![NERC — North American Electric Reliability Corporation]

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

February 12, 2025

RELIABILITY | RESILIENCE | SECURITY

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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 NERC and the six Regional Entities, is a highly reliable, resilient, 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.

<div align="center">

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

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The North American BPS is made up of six Regional Entities as shown on the map and in the corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Regional Entity while associated Transmission Owners/Operators participate in another.
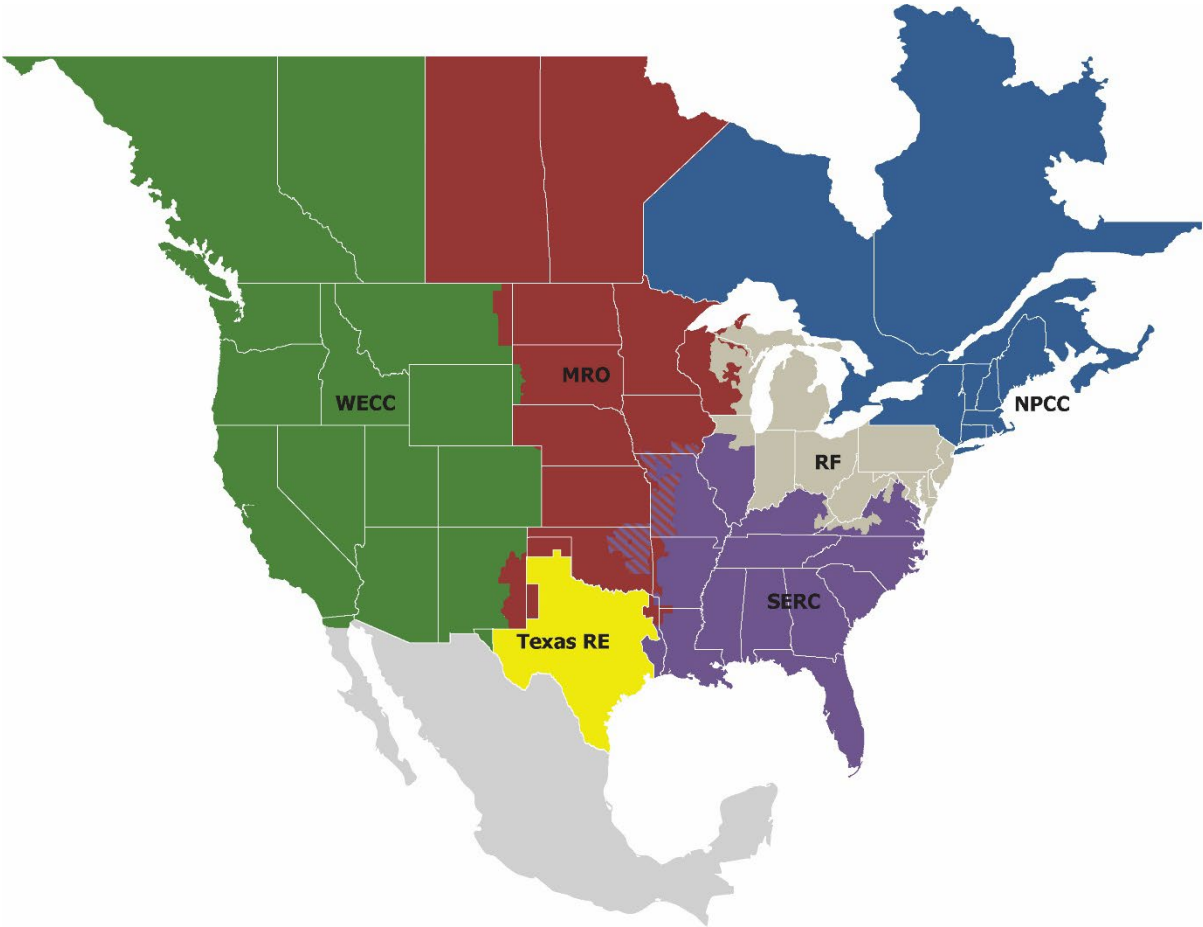
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	WECC

Executive Summary

This report highlights key ERO Enterprise[1] Organization Registration and Certification Program (ORCP) and Compliance Monitoring and Enforcement Program (CMEP) activities that occurred in 2024, provides information and statistics regarding those activities, and identifies the ERO Enterprise's 2024 ORCP and CMEP priorities.

