement, NERC factors in the criteria identified in CCCPP10-6.

NERC's oversight activities indicate that the REs are implementing risk-based compliance monitoring according to the program guidelines, and efforts have been successful to improve alignment on various components of risk-based compliance monitoring. Additionally, compliance monitoring oversight activities included identifying ERO Enterprise-wide improvement to inform future training and oversight priorities while monitoring RE program effectiveness.

NERC continued to focus enforcement oversight activities on the most serious risks to the BPS. The Full NOPs filed in 2021 informed risk focus areas for ERO Enterprise resources towards serious risk violations in 2022. REs continued to use Spreadsheet NOP (SNOP) disposition to address minimal and moderate risk noncompliance. Overall, the ERO Enterprise has maintained use of streamlined disposition for minimal risk issues. The number of registered entities using the Self-Logging Program increased from 91 in 2020 to 100 in 2021. Additionally, the ERO Enterprise continued to process a large percentage of noncompliance posing a minimal risk to the BPS as CEs. In 2021, approximately 96 percent of all instances of minimal risk noncompliance were resolved as CEs, slightly higher than the approximately 95 percent of minimal risk noncompliance resolved as CEs in 2020.

The registration program continued to update the criteria that determine which BPS users are subject to Reliability Standards and maintained the Compliance Registry. The ERO Enterprise has continued its work on NERC Information Technology projects to determine the best path forward for requirements, design, and rollout of IT software. This process has focused on open communications within the ERO Enterprise to understand the needs and various perspectives to successfully align stakeholders. Additionally, the registration program has continued its work with the Organization Registration and Certification Group (ORCG) and the CCC ORCS to align ERO registration and certification work items.

The certification program focused on ERO Enterprise alignment to the revised NERC Rules of Procedure while continuing to seek out opportunities to further process improvements and lessons learned identified over the last several years. NERC provided feedback to REs for certification engagements and continued to provide training for RE certification staff. NERC also provided opportunities for registered entities to provide feedback on certification reviews, which indicated that ERO Enterprise certification staff conducted certification activities in a professional, effective, and efficient manner.

Align and Secure Evidence Locker Review

As part of the rollout of Align and the ERO Enterprise Secure Evidence Locker (SEL), NERC is periodically performing oversight of the tool's usage by the ERO Enterprise and registered entities. These oversight activities include both usages of the Align tool and the SEL. In Q3 2021, NERC reviewed information submitted by the entity and Regions specifically for Release 1 activities. This includes findings, potential noncompliance review, enforcement actions, requests for information, mitigation reviews. Based on NERC's preliminary findings, the Regions and registered entities are overwhelmingly submitting information into Align and the SEL that conformed to the ERO Enterprise expectations for data confidentiality and data security. As implementation of the Align and the SEL continues, NERC

²⁴ Criteria for Annual Regional Entity Program Evaluation (September 2019), available at <https://www.nerc.com/comm/CCC/Related%20Files%202013/CCCPP-010-6%20Criteria%20for%20Annual%20Regional%20Entity%20Program%20Evaluation.pdf>.

will continue to perform oversight to ensure consistency and proper data confidentiality on an ongoing basis. NERC will continue to identify opportunities for improvement and process enhancements while conducting these reviews.

Enforcement Oversight

The following enforcement metrics updates are current as of December 31, 2021.²⁵

Focus on Serious Risk Noncompliance

NERC filed nine Full NOPs that included 21 violations of the operations and planning (non-CIP) Reliability Standards and carried a total combined penalty of over \$4.4 million. These Full NOPs included 11 serious and 10 moderate risk violations. The Full NOPs filed in 2021 addressed a range of serious risk issues, including:

- Failure to maintain accurate Facility Ratings when establishing, acquiring, or changing facilities;
- Ineffective processes and management in certain programs, including Facility Ratings, transmission maintenance and inspection and workforce oversight; and
- Ineffective vegetation management programs and clearing activities.

NERC filed 16 Full NOPs that included 89 violations of the Critical Infrastructure Protection Reliability Standards.

Vegetation Management and FAC-003 R2 Violations

NERC filed three Full NOPs resolving violations of FAC-003 R2 in 2021. The ERO Enterprise continues to focus on vegetation contacts and encroachments into the Minimum Vegetation Clearance Distance (MVCD) based on more vegetation encroachments on BES transmission facilities in recent years. The ERO Enterprise considers both vegetation encroachments into the MVCD and actual vegetation contacts as significant risks to the reliability of the BPS and will use all appropriate compliance monitoring, enforcement, and mitigation tools to address such risks.

Spreadsheet NOPs

NERC filed 14 SNOPs that included 26 violations of the operations and planning (non-CIP) Reliability Standards and carried a total combined penalty of slightly more than \$400,000.

NERC filed 21 SNOPs that included 72 violations of the Critical Infrastructure Protection Reliability Standards.

NERC's oversight of SNOPs in 2021 confirmed that the REs continue to use this disposition method appropriately. REs used the SNOP disposition to resolve minimal and moderate risk noncompliance that did not pose an elevated risk to the BPS but were not otherwise appropriate for FFT or CE treatment. Violations involving repetitive conduct, excessive durations, or a lack of commitment to compliance may not be appropriate for CE or FFT treatment despite posing minimal or moderate risks to reliability or security. Resolving such violations with settlement agreements or Notices of Confirmed Violation sends a clear message to the registered entity that its conduct and compliance culture need improvement.

Streamlined Disposition Methods

By the end of 2021, the ERO Enterprise added nine registered entities into the Self-Logging Program. There are now 100 registered entities self-logging, compared to 91 registered entities that were self-logging in 2020, 88 in 2019, 78 in 2018, and 67 in 2017. In addition, the ERO Enterprise processed 262 self-logged noncompliance as CEs in 2021, an increase from the 194 self-logged noncompliance processed as CEs in 2020, which was the highest number of self-logged CEs since implementation of the Self-Logging Program.

Out of 1,029 instances of noncompliance posing a minimal risk to the reliability of the BPS processed during 2021, the ERO Enterprise processed 986 (approximately 96 percent) as CEs. The ERO Enterprise processed the remaining

²⁵ Appendix A includes the NERC enforcement metrics-related graphs and charts.

instances of noncompliance posing a minimal risk as FFTs, SNOPs, or Full NOPs, due to linkages to other noncompliance in FFTs, SNOPs, or Full NOPs, or because of aggravating compliance history.

Annual Find, Fix, Track, and Report and Compliance Exception Programs Review

In August 2021, NERC issued a final notice of completion for the 2020 annual review of the FFT and CE programs.²⁶ NERC and FERC staff jointly reviewed a sample of 29 out of 215 FFT instances of noncompliance and a sample of 33 out of 1103 CE instances of noncompliance posted by NERC between October 2019 and September 2020. Sampling for the 2020 program year indicated that the REs appropriately processed all sampled possible violations as FFTs or CEs and that all of the possible violations have been adequately remediated, with the exception of remaining issues with ongoing mitigation that was not yet completed when publicly posted.

NERC determined that all of the posted noncompliance were consistent with the evidence provided in response to the annual review and agreed with all the final risk determinations. Additionally, all the affidavits required for noncompliance processed as FFTs were appropriately signed by officers within the companies. NERC noted the continued improvement in the quality of dispositions that were posted with a decreasing number of documentation concerns. Specifically, the risk statements in FFTs and CEs has improved significantly over the past several years. NERC also noted ongoing improvement in the clear identification of factors affecting the risk before mitigation, as well as the lack of actual harm, which was identified in all samples. In addition, the FFTs and CEs sampled did not contain any material misrepresentations by the registered entities. Based on these findings, NERC concluded that the REs properly execute FFTs and CEs and there is consistent improvement in program implementation, including significant alignment across the ERO Enterprise, particularly in the processing and understanding of the risk associated with individual noncompliance.

NERC and FERC staff started the 2021 Annual FFT and CE Programs review in Q4 2021. The data requests for the fiscal year 2021 review were sent to REs on October 12, 2021, and the REs provided evidence documents by November 19, 2021.

Compliance Monitoring Oversight

NERC Oversight Priorities

In 2021, NERC executed its RE compliance monitoring oversight plan to assess the implementation of risk-based compliance monitoring activities. Risk-based compliance monitoring aims to identify, prioritize, and assure effective and efficient mitigation of risks to the reliability and security of the BPS. To support this mission and the ERO Enterprise's goal to have an objective and risk-based compliance monitoring program, NERC prioritized and conducted compliance monitoring oversight activities throughout the year. As the COVID-19 pandemic continues, NERC continued its oversight related to the transition of all compliance monitoring activities to off-site engagements.

NERC focused 2021 activities on the following oversight priorities:

- Compliance monitoring response to COVID-19 and transition to off-site activities,
- RE-specific follow-up related to prior oversight recommendations,
- Development of risk and monitoring conclusions, including:
 - Application of professional judgment and technical justifications to risk and monitoring activities;
 - Documenting conclusions to sufficiently capture the nature and extent of work performed; and
 - Consideration and documentation of internal controls throughout all compliance monitoring activities.

²⁶ *NERC 2021 Annual FFT and CE Report*, Docket No. RC11-6-00 (Nov. 17, 2021), available at <https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/2021%20Annual%20FFT%20and%20CE%20Report.pdf>.

- Consistency and Program Alignment of RE compliance monitoring implementation.
- ERO Enterprise effectiveness activity regarding CIP-008-6 to gain visibility and better understand how industry has implemented their incident response identification and reporting program.

Supporting Activities

In 2021, NERC performed a variety of activities designed to support the identified priorities, including review and update of the ERO Enterprise CMEP IP, oversight of RE compliance monitoring activities, audit observations of registered entities, and continuous monitoring of information submitted to NERC. These oversight activities assess the effectiveness of program implementation and inform ongoing ERO Enterprise staff training, industry outreach and education, and other opportunities for program improvements.

Targeted Monitoring

NERC implemented targeted oversight activities to review specific components of the RE CMEP, which NERC uses to evaluate the oversight priorities. In addition, NERC continued its monthly oversight conference calls with each RE which are regularly occurring touchpoints used to address a variety of topics throughout the year. NERC oversight activities identified progress in planning and executing risk-based compliance monitoring, as well as opportunities for continued program enhancements and ERO Enterprise guidance and training.

Results

Enterprise-wide Progress

NERC identified ERO Enterprise-wide progress in planning and executing risk-based compliance monitoring as a result of the oversight activities. The REs consistently met NERC's oversight objectives, including substantial progress towards addressing the opportunities previously identified.

NERC continued to ensure that due to COVID-19 the REs successfully transitioned to all off-site engagements, working collaboratively with registered entities to utilize technology solutions to maintain effectiveness of engagements. The ERO Enterprise continues to evaluate the level of reasonable assurance able to be obtained off-site for select Reliability Standards (e.g. where walk-through assessments are typically conducted, observation of system operator actions, etc.) and whether further analysis is required as conditions allow.

Additionally, in addressing previously identified opportunities, NERC determined that overall the REs demonstrated improvement in the quality of documentation across the IRA, COP, and compliance monitoring activities. The ERO Enterprise continued to enhance the CIP Evidence Request Tool (ERT) to assist the ERO Enterprise in ensuring consistency in the collection of initial CIP evidence. The ERO Enterprise continues to review and improve the ERT with industry input. The ERT has been valuable in assisting RE auditors in the initial collection of CIP evidence and has set evidentiary expectations with registered entities.

Enterprise-wide Opportunities

While conducting oversight activities, NERC identified several ERO enterprise-wide opportunities for improvement. NERC uses these opportunities for improvement in future training and oversight priorities.

NERC determined there is a continued opportunity to understand how registered entities have mitigated reliability and security risks while achieving compliance with Reliability Standards. For example, there are opportunities to better integrate the evaluation and documentation of an entity's effectiveness in addressing or mitigating known risks, including demonstrating compliance and sharing best practices with industry. While progress was made concerning some Reliability Standards (e.g., FAC-008-3 and CIP-005-5), the opportunity remains, especially around more complex standards (e.g., TPL-001-4 and CIP-014-2), as well as for areas of focus identified in the 2022 CMEP IP risk elements. This includes enhancing RE proficiency in understanding and evaluating internal controls related to these standards.

The ERO Enterprise continues to assess and respond to guidance and training needs.

Continuous Monitoring

Continuous monitoring consists of NERC staff's ongoing review of processes and information to evaluate RE program effectiveness. Throughout 2021, NERC collected and reviewed post-audit and spot check feedback surveys, COPs and Compliance Audit reports.

Registered Entity Post-Audit/Spot Check Feedback Surveys

In 2021, NERC received 53 surveys from registered entities within six REs for recent compliance monitoring activities. Overall, NERC concluded that registered entities agreed that RE audit staff conducted Compliance Audits in a professional, efficient, and effective manner. Survey responses also indicated opportunities to better communicate registered entity risks, as well as how internal controls information is used during compliance monitoring activities. NERC will continue to monitor this type of registered entity feedback and will work with the REs to help ensure registered entities understand how risk and internal controls inform monitoring activities.

Compliance Audit and Spot Check Reports

In 2021, NERC focused its review of Compliance Audit and Spot Check reports to ensure all compliance monitoring activities were performed and results properly reported. Throughout 2021, NERC reviewed all the 2020 Q3 and Q4 Compliance Audit and Spot Check reports and the 2021 Q1 and Q2 Compliance Audit and Spot Check reports and validated that the compliance monitoring activities were completed. This completed the review of 2020 Compliance Audit and Spot Check reports and confirms that all scheduled 2020 compliance monitoring activities were completed and the results were properly reported. NERC expects that it will review and report on the 2021 Q3 and Q4 Compliance Audit and Spot Check reports in 2022 via future quarterly CMEP reports.