In 2024, ORCP and 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 and security of the BPS and risks specific to registered entities. In 2024, the NERC or the ERO Enterprise:

- Strived for program development, program alignment and continuous improvement in the ORCP and CMEP;
- Conducted oversight activities of the Regional Entities;
- Addressed challenges related to the changing resource mix and worked towards ensuring appropriate registration of various resources; and
- Performed its traditional activities under the ORCP and CMEP.

Specific activities included:
- Developing the Inverter-Based Resources Work Plan;
- Making physical and cyber security improvements to Standards
- Continuing to make improvements to Align and incorporating Canadian provinces into the Align functionality.

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[1] The "ERO Enterprise" refers to the affiliation between NERC and the six Regional Entities 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 registration and certification of registered entities and compliance monitoring and enforcement performed in connection with United States registered entities. A high-level discussion of Oversight of CMEP activities in Canada is included in Chapter 2.

Chapter 1: ORCP and CMEP Program Development and Continuous Improvement

The ERO Enterprise continues to work towards aligning ORCP and CMEP activities across the ERO Enterprise and identifying and addressing risks to the reliability of the BPS. Highlights from the year 2024 are discussed in more detail below.

ORCP Activities

Registration of Inverter-Based Resources

During the last several years, the ERO Enterprise has engaged in activities to evaluate and address potential risks to the BPS posed by the changing resource mix with the increasing integration of non-BES inverter-based resources (IBRs). In 2021, after NERC published reports on disturbances in California and Texas, NERC began a project to analyze changes to the resource mix and how it compared to NERC's implementation of our jurisdiction. The following year, NERC initiated an ERO Enterprise task force comprised of Registration and Assessment staff to conduct additional analysis and evaluate potential effects to the NERC Rules of Procedure (ROP). In September 2022, NERC presented results to industry at the Reliability and Security Technical Committee, while filings at FERC reflected considerations regarding reliable integration of IBRs.

In November 2022, FERC issued an order directing NERC to file a work plan to identify and register unregistered owners and operators of IBRs that in aggregate materially impact the reliable operation of the BPS to be completed within three years from the time of FERC approval of such plan.[2] In Q1 2023, NERC filed the work plan with FERC,[3] which FERC accepted in May 2023.[4] This work plan identified three one-year work periods with specific actions outlined in each, commencing with FERC approval. The work plan, as amended, called for the following:

1) Revise the ROP to include Generator Owner – IBR (GO-IBR), and Generator Operator (GO-IBR) as new registered entity functions within 12 months of Commission order approving the Work Plan;

2) Identify candidates for GO-IBR and GOP-IBR registration within 24 months of Commission order approving the Work Plan; and

3) Effectuate registration of GO-IBRs and GOP-IBRs within 36 months of Commission order approving the Work Plan.

NERC worked closely with Regional Entity staff and industry to develop proposed revisions to the ROP. In February 2024, the NERC Board of Trustees approved the proposed revisions to the ROP. In March 2024, NERC filed the proposed revisions to the ROP with FERC for approval.[5] On June 27, 2024, FERC issued an order approving the proposed revisions to the ROP.[6]

In the filing, NERC proposed revising its Registry Criteria to include owners and operators of non-Bulk Electric System (BES) IBRs that are interconnected to the Bulk-Power System and have a material aggregate impact on BES reliability.

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[2] FERC Order on Registration of Inverter-Based Resources, Docket No. RD22-4-000 (Nov. 17, 2022), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20221117-3113.

[3] NERC Request for Approval of the Inverter-Based Resources Work Plan, Docket No. RD22-4-001 (Feb. 15, 2023), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20230215-5191; NERC Amendment to Inverter-Based Resources Work Plan, Docket No. RD22-4-001 (Mar. 13. 2023), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20230313-5249.

[4] Order Approving Registration Work Plan, 183 FERC ¶ 61,116 (May 18, 2023), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20230518-3051.

[5] North American Electric Reliability Corporation Request for Approval of Proposed Revisions to the Rules of Procedure to Address Unregistered Inverter Based Resources and Request for Expedited Review, Docket No. RD22-4-000 (Mar. 19, 2024), available at https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Proposed%20Registry%20Criteria%20ROP%20Revisions.pdf.

[6] Order Approving Revisions to North American Electric Reliability Corporation Rules of Procedure and Requiring Compliance Filing, 189 FERC ¶ 61,196 (Jun. 27, 2024), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240627-3033.

The revised Generator Owner (GO) and Generator Operator (GOP) Registry Criteria would include owners and operators of non-BES IBRs that either have or contribute to an aggregate nameplate capacity of greater than or equal to 20 MVA, connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV (i.e., Category 2 GO and Category 2 GOP). Aggregation of capacity at a common point of connection would be consistent with how aggregate nameplate capacity is determined for dispersed power-producing resources that fall within Inclusion I4 of the BES Definition.

As part of NERC's plan to identify Category 2 GO and GOP registration candidates, the ERO Enterprise IBR subgroup developed a Request for Information (RFI), incorporating input from a stakeholder focus group comprised of Compliance and Certification Committee (CCC) members and other industry stakeholders. On July 9, 2024, NERC issued this RFI to all US-registered Balancing Authorities and Transmission Owners and requested that responses be submitted to the respective Regional Entities by September 20, 2024. The Regional Entities are using the responses from the RFI to validate the resources that are candidates for Category 2 registration and initiate entity outreach to the owners of these IBRs.

NERC, in collaboration with the Regional Entities, also began development of a Practice Guide whose purpose is to provide implementation guidance regarding registration of these new generator-related functions. The draft Practice Guide was shared with the CCC and others in early January 2025 for review and feedback. NERC plans to publish the final version of the Practice Guide in Q1 2025.

Cross Boarder Control Activities in 2024

In 2024, NERC Compliance Assurance staff collaborated with NERC's Engineering and Security Integration team as well as ERO participants to conduct a reliability assessment evaluating the extent to which elements that support the reliability of the United States' Bulk Power System (BPS) are managed or controlled from remote locations, outside the United States. In support of the reliability assessment, NERC conducted a data request pursuant to sections 804 and 808.3 of NERC's Rules of Procedure.

The information obtained from the data request showed there are instances where the grid is being remotely accessed by third party organizations (e.g. not NERC Registered Entities) for various purposes (e.g. control, monitoring, or maintenance) from locations outside the United States but stopped short of identifying the specific countries from where the remote access originates. Analysis is currently underway to gather additional granularity regarding connectivity and a final reliability assessment report is expected in Q3 2025.

CMEP Activities

Align and the Secure Evidence Locker

The ERO Enterprise is committed to CMEP effectiveness and has invested in the Align and Secure Evidence Locker (SEL) tools to improve security, automation, efficiency, harmonization, and consistency. In 2024, the ERO Enterprise continued use of the Align Governance Model to support and improve the impact of these tools on the entire CMEP program, fostering collaboration on functionality, business value, and integration with existing CMEP committees.

NERC uses the Align and the SEL webpage to communicate on status of the systems, upcoming outages, links to important documentation, and Release Notes.[7]

In 2024, Align and SEL key initiatives included enhancements to release deployments, stakeholder discussions for prioritized Align and SEL feedback, and updates to several Align User Guides.

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[7] Align and SEL Resource Center, available at https://www.nerc.com/ResourceCenter/Pages/Align-SEL.aspx.

Release Deployments

The ERO Enterprise deployed three Align releases and one SEL release in the first two quarters of 2024 (Align Release Align 6.0.0, Align Release 6.1.0, Align Release 7.0.0, and SEL Release). The Align releases addressed several module improvements for the Align system, including Enforcement, Mitigation, IRAs, COPs, Audits and Spot Checks, Self-Certification, PDS, Technical Feasibility Exceptions, Internal Controls Assessments, and Request for Information functionality across several areas. The SEL release included updates for CEA users, expanding the reference ID field on the SEL submission portal page for entities; creation of a failed submission notification email to entities; and the inclusion of the validation reference ID in the submission confirmation email to entities. Detailed descriptions of changes related to each release are available in the corresponding Release Notes on the Align and SEL webpage (under Release Materials).