Technical Feasibility Exceptions

In September 2021, NERC filed its *2021 Annual Report on Wide-Area Analysis of Technical Feasibility Exceptions*²⁷ with FERC. The report noted that the number of registered entities engaging in the Technical Feasibility Exception (TFE) program decreased from 116 registered entities in 2020 to 114 registered entities in 2021. The percentage of TFE activity, such as requests for new TFEs, modifications of existing TFEs, and terminations of TFEs, increased in all REs except for one RE since the last report. Most of the program activity includes adjustments in registered entities' counts of TFEs during asset life cycles. As a result, the REs have been able to better evaluate the risk and impact of TFEs and gain a better understanding of the benefit of the TFE process compared to the administrative burden it places on registered entities and REs. As noted earlier, the number of registered entities that are engaging in the TFE program continues to decline, as does the total number of TFEs. To that end, NERC and the REs continue to consider alternatives to the current TFE program to alleviate the administrative burden on registered entities and the ERO Enterprise. As the current Standards Drafting teams consider modifications to the CIP Standards, NERC will continue to ask them to modify or replace TFE language in the Reliability Standards.

Certification Oversight

2021 Certification Completions

During 2021, NERC certified, upon recommendation from the RE, one new Transmission Operator (TOP) and a limited certification of a Reliability Coordinator (RC) to perform CIP functions. In addition to these certifications, ERO Enterprise staff performed 12 certification reviews already certified and operational entities, including one footprint change, two control room relocations, and nine Energy Management Systems (EMS) upgrades. For 11 certification review triggers, the REs and NERC made a mutual decision to pursue a lesser activity.

²⁷ *Annual Report of NERC on Wide-Area Analysis of Technical Feasibility Exceptions*, Docket Nos. RR10-1 and RR13-3 (Sept. 28, 2021), available at <https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/TFE%20Annual%20Report%202021.pdf>.

2021 Accomplishments

NERC continued to provide certification program oversight through direct participation in all certification engagements as required by NERC's ROP and participation on biweekly ORCG calls.

In January 2021, FERC approved several NERC Rules of Procedure enhancements. They included:

- Authority to Reject a Request for Certification on its face (Appendix 5A, Section IV, Initiation (1)(c)(ii));
- Authority to Issue Conditional Certification (Appendix 5A, Section II, Organization Certification & Section IV, Initiation (11)(a) (i-iii) and Appendix 5A, Section V);
- Authority to Revoke Certification (Appendix 5A, Section V); and
- General Process Enhancements (such as clarifications regarding the scope of Certification Reviews, certification team qualifications, and milestones).

In light of the ROP certification review revisions, the ERO Enterprise has discussed how to utilize professional judgment when deciding whether to engage in the full certification review process or to conduct a lesser activity necessary to understand the changes that triggered the certification review. The process for making such a decision is described in the revised NERC Rules of Procedure, Appendix 5A, Section V, Initiation, item 2.d. ERO Enterprise staff may consider many factors when making such a decision, but they should always consider entity-specific facts and circumstances when assessing risks and determining the appropriate resulting activity.

The ERO Enterprise appreciates industry assistance in identification and notification of the three identified categories of changes. This allows the selection of resulting activity, if any, to be scheduled and performed with minimal impact and, ideally, before the change actually occurs so resulting issues and recommendations can be considered by the registered entity. If ERO Enterprise staff become aware of such a change that has not been reported by the affected registered entity, the Regional Entity or NERC may initiate the Certification review process per the NERC Rules of Procedure, Appendix 5A, Initiation, item 2.c.

Many certification review triggers to be reviewed in 2021 experienced delays relating to availability of equipment and/or technical support, which may lead to a busier 2022. The shift in program workload associated with review of changes at already certified and operational entities continued in 2021.

No certification appeals were in process in 2021, and no new appeals were received.

NERC continued providing program-level feedback to REs for certification engagements including response for continued program performance in light of travel restrictions due to COVID-19.

NERC continued to make Fundamentals of Auditing and Gathering Quality Evidence modules available to ERO Enterprise personnel and Industry subject matter experts through NERC's learning management system and on-demand computer-based training modules. The Certification Team training was revised in 2021 to support implementation of the ROP amendments and other program enhancements.

Registered Entity Post-Certification Feedback Surveys

In 2021, NERC received survey responses from registered entities engaged in certification activities. Overall, NERC concluded that registered entities agreed that ERO certification staff conducted certification activities in a professional, efficient, and effective manner. Registered entities commented on the value of the dialogue with team members during the offsite visit as well as flexibility in response to onsite schedule changes to accommodate project uncertainties.

Registration Oversight

NERC is ultimately responsible for determining which BPS users, owners, and operators are subject to approved Reliability Standards and for maintaining the corresponding NCR of organizations. In carrying out these

responsibilities, NERC relies on the REs to apply and implement registration criteria as part of the Organization Registration Program. NERC conducts annual official oversight engagements of each RE as well as monthly touchpoints to discuss ongoing activities.

2021 Registration Changes

NERC verifies registration change activity before approval and reviews documentation relating to change requests to the registry. In 2021, NERC processed 300 functional registration changes, including 201 function activations and 99 function deactivations. Of the 99 function deactivations:

- 52 were due to compliance responsibilities assumed by another registered entity;
- 19 were determined to not meet registration criteria;
- 18 were physically shutdown;
- 6 were sold;
- 3 were determined to be registered as a DP-UFLS only entity; and
- One was due to a BES Exception.

Registration Change Activity

NERC reviews all proposed registration changes submitted by the REs. NERC's oversight in this critical activity is focused on the RE's adherence to the ROP registration criteria. Each RE provides detailed information based on the function, change request, and other information asked for by NERC. Oversight of each facet of the registration change activity process is crucial to ensure that each of the REs are implementing consistent approaches.

Registration Alignment

The NERC ORCG and the CCC ORCS continue to collaborate on ERO Enterprise registration and certification work items. The ORCG consists of NERC and the REs, and the ORCS is a subcommittee of the CCC consisting of industry participants with NERC support. The two groups began working together in 2017. Since then, the groups have worked together closely on proposed ROP changes, Information Technology project efforts, certification schedule and program improvement opportunities, and emerging registration issues.

Coordinated Functional Registration Outreach

In 2021, the ERO Enterprise engaged entities that have Coordinated Functional Registrations (CFRs) and did outreach to improve their user experience related to enhancements. The outreach involved several webinars, including one-on-one sessions with registered entities that were interested in improving their skills administering CFRs. In addition, registered entities were informed of an Align enhancement planned for 2022 that would provide Align functionality with CFR data.

BES Registration Exceptions

In 2012, FERC issued Order No. 773 approving revisions to the definition of the BES and related changes to the ROP. These changes included the addition of Appendix 5C of the ROP containing the Procedure for Requesting and Receiving an Exception from the Application of the NERC Definition of BES. In 2014, FERC accepted NERC's compliance filing with further revisions to the BES definition. FERC highlighted that new elements included in the revised definition of the BES would become subject to relevant Reliability Standards two years after the effective date of the revised definition. The revised BES definition and Appendix 5C of the ROP became effective on July 1, 2014.²⁸

²⁸ *Revisions to Electric Reliability Organization Definition of BES and Rules of Procedure*, Order No. 773, 141 FERC ¶ 61,236 (2012); order on reh'g, Order No. 773-A, 143 FERC ¶ 61,053 (2013); order denying reh'g, 144 FERC ¶ 61,174 (2013). See also, North American Elec. Reliability Corp., 146 FERC ¶ 61,199 (2014).

NERC provides oversight and direction on several specific items, including the three-year certification process as identified in the ROP Appendix 5C, BESnet instances, and general process steps surrounding necessity of certain elements of the BES.

In 2021, NERC reviewed, the following Exception Requests:

- Disapproved one Exclusion Exception Request from MRO;
- Approved one Exclusion Exception Request from WECC; and
- Approved one Exclusion Exception Request from NPCC.

In 2022, NERC will continue to administer its BES process and oversight work as required by Appendix 5C of the ROP.

Improvements in RE Oversight

Following the coordination with NERC Internal Audit in 2020, NERC took additional steps in 2021 to clarify the audit and oversight responsibilities. In particular, NERC's efforts will focus on avoiding duplicative efforts between the audit engagements conducted by Internal Audit and the oversight engagements conducted by Regulatory Programs; and using risk-based approaches for the work done by both Internal Audit and Regulatory Programs when evaluating the performance of the REs.

Oversight of Canadian CMEP Efforts

The ERO Enterprise's CMEP activities extend into eight Canadian provinces – British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia. NERC and three REs (WECC, MRO, and NPCC) have agreements with applicable governmental authorities in each province that provide the affected REs and NERC with province-specific compliance monitoring and enforcement responsibilities. NERC and the REs with responsibilities in Canada provide the NERC Board of Trustees Compliance Committee with periodic updates on Canadian CMEP activities.

Chapter 3: 2021 Metrics Highlights

Average Age of Open Noncompliance

In 2021, the ERO Enterprise observed a slight decrease in the average age of open noncompliance, falling from 14.6 months at the end of 2020 to 14.3 months by the end of 2021. The average age of noncompliance had been rising steadily from 2018 to 2020, driven by increasing volume of noncompliance reported to the ERO Enterprise and significant compliance failures that required more time to process, but remained stable in 2020 and 2021.

Mitigation Completion Status

For all REs, 100 percent of mitigation for noncompliance discovered in 2015 or before has been reported as complete. Registered entities have made significant progress in mitigating older noncompliance from 2016-2018, with nearly 98.3 percent or more of noncompliance discovered in those years having been mitigated.

Self-Logging Program Participation

In 2021, nine registered entities joined the Self-Logging Program, bringing the total up to 100 registered entities. In addition, the number of self-logged CEs remained near the highest levels since implementation of the Self-Logging Program.

Serious Risk Issues

In 2021, NERC filed Full NOPs that, in total, contained 69 serious risk violations. Fifty-eight of the serious risk violations involved CIP Standards, while the eleven serious risk O&P violations involved Transmission Maintenance, Transmission Vegetation Management, Facility Ratings, Transmission and Generation Protection System Maintenance and Testing, Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance, and Generator Operation for Maintaining Network Voltage Schedules. The penalties assessed for O&P Full NOPs with serious risk violations ranged up to \$2.2 million, reflecting the gravity of the violations and signaling to registered entities the importance of avoiding the conduct and underlying root causes that led to those violations.

Streamlined Disposition

Approximately 85 percent of all noncompliance processed in 2021 was processed via the CE and FFT disposition methods, which require no settlement agreement and have no penalties associated with them. This was a decrease from 2020, which saw approximately 91 percent of all noncompliance processed via the CE and FFT disposition methods. This change is a result of an increased percentage of SNOPs and full NOPs filed in 2021 compared with 2020 (see figure A.10).

Repeat Moderate and Severe Risk Violations

As a response to the 2014 FERC Five-Year Order,²⁹ NERC has been measuring the number of repeat noncompliance posing a moderate or serious risk.³⁰ In its Five-Year Order, FERC identified repeat noncompliance as a key indicator of the effectiveness of the CMEP in recognizing, mitigating, and preventing violations.

To measure the effectiveness of the risk-based CMEP on reducing noncompliance, NERC reviews moderate and serious risk violations and includes them in one of three categories:

²⁹ “[W]e direct NERC to include an analysis of repeat violations in its next Performance Assessment that will allow NERC, the REs, and FERC to evaluate whether NERC’s compliance and enforcement efforts have been effective in improving registered entities’ compliance and overall reliability.” North American Electric Reliability Corporation, *Order on the Electric Reliability Organization’s Five-year Performance Assessment*, 149 FERC ¶ 61,141 at P 39 (2014).

³⁰ This metric focuses on the noncompliance posing the most significant risks to the BPS. A number of repeat noncompliance stems from high frequency conduct. These typically pose a minimal risk to reliability, particularly if identified promptly. Regardless of the level of risk, it is important to identify and mitigate the underlying cause of noncompliance adequately to prevent repeat conduct that could pose a greater risk.

- Noncompliance with no prior compliance history;
- Noncompliance with prior compliance history that does not involve similar conduct; and
- Noncompliance with compliance history that includes similar conduct.

The number of moderate and serious risk noncompliance with similar prior conduct was higher in 2021 due to an increase in serious and moderate risk violations filed in 2021 compared to 2020, with approximately four times more serious risk violations and 20 percent more moderate risk violations filed. Serious risk violations have a higher likelihood of relevant compliance history and repeat conduct. The majority of the serious risk violations filed in 2021 had been mitigated well before they were filed with FERC.

The ERO Enterprise will continue to monitor the level of moderate or serious risk violations with similar conduct and engage in outreach with registered entities to ensure they are adequately addressing root causes of noncompliance and implementing effective internal controls to reduce the risk of noncompliance that does occur.

Self-Assessment and Self-Identification of Noncompliance

In the past five years, approximately 80 percent of new noncompliance has been self-reported by the registered entities, which include both Self-Reports and self-logged issues. In 2021, approximately 89 percent of the noncompliance was self-identified which includes, Self-Reports, Self-Logs, self-certifications, and periodic data submittals. Registered entities' self-identification of noncompliance is an indicator that registered entities continue to utilize their internal controls to assess, identify, and correct the issues that may affect grid reliability and security.

Compliance Guidance

In late 2015, the NERC Board of Trustees approved the Compliance Guidance policy, which includes Implementation Guidance and CMEP Practice Guides. Pre-Qualified Organizations or Standards Drafting Teams develop Implementation Guidance, which provides industry-vetted and ERO Enterprise-endorsed examples and approaches to illustrate how registered entities could comply with a Reliability Standard. The ERO Enterprise develops the CMEP Practices Guides to address how ERO Enterprise CMEP staff execute compliance monitoring and enforcement activities rather than how to implement the Reliability Standard.

During 2021, the ERO Enterprise received 11 new proposed Implementation Guidance documents from Pre-Qualified Organizations and Standards Drafting Teams, which the ERO Enterprise declined to endorse for a variety of reasons. Additionally, the ERO Enterprise carried over one proposed Implementation Guidance document from 2020 that was still under review at the beginning of 2021; it was ultimately endorsed in 2021. The ERO Enterprise also developed and posted seven CMEP Practice Guides in 2021.

Starting in 2021, all new proposed Implementation Guidance documents contain a statement that, if endorsed, the Implementation Guidance will be periodically reviewed to ensure it remains current and valid. The ERO Enterprise performed the initial periodic review on all previously endorsed Implementation Guidance during 2021. During 2021, the NERC Compliance Guidance website was updated for ease of use and documentation location. A "General Guidance" section has been added to the NERC Compliance Guidance web page. This section houses compliance related guidance documents that do not meet the criteria for "Compliance Guidance" as established in the NERC Compliance Guidance Policy; such as compliance lessons learned, whitepapers, and Frequently Asked Question (FAQ) documents.

Reliability Standard Audit Worksheets

During 2021, NERC issued announcements for fifteen Reliability Standard Audit Worksheets (RSAWs) available on the NERC public website.³¹

³¹ Reliability Standard Audit Worksheets (RSAWs), available at [https://www.nerc.com/pa/comp/Pages/Reliability-Standard-Audit-Worksheets-\(RSAWs\).aspx](https://www.nerc.com/pa/comp/Pages/Reliability-Standard-Audit-Worksheets-(RSAWs).aspx).

Chapter 4: Looking Ahead to 2022

Priorities for 2022

To guide enforcement and compliance monitoring activities in 2022, NERC has identified the following priorities:

- Continue with delivery of Release 4 of the Align tool;
- Continue to provide training to RE CMEP staff to enhance the ERO Enterprise work products and review how the ERO Enterprise tools are being used;
- Evaluate post-COVID-19 monitoring activities;
- Support development and sustainment of risk-based Facility Rating programs and resolution of Facility Ratings noncompliance;
- Continue to focus on program alignment, including consistency efforts on penalties, mitigation, coordinated oversight for MRREs, training exercises, technical training, documentation, and risk assessments;
- Monitor the progress of the ERO Enterprise's enforcement streamlining efforts by examining the balancing of efficient resolution of minimal risk noncompliance with timely, comprehensive resolutions of higher risk violations;
- Continue rollout of enhanced Compliance Oversight Plans for engagements in 2022; and
- Continue to focus on how registered entities have mitigated reliability and security risks while achieving compliance with the Reliability Standards, including intentional focus on internal controls.

2022 Metrics

In 2022, the ERO will continue to monitor and report on key CMEP and ORCP activities.

Appendix A: Enforcement

Information regarding the ERO Enterprise's Enforcement activities and metrics is provided below, focusing on noncompliance inventory; identification, mitigation, disposition, and risk of noncompliance; vegetation management; and Facility Ratings.

Noncompliance Inventory

Open Noncompliance in the ERO Enterprise Inventory

The ERO Enterprise's open noncompliance inventory consists of noncompliance reported which has not yet been processed by filing or submission to FERC or dismissed. As of the end of 2021, Figure A.1 shows that the open noncompliance inventory is primarily comprised of noncompliance reported in 2020 and 2021. Only 16% of open noncompliance was reported in 2019 or earlier.

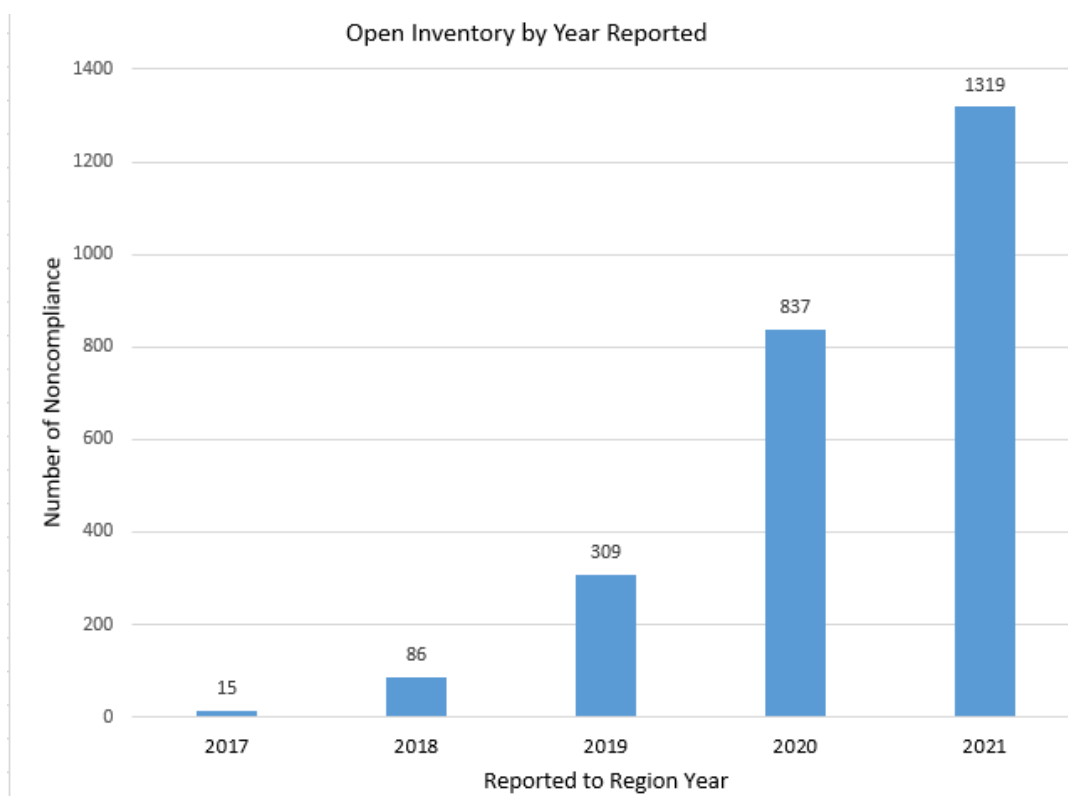


Figure A.1 ERO Enterprise's Inventory by Year Reported

Reported Age of Noncompliance in ERO Enterprise Inventory

Figure A.2 shows the age of all open noncompliance in the ERO Enterprise inventory, and corresponds to the information shown in Figure A.1. The ERO Enterprise strives to process noncompliance in a timely manner such that its open noncompliance older than two years old is kept to a minimum. Information about mitigation of the oldest noncompliance in inventory can be found in the “Mitigation of Noncompliance” discussion below.

Age of Noncompliance in ERO Enterprise Inventory

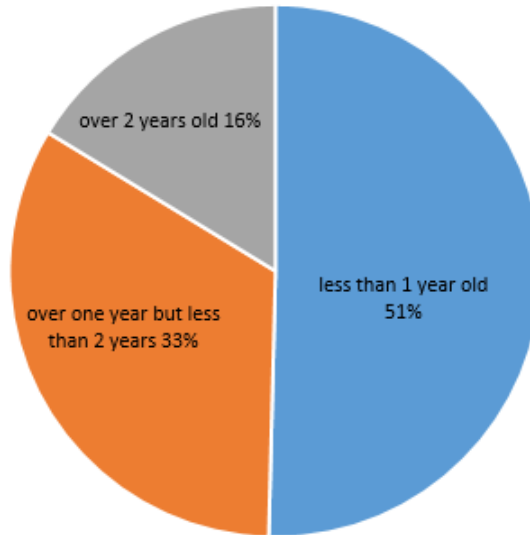


Figure A.2: Age of Noncompliance in ERO Enterprise’s Inventory

Average Age of Noncompliance in the ERO Enterprise Inventory

Figure A.3 shows that the average age of noncompliance in the ERO Enterprise’s inventory for the past eight quarters for CIP, O&P, and overall inventory.³² The overall average age of CIP noncompliance in the past eight quarters has been roughly about 15 months, while O&P inventory average is about 12 months and the combined O&P and CIP together comes to about 14 months. The average age of noncompliance shows slight changes from one quarter to another and reflect both the number of newly reported noncompliance and the age of cases processed in that quarter – resolution of older cases lowers the average age while resolution of newer cases raises the average age. The ERO Enterprise strives to keep the average age of open noncompliance in its inventory to 12 months or less.

Seventy percent of the older inventory (2019 and older) are CIP noncompliance, with smaller numbers of noncompliance involving Facility Ratings, Verification and Data Reporting of Generator Real and Reactive Power Capability, Transmission Operations, and Protection System maintenance and testing. Noncompliance with the currently effective CIP Standards represents approximately 63 percent of all open noncompliance in the inventory.

³² The age of noncompliance in the inventory runs from the time the noncompliance is reported to the end of the calculated quarter.

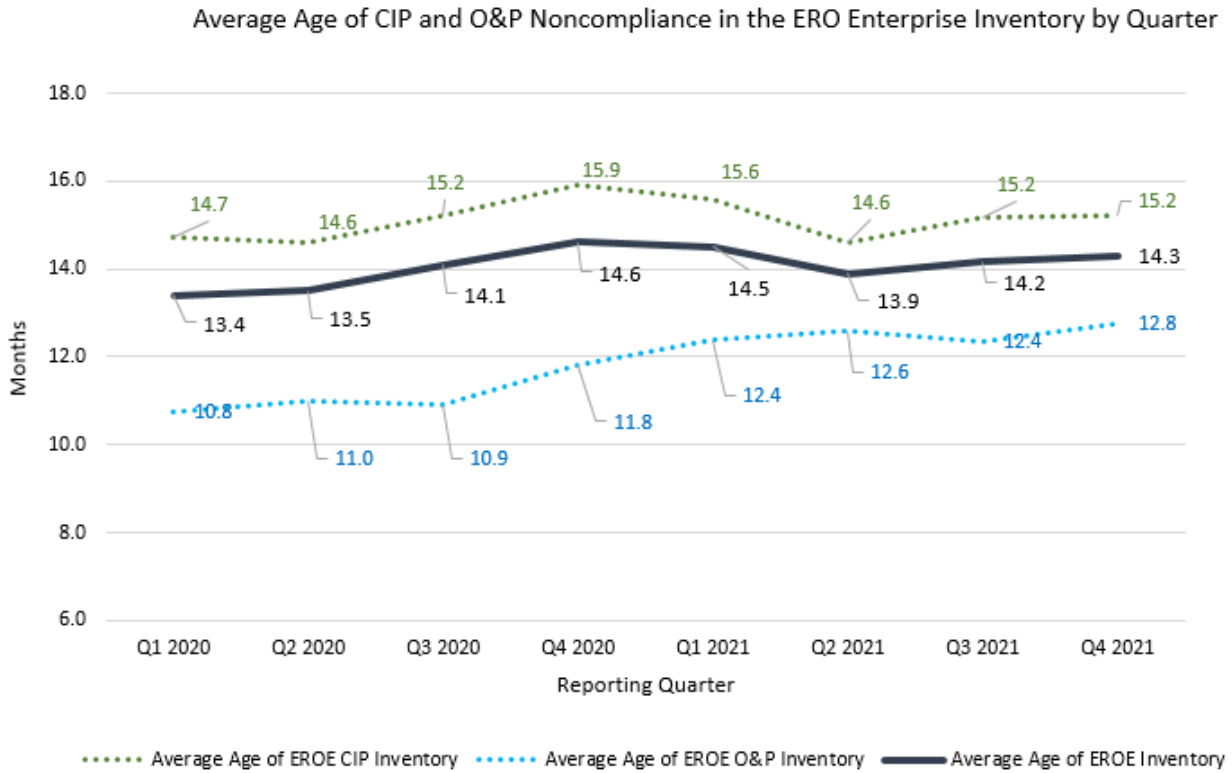


Figure A.3: Average Age of Noncompliance in the ERO Enterprise Inventory

Identification of Noncompliance

Number of New Noncompliance Discovered in 2021

Figure A.4 shows the number of noncompliance submittals by reporting year. Several factors can influence the number of submitted noncompliance in a given year, including, but not limited to, newly enforceable Standards and phased-in implementation of Standards; discoveries by registered entities; and CMEP risk-based monitoring activities.

The ERO Enterprise will monitor the trends in 2022 to determine if the apparent decrease in reported noncompliance over the last few years warrants additional review or action.