In the Release 6.0.0, the modifications include, but are not limited to, the following: validation updates for Canadian functionality; portlet updates to show statuses or information; updates on permissions associated to printing reports from Align forms; updates to the CMEP Activity Search module for CEA users; new columns added for Registered Entity users to better manage their work; correction to IRA and COP functionality; ability for Registered Entity to flag where evidence has been uploaded on PDS submittals; ability to issue RFIs earlier in process for PDS/Self-Certifications; ability to document Areas of Concerns, Recommendations, and Positive Observations on PDS/Self-Certifications; updated versions of Standards in the TFE module; and updates on attestation data fields.

In the Release 6.1.0, the modifications include, but are not limited to, the following: corrections to the SEL Reference IDs generated in Align forms; updates for ERP Questionnaires (specific to NERC administration); fixes for filtering and sorting throughout all modules; corrections to the RFI recipient lists and updates to the emails related to RFIs issue from Enforcement, Mitigation, Periodic Data Submittals, Self-Certification, and Technical Feasibility Exceptions.

In the Release 7.0.0, the modifications include, but are not limited to, the following: notifications for dispositions; improved CEA ability to move mitigation record activities between Complete and Verification status; improvements to Periodic Data Submittals; updates to creating Self-Certification distributions; enhancements for CEAs to identify Findings as part of Self-Certification reviews; ensuring PDS and Self-Certification responses are not blank before the entity submits the activity for CEA review; and consolidating Self-Certification responses to the requirement rather than by requirement part.

In Q3 2024, NERC decided to postpone future releases while work was being performed to increase the effectiveness of the change management process. This work includes building a new, separate environment dedicated to the quality assurance function as well as defining and implementing new processes to accommodate enhanced testing procedures prior to production deployments. While this separate environment is implemented, development work has continued for Align fixes and enhancements and is pending release throughout 2025.

Enforcement and Mitigation Development work

- Add fields for Registered Entities to allow them to mark a "Root Cause Code" and "Contributing Cause Code" on Finding Form

- Updates to functionality related to Assigned to Field so that Registered Entity can track work internally

- Correction to Standards export next to registration name in Self-Report and Logs module

- Updates to Mitigation Portlet and forms to provide additional information for managing mitigation records

- Add a Mitigation Extension request table on milestone form - The new section has the following columns: Related Milestone, Name, Submitted On, Original Planned, Proposed New Planned Completion, Explanation, Status (Awaiting CEA Review, Request Accepted, Request Rejected), and Action date.

- Add ability for Entity to submit Mitigation and Certify Completion prior to the CEA accepting the Mitigation record (can mark mitigation as complete at Draft Finding, Draft Mitigation, CEA Processing, or NERC Processing states)

- Corrections to portlets and paths to address the Audit Finding

- New Emails related to mitigation submission and milestone extension request submission

Other Developed Align Fixes and Enhancements

- Attestation functionality with Periodic Data Submittals (PDS) and Self-Certifications

- Improved auditor review notes for Audits and Working Paper, including updates to review statuses

- Fixing known issues with Compliance Oversight Plan reports

- Other miscellaneous improvements (e.g., updated email notification for Request for Extension, updated standard version in PDS creation, added elements to reporting universe, etc.)

Align and SEL User Guides and Training

The ERO Enterprise updated several of the Align and SEL User Guides to reflect updated functionality of the tools, as well as include additional guidance and instruction. As part of updating the User Guides, they were updated to reflect module-specific titles rather than referencing release versions.

Q2 2024

The Align User Guides for Inherent Risk Assessment and Compliance Oversight Plan modules for CEA and Registered Entity users were updated (previously titled Release 4.5 User Guides). The revisions included correcting typos, updating screenshots to reflect updated functionality, detailing and clarifying various steps, and adding a Revision History table to capture future edits.

Q3 2024

The Align Enforcement and Mitigation User Guide for Registered Entities (previously titled Release 1 User Guide) was updated to the new template and the revisions include, but are not limited to, correcting typos, updating screenshots to reflect updated functionality, detailing and clarifying various steps, adding the new RFI module functionality, and information on emails.

Guidance was posted on the Align web page to aid Registered Entities in the submittal of Self-Reports/Self-Logs and Mitigation records. The guidance document provided helpful reminder steps for Registered Entities on how to manage their Self-Reports/Self-Logs and Mitigation records. The document included steps to review draft Self-Report/Self-Log findings, either submit the finding or delete it, submit draft Mitigation records to the CEA for review, and submit Mitigation records to the CEA for Verification review.