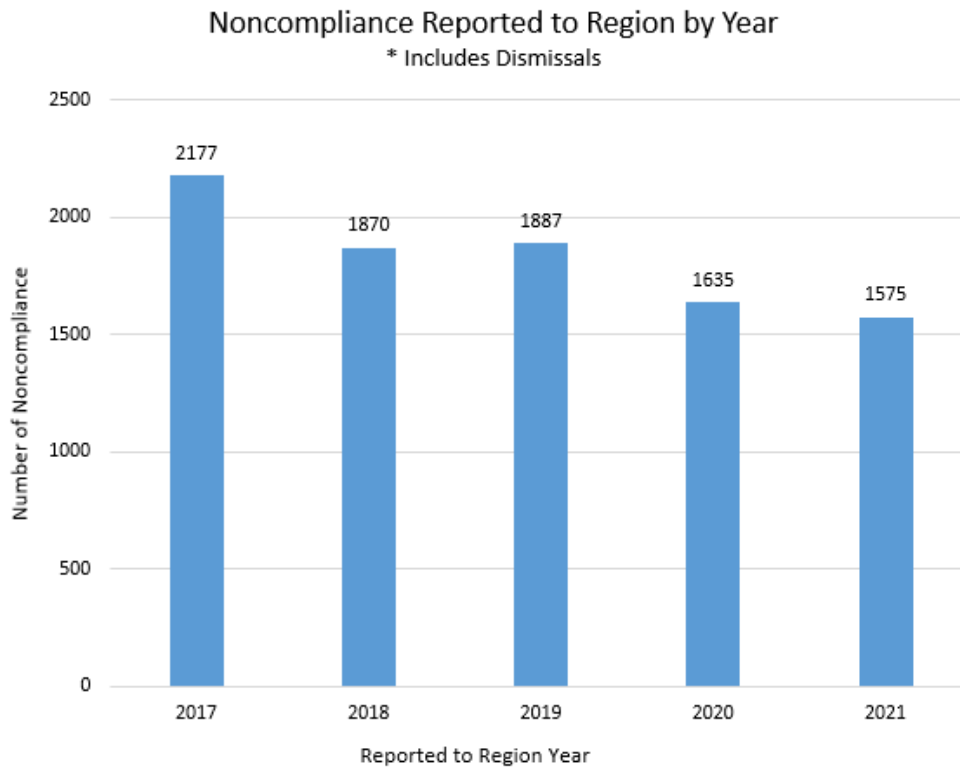


Figure A.4: Noncompliance Discovered by Year

Self-Assessment and Self-Identification of Noncompliance

The ERO Enterprise looks for high levels of self-reported noncompliance as indicators that registered entities have good detective controls and strong cultures of compliance.

Figure A.5 illustrates internal and external identification of noncompliance in the past five years. Figure A.6 shows the percentage of noncompliance by discovery method for 2021 over the last four quarters.

Self-Reports and Self-Certifications are treated as internal identification of noncompliance, while Compliance Audits, Spot Checks, and all other methods of discovery are treated as external identification of noncompliance.

The average internal discovery for the past five years has been about 83% and self-reporting itself has been about 80%, indicating that registered entities continue to identify and address potential noncompliance through their own internal controls.

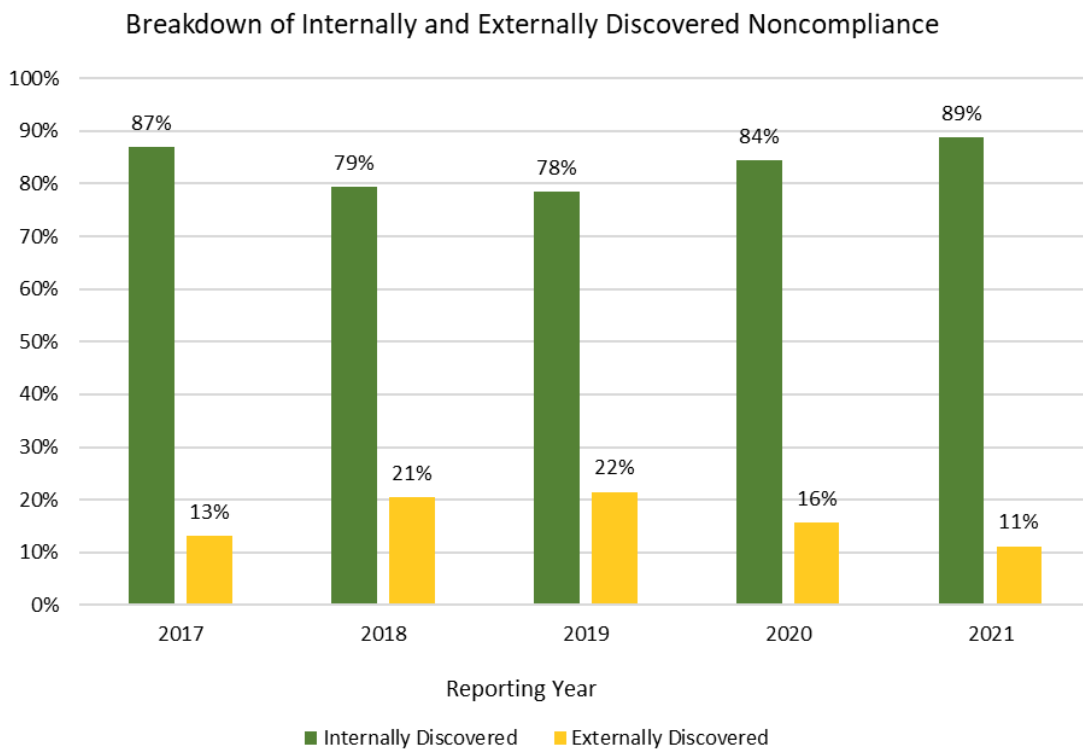


Figure A.5: Breakdown of Internally and Externally Discovered Noncompliance by Year

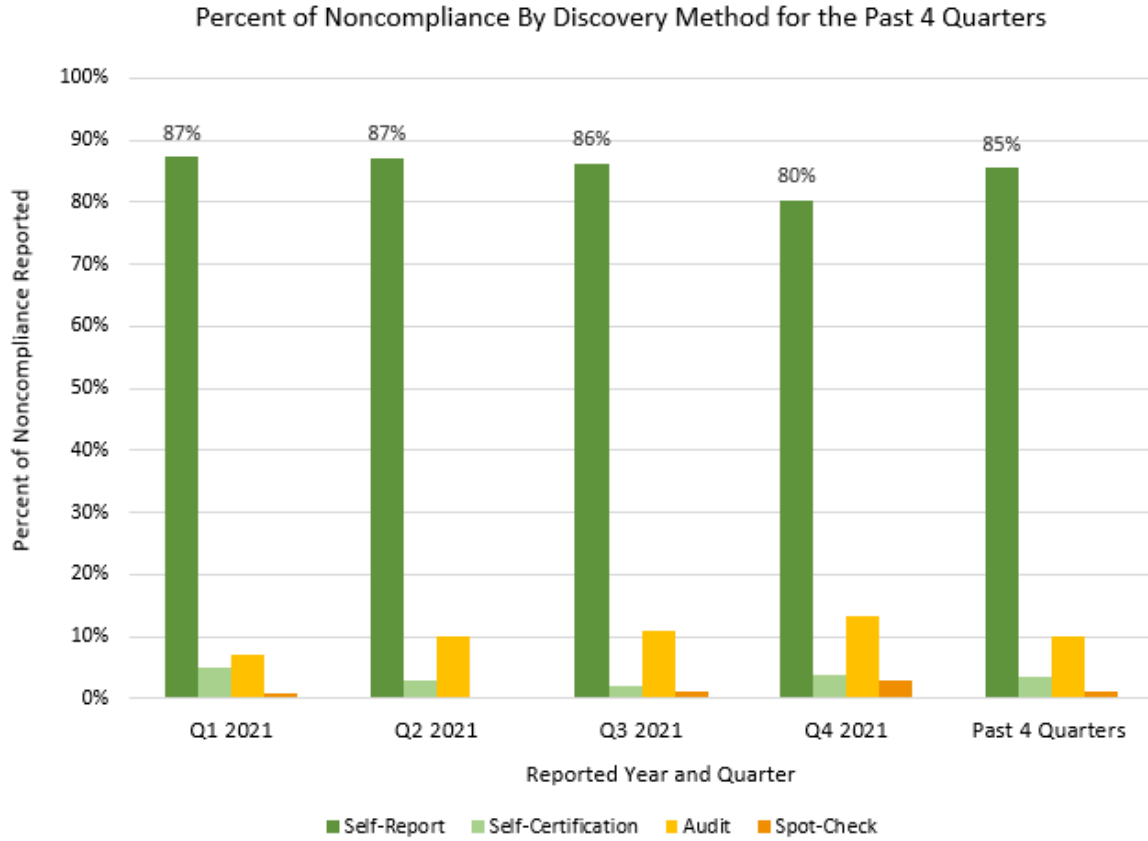


Figure A.6: Breakdown of Noncompliance by Discovery Method

Mitigation of Noncompliance

Mitigation Completion Status

Registered entities continue to make progress in mitigating the older noncompliance they have reported as shown in Table A.7. Mitigation of the noncompliance reported prior to 2016 has been completed. A small percentage of pre-2019 noncompliance do not yet have verified mitigation completion dates, but are part of ongoing discussions between REs and registered entities regarding appropriate mitigation activities.

The noncompliance without verified mitigation completion dates involves noncompliance with mitigation activities that have: 1) been certified as complete but have not yet been verified complete by the RE, 2) passed the expected completion date (and presumably have been completed), or 3) a future completion date, ensuring risk to the BPS is being addressed via ongoing mitigation efforts.

The ERO Enterprise continues to monitor older noncompliances as priorities for confirmation that mitigation has been completed.

Time Frame	Noncompliance Requiring Mitigation	Noncompliance Without Mitigation Completion Date³³	Percentage of Noncompliance With Mitigation Completion Date
2016-2018	4,577	79	98.3%
2019	1,632	190	88.4%
2020	1,488	521	65.0%
2021	1,512	1,087	28.1%

As shown in figure A.8, registered entities mitigate approximately 90% of reported noncompliance within a year of the noncompliance being reported to the ERO Enterprise.

³³ Includes noncompliance with and without mitigation verified as complete.

Time Frames for Completed Mitigations in the Past 5 years

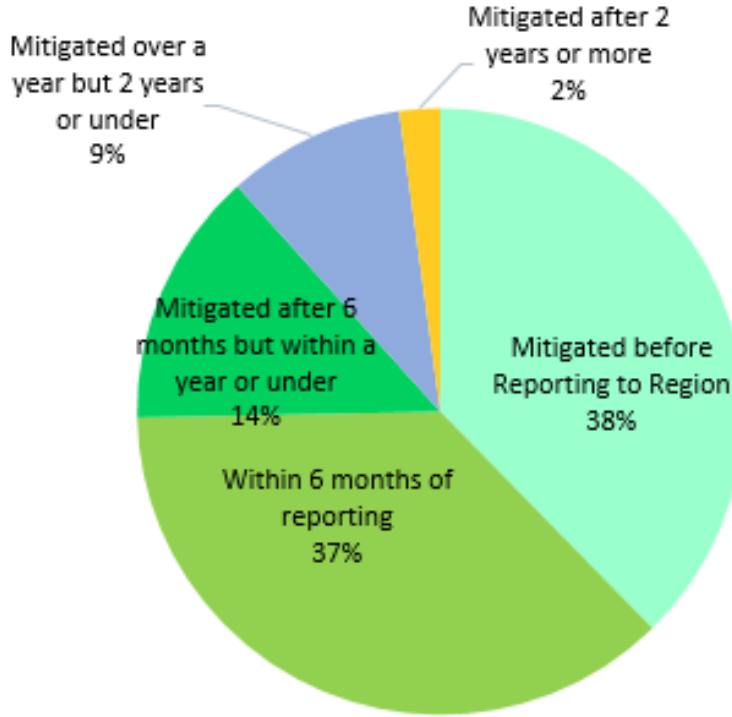


Figure A.8: Time Frames of Completed Mitigations for Noncompliance Submitted in the Past Five Years

Disposition of Noncompliance

Number and Percentage of Self-Logged CEs

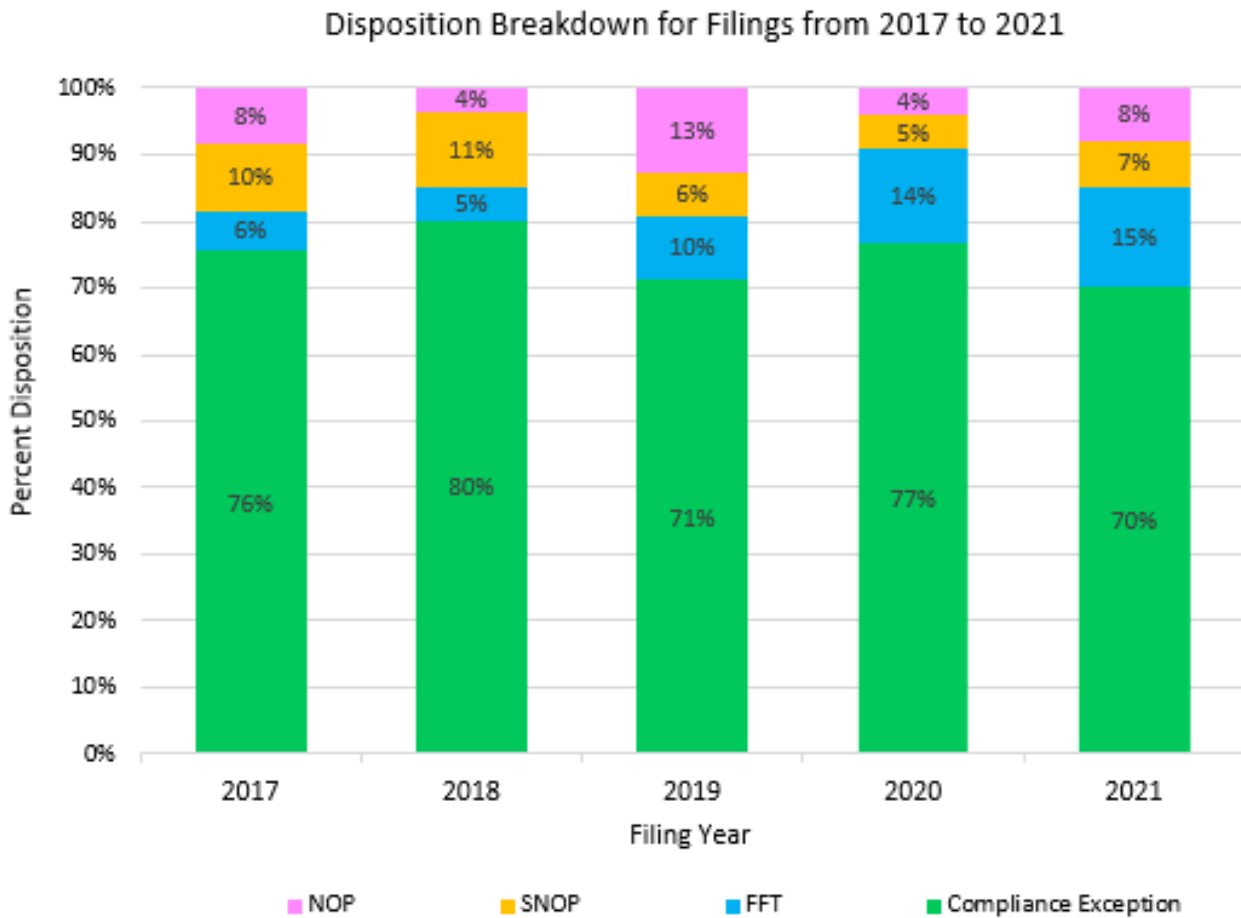
Over 18% of the CEs in the past five years were original reported to the ERO Enterprise through the self-logging program. Table A.9 shows that in 2021, over quarter of the CEs were self-logged, which is the highest percentage of self-logged CE submittals since the implementation of the self-logging program in June 2014.