The SEL Cheat Sheet was updated to include: increase in file-size limitation to 100MG and multiple file uploads to 10GB in size; notice that files embedded with macros are not allowed to be uploaded; limitation on browsers (Edge and Chrome are supported; Firefox is not); and updates on email submissions so that submitter will receive an email upon successful upload or failure

Q4 2024

The ERO provided Registered Entity Refresher Training on the Enforcement and Mitigation modules to Registered Entity users. The training covered how a Registered Entity can: create and submit a Finding to the CEA; provide updates to that Finding; create and submit a Mitigation record; manage the milestones; receive and respond to Requests for Information; receive and respond to Disposition Notifications; and understand where the

noncompliance and mitigation are in the process. This training was recorded and made available on the Align and SEL webpage.

The ERO SEL Submission user guide for Registered Entities was updated, providing one document for registered entity SEL submission portal users to reference with instructions for uploading files and tips from the SEL Cheat Sheet. The revisions to the guide include updating the formatting from the initial version, correcting typos, updating information and screenshots to reflect current functionality, detailing and clarifying various steps, incorporating tips from the SEL Cheat Sheet, and adding a Revision History table to capture future edits. With this updated guide, the SEL Cheat Sheet was removed from the Align and SEL webpage and future SEL tips will be added to this user guide.

The Release 2 User Guides for CEA and Registered Entity users were split into module specific User Guides: Periodic Data Submittals, Self-Certifications, Technical Feasibility Exceptions. The revisions for all related user guides included correcting typos, updating screenshots to reflect updated functionality throughout the modules, detailing and clarifying various steps, and adding a Revision History table to capture future edits.

Established Individual Regional Entity and CCC Discussions for Prioritized Align Feedback

In October 2024, the Align User Group chairs initiated individual meetings with each Regional Entity and CCC representatives to discuss feedback with using Align, focusing on their input related to efficiency, work arounds, pain points, and showstoppers within Align and SEL. These discussions continued regularly throughout 2024, identifying potential focus areas for future prioritization discussions with the AUG and Product Management Team. These meetings help NERC better engage with Regional Entities and registered entities to help with prioritizing potential improvements to the Align experience.

CMEP Feedback to Standards

The ERO Enterprise recognizes the importance of providing compliance experiences and practices to assist in evaluating the efficacy of the Standards in supporting continued safe, secure, and reliable operations. In 2024, the ERO Enterprise continued to support the ongoing work on the previously identified CIP-002 issues.

CIP-002 Standards Authorization Request

The Standards Committee (SC) authorized solicitation for a Drafting Team (DT) to conduct a field test and assigned a portion of the Project 2016-02 SAR that relates to Transmission Owner Control Centers to the DT on March 17, 2021. The SC approved the Project 2021-03 Field Test Plan on November 17, 2021. Three field tests were conducted in 2022 and the final report was posted to the project page in January 2023. The DT initially focused on drafting revisions to respond to the 2016-02 SAR. The DT has posted revisions to the 2016-02 SAR twice, an initial draft of the revised CIP-002 standard from September 26, 2023 through November 9, 2023, for comment and ballot, and an additional posting from April 2, 2024 through May 16, 2024.

During the most recent comment and ballot period for the 2016-02 revisions, the DT held multiple meetings to address the Modifications to CIP-002 SAR. During this time, the DT reviewed and responded to SAR comments for the Modifications to CIP-002 SAR. Revisions were made to the Modifications to CIP-002 SAR to clarify the scope of work and ensure consistent usage of terminology.

Chapter 2: Oversight Activities

Overview

As the ERO, NERC has the authority, responsibility, and obligation to monitor the Regional Entities' adherence to the ROP,[8] including the ORCP and CMEP, as well as the terms of the RDAs,[9] to ensure alignment and fairness of each Regional Entity's execution of these programs. The ORCP and CMEP are interrelated and work in concert to reduce risks to the reliability and security of the electric grid by (1) identifying and registering BPS users, owners, and operators, and (2) monitoring and enforcing those entities' compliance with mandatory NERC Reliability Standards. Accordingly, NERC's oversight of the Regional Entities focuses on consistency in the implementation of the programs across the ERO Enterprise, identifies areas of improvement, and provides feedback to the Regional Entities. Using a risk-based and agile approach, NERC develops oversight activities to evaluate key aspects of the ORCP and CMEP and to achieve oversight goals.