Filing Year	Self-Logged CEs	Total CEs	Percentage of Self-Logged CEs
2017	86	940	9.1%
2018	159	770	20.6%
2019	220	1,153	19.1%
2020	194	1,069	18.1%
2021	262	986	26.6%
Total	921	4,918	18.7%

Disposition of Noncompliance

Figure A.10 shows the percentage of all noncompliance processed by disposition type in the past five years, while Table A.10 shows the number of noncompliance processed by disposition type over the same period. On average,

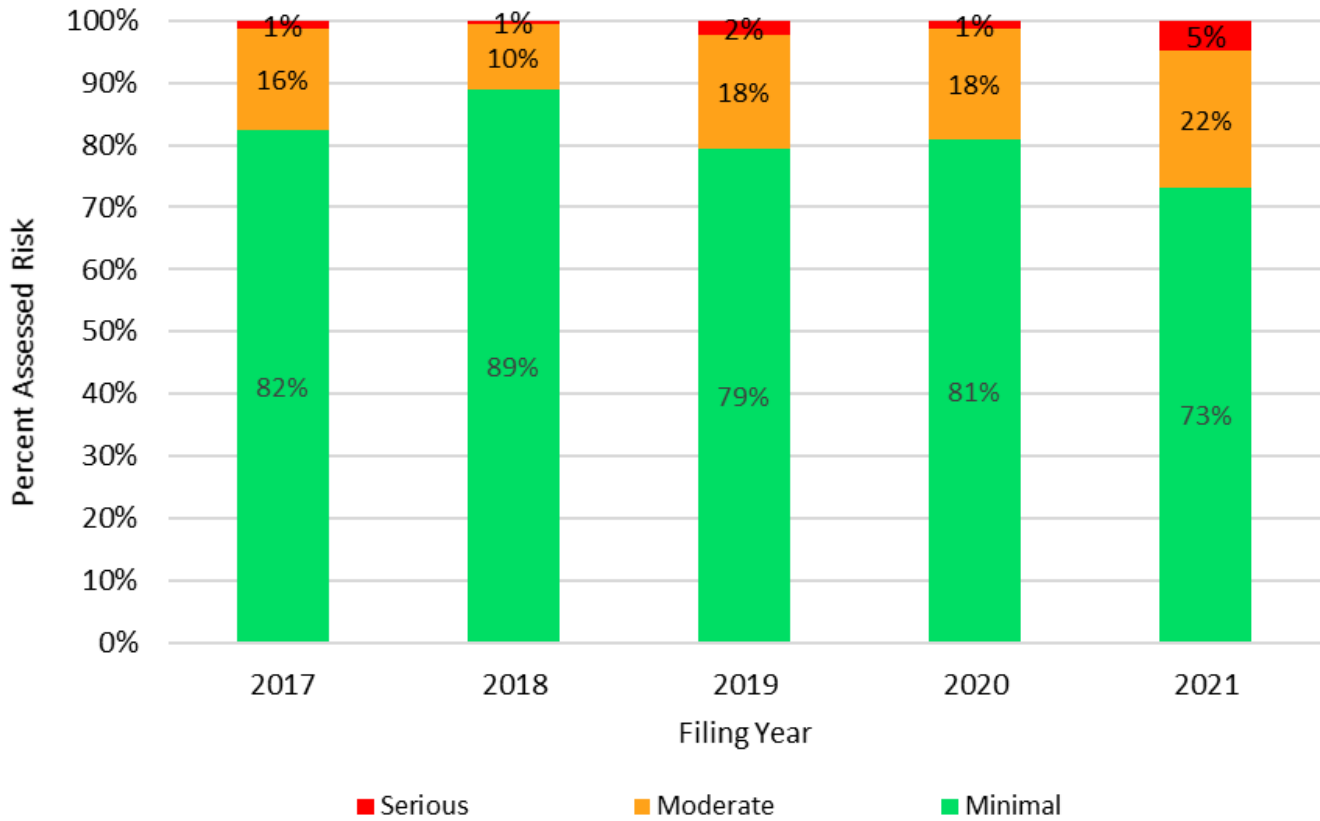
approximately 75% of the noncompliance has been processed as CEs, 10% as FFTs, 8% as SNOPs, and 7% as full NOP. The SNOP and Full NOP disposition methods can involve a monetary penalty or sanction. Figure A.11 shows the percent of noncompliance processed by assessed risk level over the last five years, while Table A.11 shows the number of noncompliance processed by assessed risk level over the same period.



	2017	2018	2019	2020	2021	Total
Compliance Exception	940	770	1,153	1,069	986	4,918
FFT	76	48	158	198	212	692
SNOP	127	109	101	70	98	505
NOP	102	35	209	57	110	513
Total	1,245	962	1,621	1,394	1,406	6,628

Figure and Table A.10: Disposition Type of Noncompliance Processed by Filing Year

Percent Assessed Risk by Filing Year



	2017	2018	2019	2020	2021	Total
Minimal	1,026	855	1,289	1,127	1,029	5,326
Moderate	203	101	294	250	308	1,156
Serious	16	6	38	17	69	146
Total	1,245	962	1,621	1,394	1,406	6,628

Figure and Table A.11: Assessed Risk of Filed Noncompliance by Filing Year

Risk of Noncompliance

Most Violated Standards by Risk in 2020–2021

As shown in Figure A.12, CIP-007 was the most frequently violated Reliability Standard in 2020 and 2021, followed by CIP-004 and CIP-010. The vast majority of these noncompliances were disposed of as CEs. CIP-007, CIP-010, and CIP-005 were nearly tied for the most serious risk violations filed in the period, while CIP-007 had the most moderate risk violations. CIP-007 and CIP-004 were nearly tied for the most minimal risk violations filed in the period.

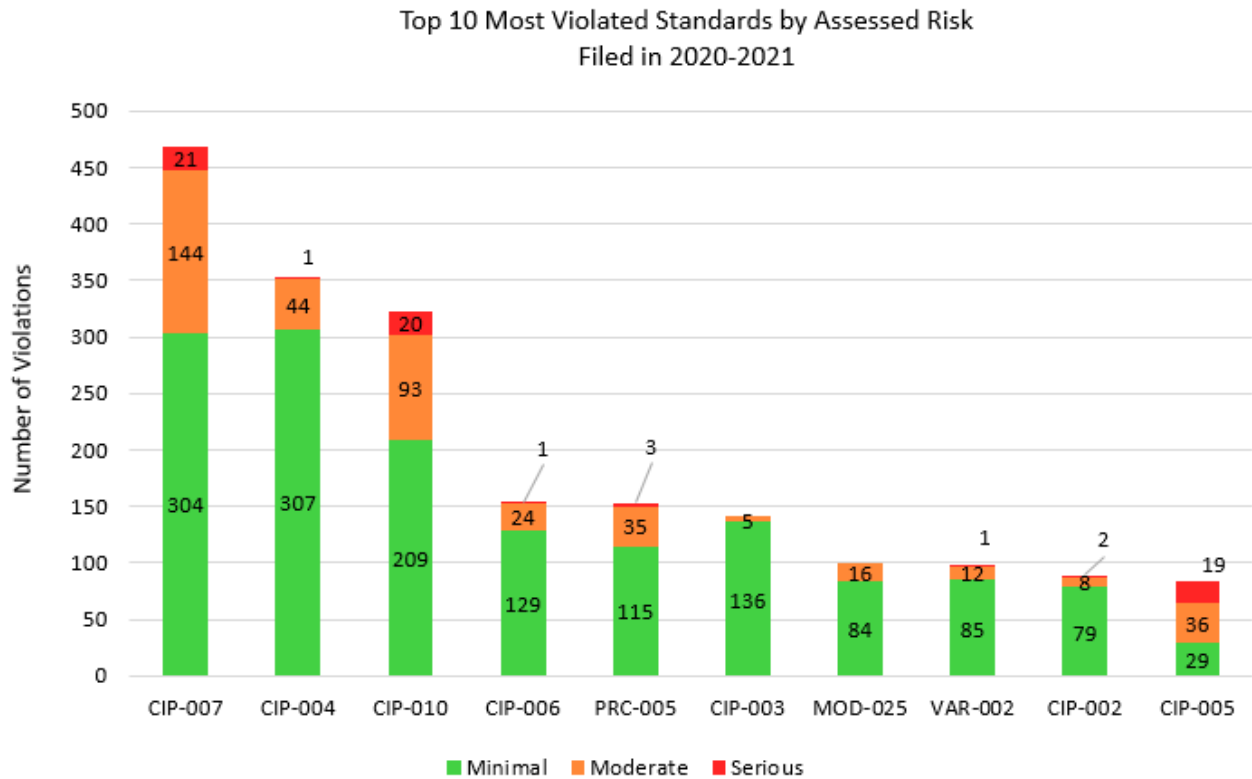


Figure A.12: Most Violated Reliability Standards by Risk Level in 2020–2021

Violations Posing a Serious Risk

NERC has gathered data and regularly monitored violations posing serious risk to the reliability of the BPS. In 2020-2021, the ERO Enterprise filed 86 serious risk violations with FERC. As shown in Figure A.13, nearly 75 percent of these serious risk violations were CIP Standards, particularly those relating to Electronic Security Perimeters and interactive remote access, ports and services, security patches, account management, baselines, categorization of BES Cyber Systems, and protection of BES Cyber System Information. The serious risk O&P violations involved Facility Ratings, vegetation management, loss of control center functionality, training of system operators, Protection System maintenance and testing, generator voltage schedules, and transmission maintenance and inspection plans.

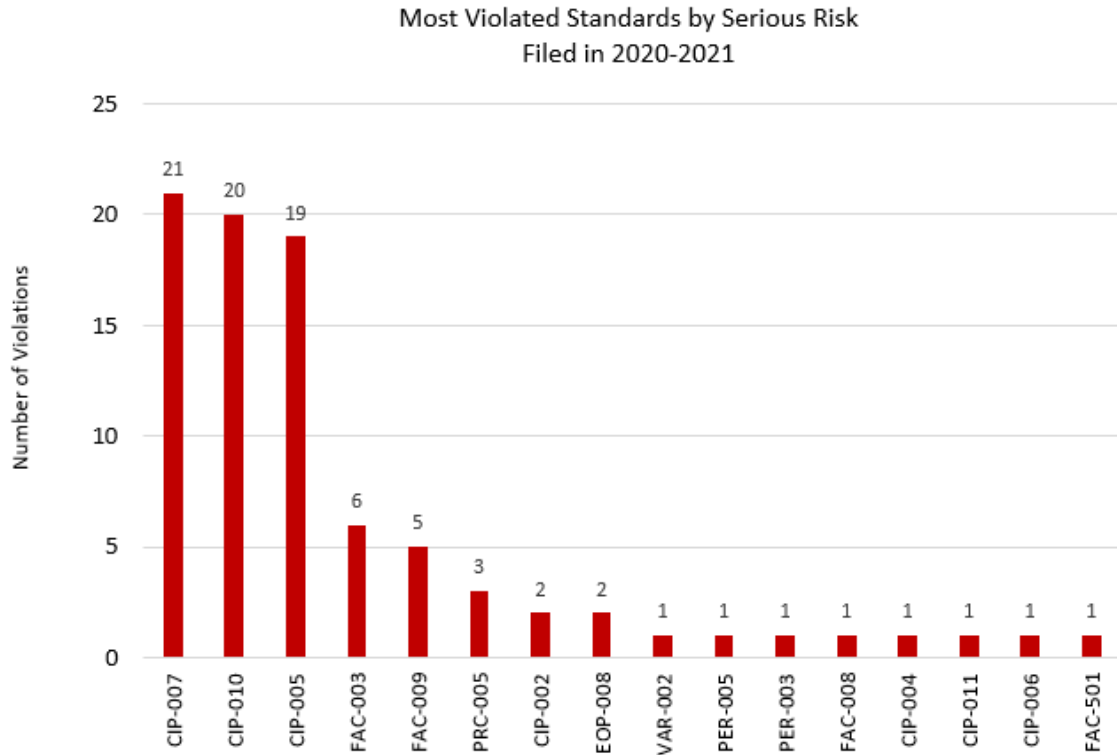


Figure A.13: Reliability Standards with Serious Risk Violations³⁴

Serious Risk Averages

Figure A.14 shows the percentage of serious risk violations over a rolling three-year average. The percentages are determined based on the number of serious risk violations compared to the total number of noncompliance filed in a given three-year period. Serious risk violations remain a small percentage of filed and submitted noncompliance. Serious risk CIP violations tended to drive the overall percentage of serious risk violations over the last several years.

³⁴ Although the currently effective version of the Reliability Standard addressing Facility Ratings is FAC-008-3, some violations involving Facility Ratings extend back in time to FAC-009-1, as seen in Figure A.13.

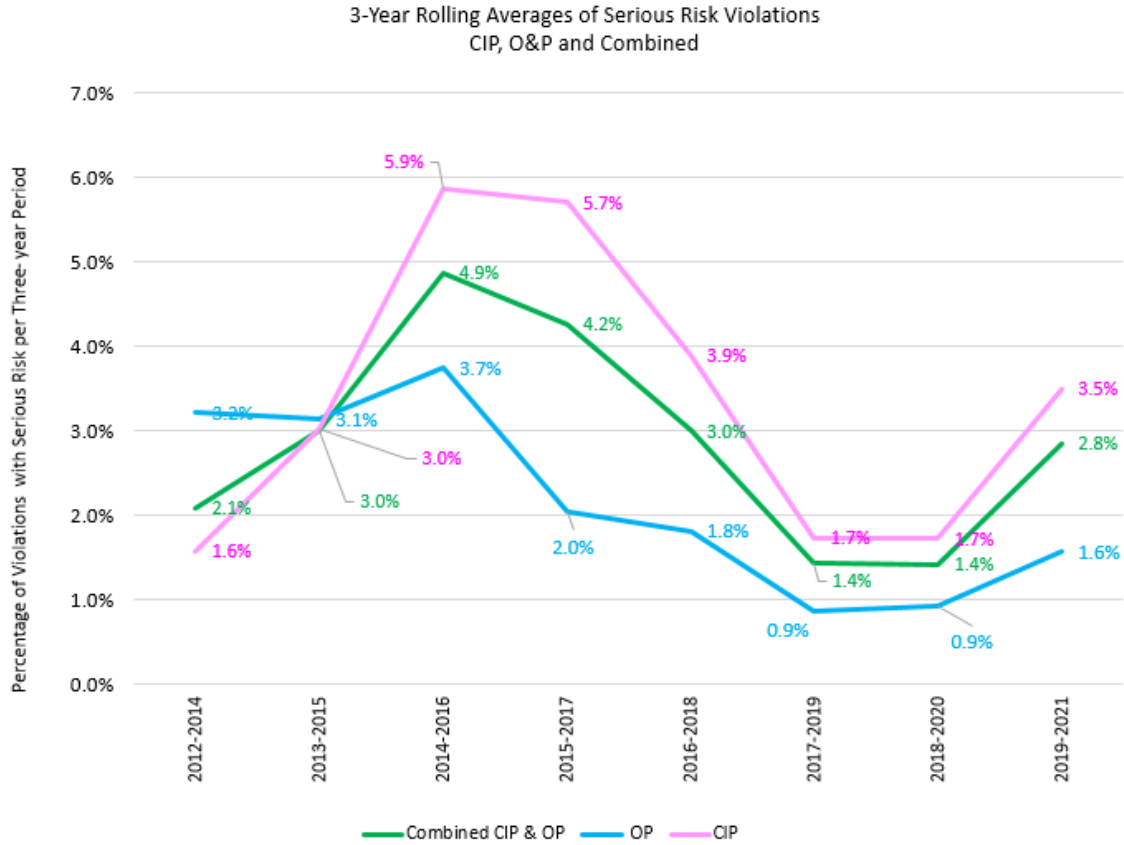


Figure A.14: Serious Risk Violations (CIP and O&P)

Repeat Moderate and Serious Risk Violations

The ERO Enterprise monitors compliance history (defined as a relevant prior violation of the same or similar Reliability Standard and Requirement) and repeat noncompliance with similar conduct (defined as a prior violation that stemmed from similar actions or conduct). The ERO Enterprise monitors these cases to further explore the relationship of prior mitigation to repeat noncompliance and to identify any additional areas of focus and future actions.

Figure A.15 shows all filed moderate and serious risk noncompliance in the past five years including those with relevant compliance history and those with compliance history involving similar conduct. Noncompliance with similar conduct is a subset of the wider group of repeat noncompliance, in which the entity’s current noncompliance involves similar conduct or a similar cause as prior violations of the same or similar Standard and Requirement. Such situations could result in aggravation of the disposition method or aggravation of a penalty for the current noncompliance.

Figure A.16 shows three-year rolling averages of the moderate and serious risk violation filed those with relevant compliance and repeat history (similar conduct). The observed trends depicted in A.15 and A.16 are as expected. As shown in figure A.11, a higher percent of 2021 filing were assessed as serious and moderate risk compared with the previous two years, which resulted in slight rise in the 2019-2021 averages. Generally, serious risk violations have the highest percent of repeat and similar conduct. Since serious risk violations were a higher percentage of the total 2021 filings, the relevant compliance history and similar conduct three-year rolling averages were also higher for the 2019-2021.

The ERO Enterprise will continue to analyze the information as the year progresses and highlight any notable trends in future quarterly reports.

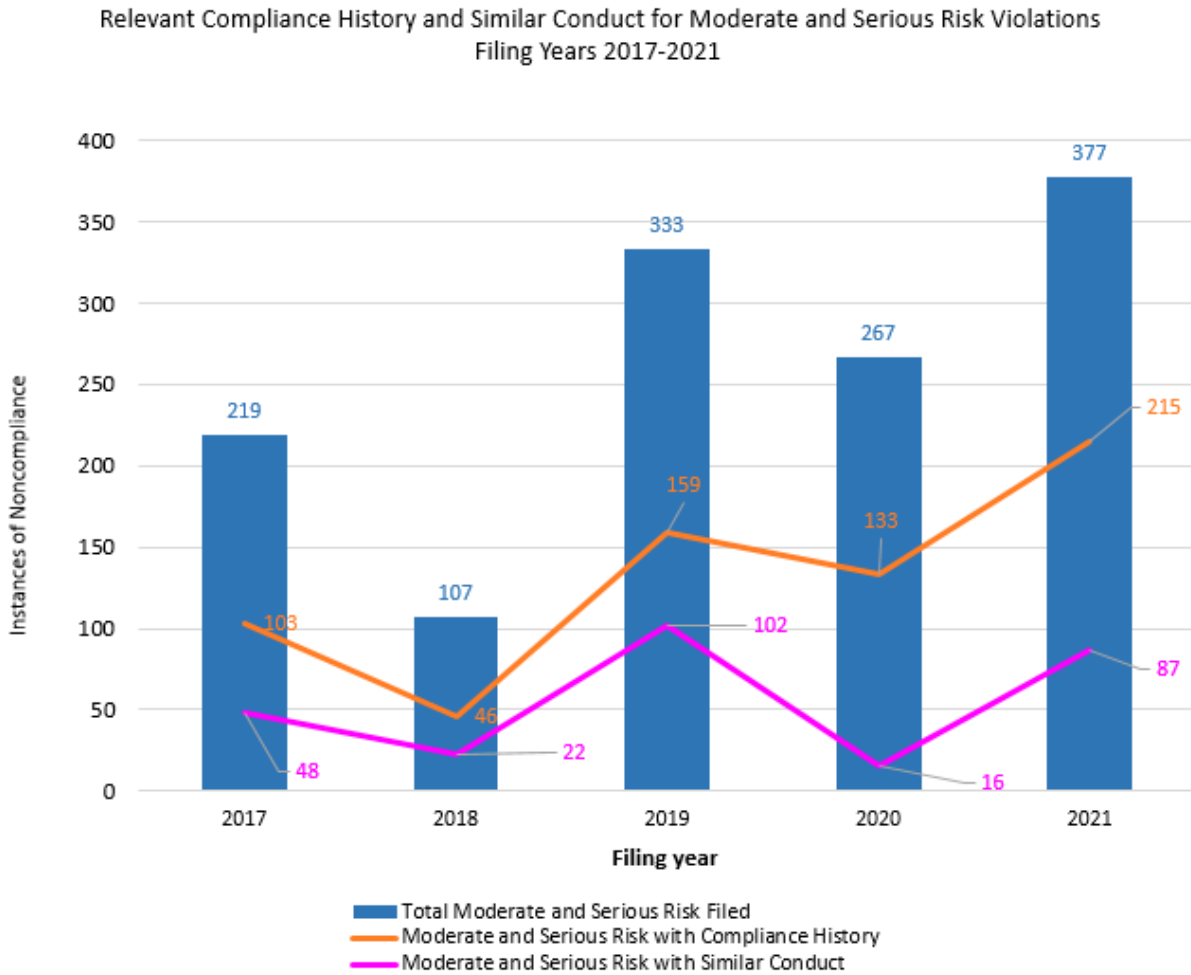


Figure A.15: Compliance History and Similar Conduct for Moderate and Serious Risk Violations

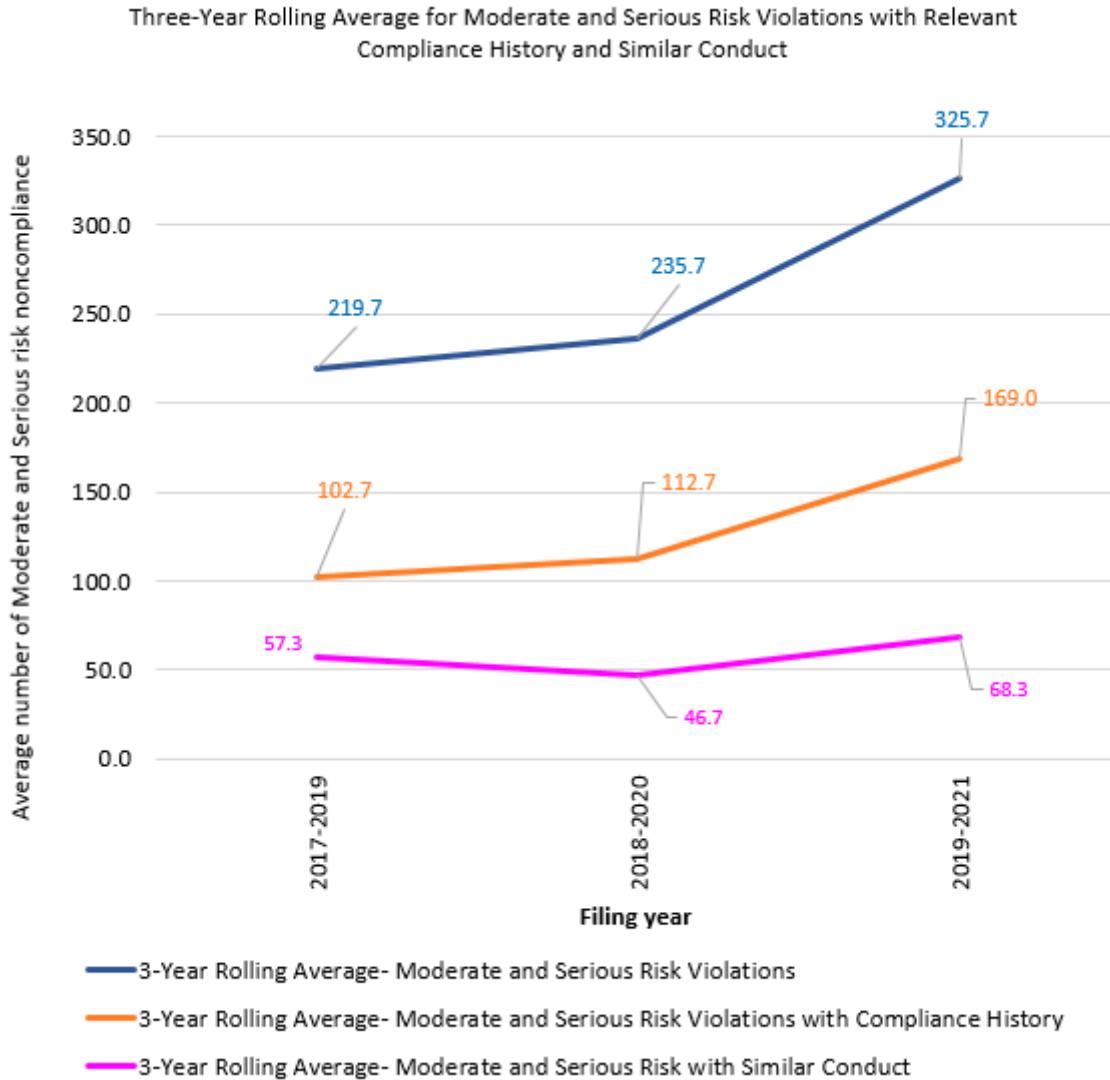


Figure A.16: Three-Year Rolling Average of Moderate and Serious Risk with Relevant Compliance History and Similar Conduct

Vegetation Management

NERC regularly reports on two items related to vegetation management; the violations filed and those reported to NERC as part of Periodic Data Reporting (PDS) of the Transmission Vegetation Management (FAC-003) standard.

In 2021, NERC filed three full NOPs related to FAC-003. All three involved vegetation encroachment into the minimum vegetation clearance distance (MVCD) of an applicable line (R2) and failure to conduct vegetation inspections of 100% its applicable lines at least once per calendar year and with no more than 18 calendar months between inspections on the same right-of-way (R6).³⁵

The violations had varied causes, mostly stemming from less than adequate oversight, including:

- Ineffective vegetation inspections and management of clearing activities
- Ineffective planning combined with ineffective contractor management to ensure that the vegetation inspections were completed on time.
- Less than adequate processes that did not capture and integrate asset information into existing programs and databases, resulting in failures to consistently add some transmission lines to work plans.
- Internal misunderstandings and ineffective compliance assessments contributed to the continued failure to inspect some applicable lines.
- Choice of vegetation inspections time of year that may not have provided the best visibility for the vegetation growth observation.

NERC also tracks vegetation-related sustained outages result from vegetation falling into transmission lines from outside the right-of-way (Category 3 outages. Figure A.17 below shows 33 Category 3 outages occurred during the first three quarters of 2021. Registered entities report these outages through Periodic Data Submittals on a quarterly basis. Due to the timing of these reports, Q4 2021 periodic data reporting is currently taking place and is not reflected in this report.

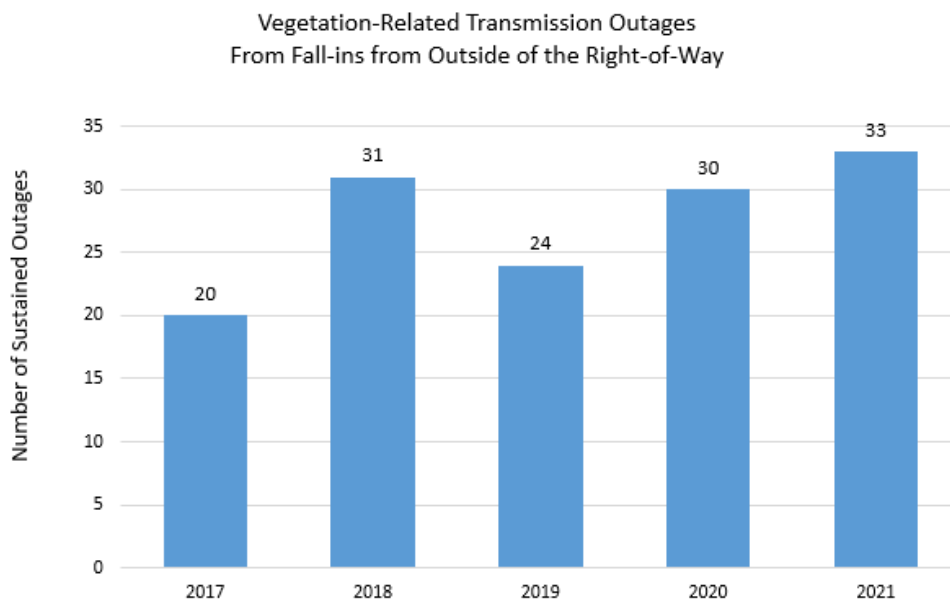


Figure A.17: Vegetation-Related Outages from Outside of the Right-of-Way (Category 3)

³⁵ See NP22-1-000, available at https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Public_FinalFiled_NOP_NOC-2740.pdf; NP21-14-000, available at https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Public_FinalFiled_NOP_NOC-2704.pdf; and NP21-6-000, available at https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Public_FinalFiled_NOP_NOC-2697.pdf.

Facility Ratings

Strong and sustainable Facility Ratings programs are essential for reliable planning and operation of the BPS. Accurate Facility Ratings, among other things, ensure accurate System Operating Limits and Interconnection Reliability Operating Limits that may prevent voltage instability, uncontrolled separation or cascading outages, and equipment damage or failure.

The obligation to comply with the Facility Ratings Standard and Requirements applies to Generator Owners and Transmission Owners, which comprise 80% of the NERC compliance registry. Incorrect Facility Ratings continue to present risk across the BPS and remain a key area of focus for the ERO Enterprise, with FAC-008-5 R6 identified as an area of focus in the Gaps in Program Execution risk element in the 2022 CMEP IP . In November 2021, the ERO Enterprise shared its call to action to address this risk. The call to action supports the development and sustainment of registered entity risk-based Facility Ratings programs and resolution of Facility Ratings noncompliance using existing tools.

Figure A.18 shows the use of risk-based enforcement disposition approaches for Facility Rating noncompliance over the last five years.

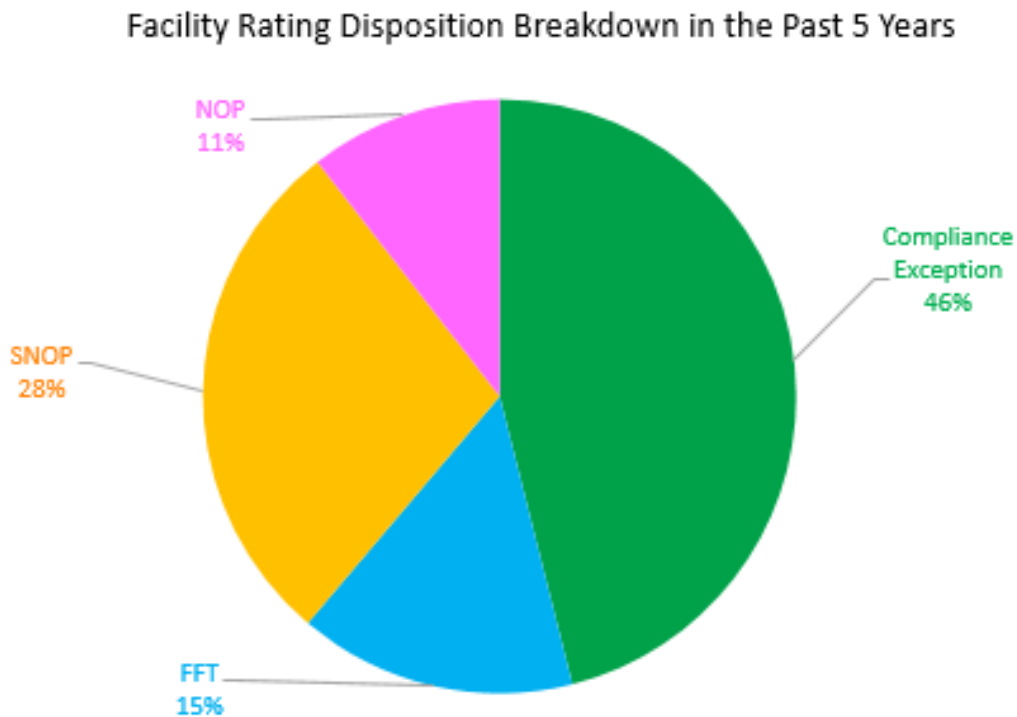
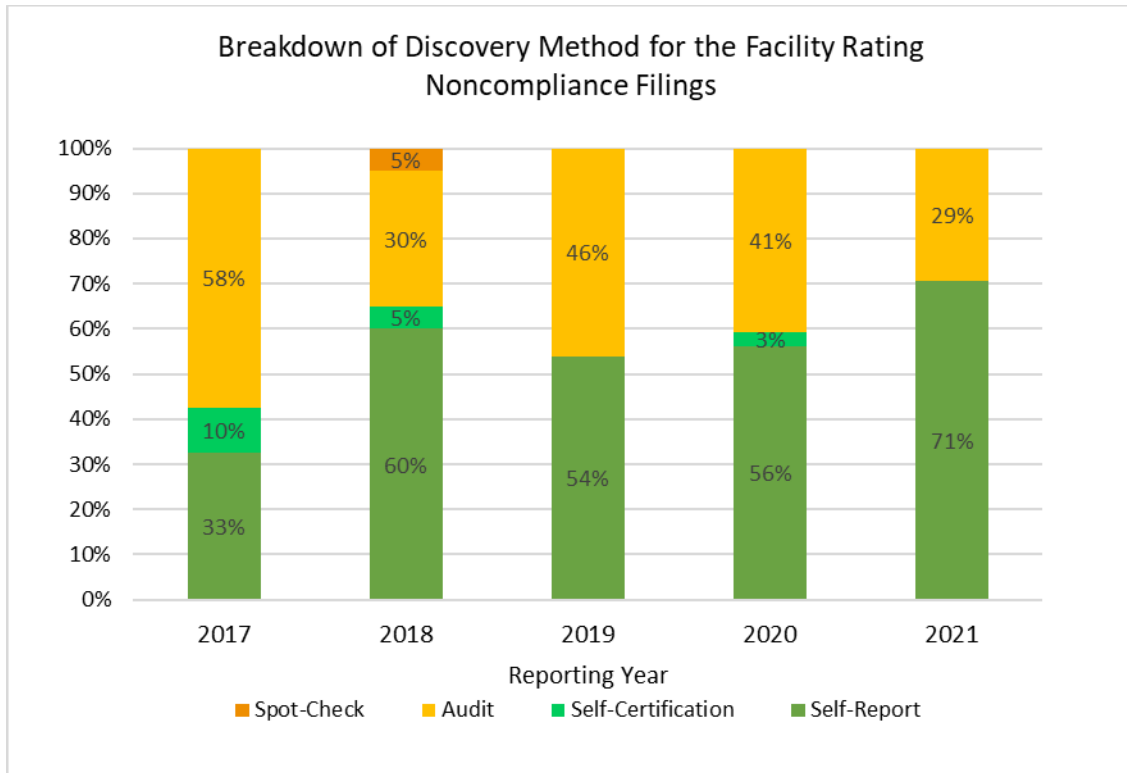


Figure A.18: Disposition of the Facility Rating Noncompliance in the Past Five Years

Figure A.19 shows the breakdown of Facility Rating noncompliance by discovery method for each reporting year over the past five years. Overall, 42% were identified during compliance audits, 53% were self-reported, and 4% were identified via self-certifications.



	2017	2018	2019	2020	2021	Total
Self-Report	13	12	14	18	24	81
Self-Certification	4	1	0	1	0	6
Audit	23	6	12	13	10	64
Spot-Check	0	1	0	0	0	1
Total	40	20	26	32	34	152

Figure and Table A.19: Discovery Method of Past Five Years Facility Rating Noncompliance Filings

Commonly observed root causes of both moderate and serious risk Facility Rating violations include:

- Lack of sustainable and comprehensive Facility Rating program with appropriate levels of internal controls;
- Failure to identify and assess key controls within change management processes; and
- Lack or deficiency of internal controls to document and track changes.

Appendix B: Compliance Assurance

Coordinated Oversight Program for MRREs

Figure B.1 represents the distribution of the 63 MRRE groups (comprising 261 separate registered entities) by Lead RE, and Figure B.2 represents the distribution of MRREs by registered function. The registered entities that opted to join the program include various reliability functions in multiple REs.

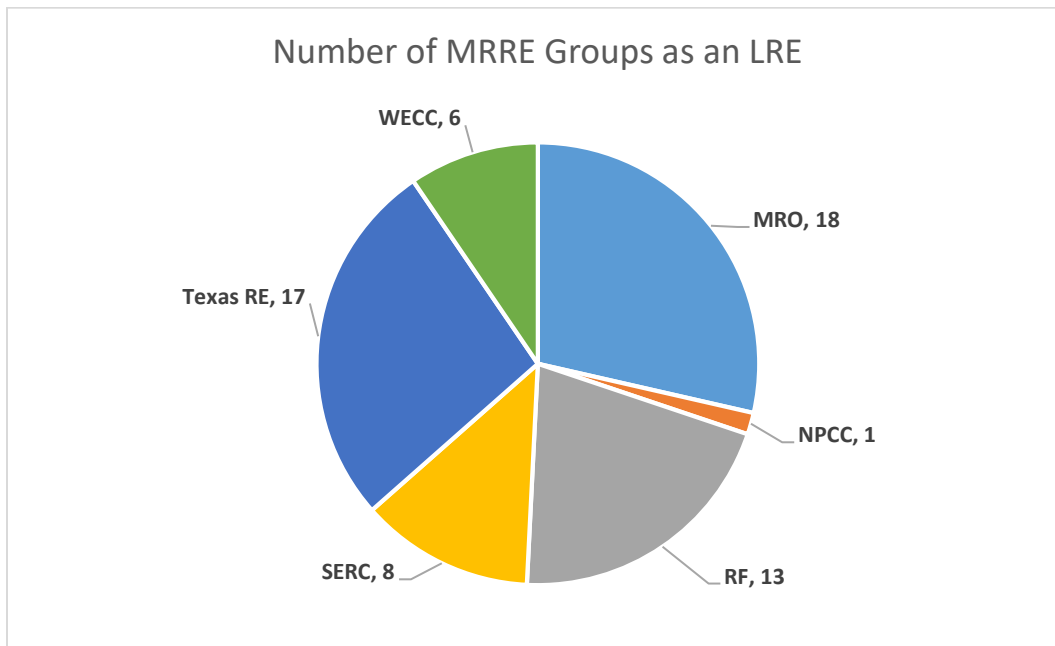


Figure B.1: Distribution of MRREs under Coordinated Oversight by Lead RE

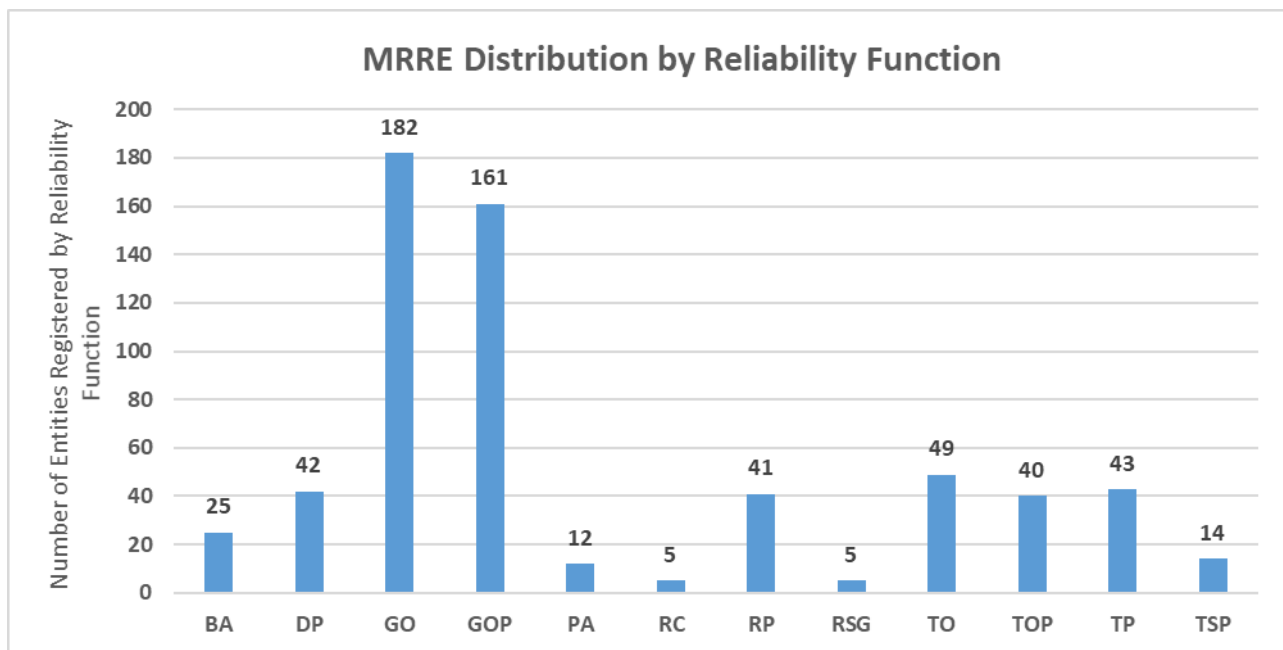


Figure B.2: Coordinated Oversight Distribution by Registered Function³⁶

³⁶ Each bar represents the number of registered entities by function in the Coordinated Oversight Program for MRREs.

Appendix C: Registration

Registration Change Activity by Function

Figure C.1 and Table C.1 depict 2021 registration change activity by RE. Figure C.2 and Table C.2 depict 2021 registration change activity by function.

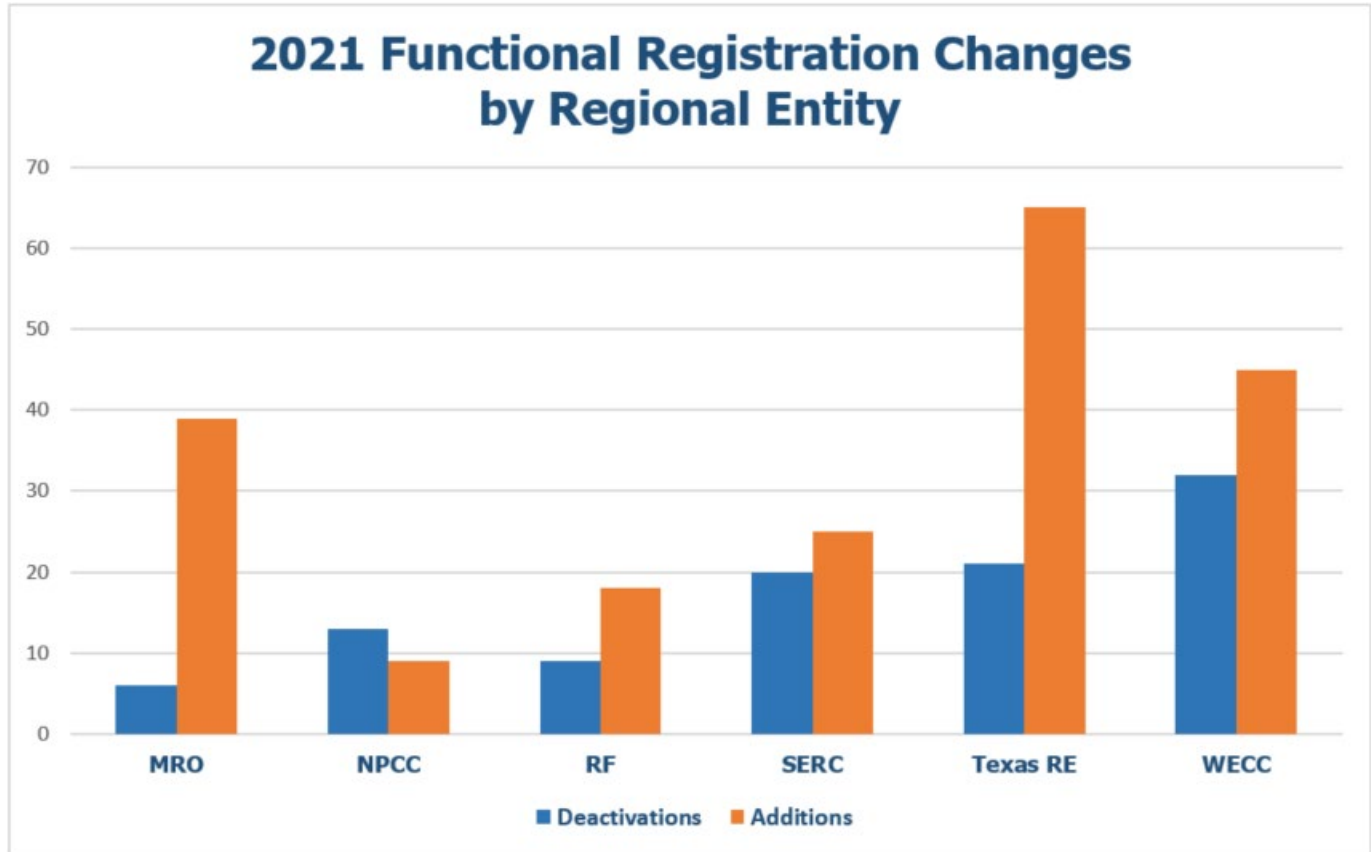


Figure C.1: 2021 Functional Registration Change Activity by RE

Table C.1: 2021 Functional Registration Change Activity by RE						
	MRO	NPCC	RF	SERC	Texas RE	WECC
Deactivations	6	13	9	20	21	32
Additions	39	9	18	25	65	45

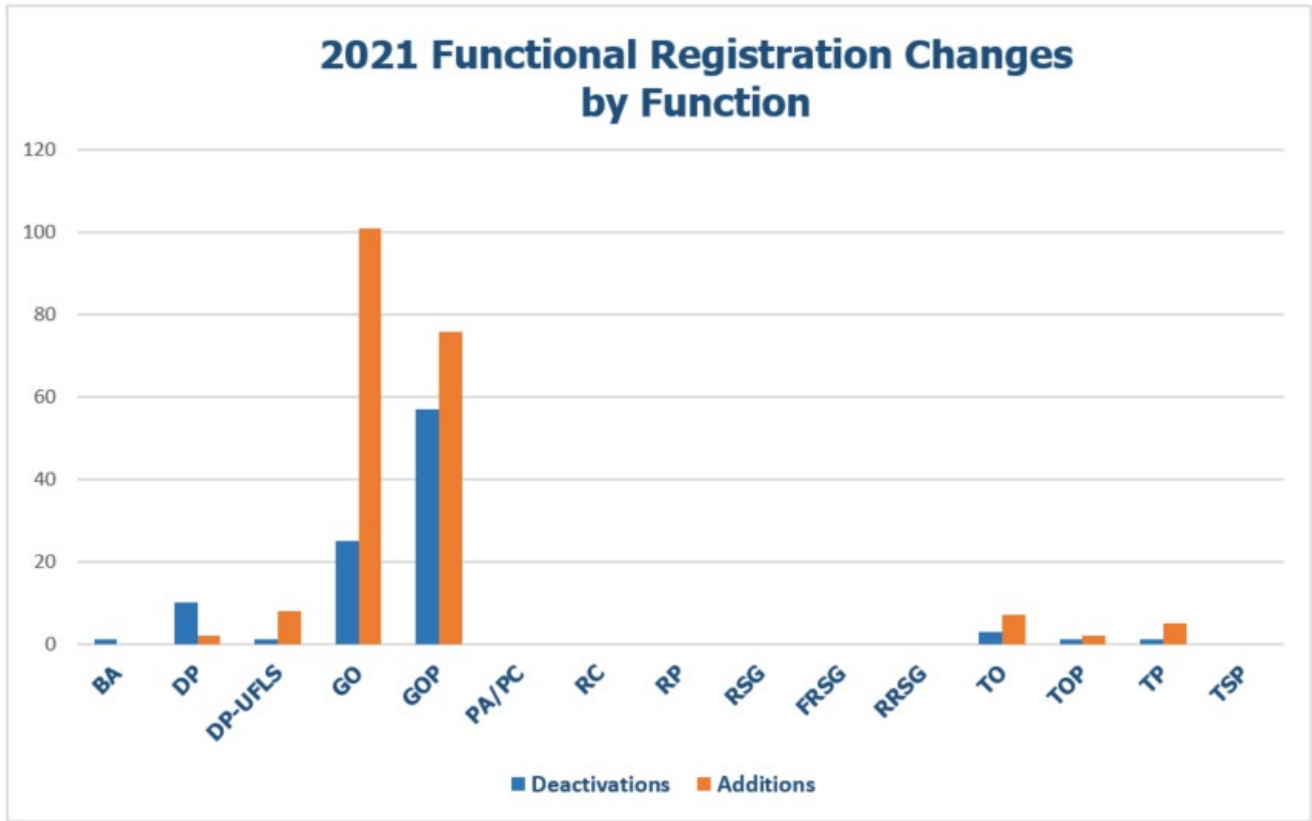


Figure C.2: 2021 Registration Change Activity by Function

Table C.2: 2021 Registration Change Activity by Function								
	BA	DP	DP-UFLS	GO	GOP	TO	TOP	TP
Deactivations	1	10	1	25	57	3	1	1
Additions	0	2	8	101	76	7	2	5

Table C.3 shows the basis for 2021 registration deactivations. NERC seeks justification from each RE when approving functional registration deactivation.

Table C.3: 2021 Registration Change Basis	
Compliance Responsibility Transferred to Another Registered Entity	52
Determined to Not Meet Registration Criteria	19
Shutdown	18
Sold to Another Registered Entity	6
Determined to be DP-UFLS Only and Registered as such	3
BES Exception	1

Appendix D: Certification and Bulk Electric System

ERO Enterprise Organization Certification Utilization

Certification activities are responsive to the number of new entities requiring certification and the types of changes implemented to already-certified and operational entities. Program utilization metrics help to plan resource needs, including staff, travel, and training.

Figure D.1 identifies the number of new entity certifications completed by each RE during 2021 and the number of new entity certifications where an onsite visit has been performed but the certification activity has not yet been concluded (in process). Figure D.2 identifies the number of reviews of changes to already-certified and operational entities completed by each RE during 2021 and the number of certification reviews in process at the end of 2021.

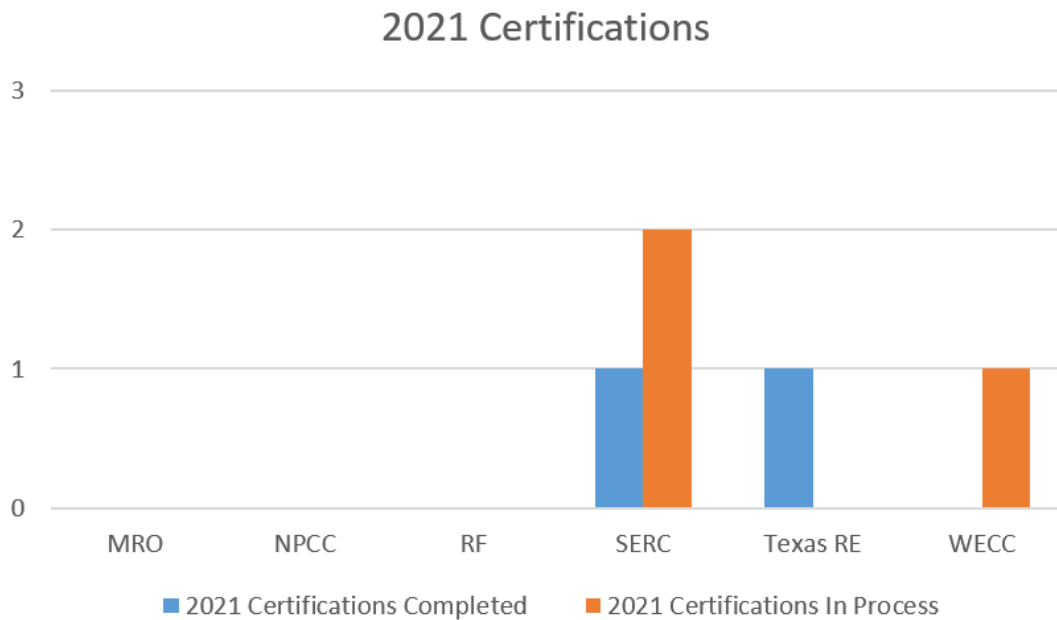


Figure D.1: 2021 New Entity Certifications by RE

Table D.1: 2021 Organization Certification		
Function	Completed	In Process
Reliability Coordinator	1	0
Transmission Operator	1	3
Balancing Authority	0	0



Figure D.2: 2021 Certification Review Activity by RE

Change Basis	Completed	In Process
Changes to a registered entity’s footprint	1	1
Relocation of the Control Center	2	0
Changes to Supervisory Control and Data Acquisition (SCADA)/Energy Management System (EMS) System	9	9 ³⁸

³⁷ Some entities have multiple triggering events for certification reviews.

³⁸ One of these activities has the participation of three REs.