NERC's annual oversight activities and objectives are developed considering several inputs including, but not limited to, current ERO Enterprise work plan priorities and the criteria developed by the Compliance and Certification Committee (CCC) to measure the effectiveness and adherence of the Regional Entities to the CMEP, as detailed in CCC procedure document CCCPP-010-7.[10] 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 CCCPP-010-7.

Align and Secure Evidence Locker Oversight Activity

NERC periodically performs oversight of the usage of Align and the SEL by the ERO Enterprise and registered entities. In addition to continued monitoring of Align and SEL usage, specific program reviews are deployed to adequately evaluate oversight priorities. Beginning in 2023 and completed in 2024, NERC reviewed Regional Entities' implemented processes and procedures for Align and SEL related to access provisioning and maintenance of artifacts. This review evaluated implemented processes and procedures for adequacy and effectiveness to assure the continued security of CMEP data. Based on NERC's review, the ERO Enterprise is establishing consistent access management programs and developing effective controls to ensure data retention. The results of this oversight were presented at the 2024 CMEP Workshop. The primary outcome is recognizing all Regional Entities had some level of access management process in place, but there remains a need for NERC IT, NERC CMEP departments and Regional Entities to refine and formalize a process to ensure consistency in managing access to Align and SEL.

Annual FFT and CE Programs Review

In October 2024, NERC Enforcement issued the report for the 2023 annual review of the FFT and CE programs.[11] NERC and FERC staff jointly reviewed a sample of 32 out of 173 FFT instances of noncompliance and a sample of 30 out of 888 CE instances of noncompliance posted by NERC between October 2022 and September 2023. Sampling for the 2023 program year indicated that Regional Entities appropriately processed all sampled violation IDs as FFTs or CEs, all sampled noncompliance were adequately remediated, and the root cause of each noncompliance was clearly identified. Commission staff also reviewed the supporting information for these FFTs or CEs and agreed with the final

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[8] The NERC Rules of Procedure are posted on the NERC website at: http://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx.

[9] Regional Entity Delegation Agreements are posted on the NERC website at: https://www.nerc.com/AboutNERC/Pages/Regional-Delegation-Agreements.aspx.

[10] Criteria for Annual Regional Entity Program Evaluation (November 2022), available at https://www.nerc.com/comm/CCC/Related%20Files%202013/CCC%20Criteria%20for%20Annual%20Regional%20Entity%20Program%20Evaluation%20v7.pdf.

[11] 2024 *NERC Annual FFT and CE Report*, Docket No. RC11-6-020 (Oct. 15, 2024), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20241015-5539.

risk determinations for all 62 noncompliance, which clearly identified the factors affecting the risk prior to mitigation (such as potential and actual risk) and actual harm.[12]

NERC agreed with all sampled risk determinations and found the Regional Entities had detailed and thorough descriptions of noncompliance. Based on these findings, NERC concluded that Regional Entities have continued to improve consistency in processing and understanding of the risk associated with individual noncompliance across the ERO Enterprise.

NERC and FERC staff initiated the 2024 Annual FFT and CE Programs review in Q4 2024. NERC issued data requests to the Regional Entities for sampled IDs from the fiscal year 2024 and the Regional Entities provided evidence documents in response. NERC staff will conduct a thorough review of evidence documents in Q1 2025.

Compliance Audit Monitoring

NERC Compliance Assurance observed a sample of Regional Entities' compliance audits conducted during 2024 to verify compliance results (Findings) and ensure the Regional Entities' effectiveness in implementing its Compliance Audits. Objectives of reviewing the compliance monitoring activities included (1) determining if another party could reasonably reach the same conclusions; (2) assessing the use of tools, processes, and procedures; and (3) evaluating audit methodology to ensure consistency of compliance monitoring activities. NERC Compliance Assurance will report results of the review to ERO Enterprise members in early 2025.

Oversight of Deferred CIP-014 Engagements

During the COVID pandemic, the ERO Enterprise made the decision to suspend on-site compliance monitoring due to the physical access restrictions intended to mitigate health and operational risks. At that time, CIP-014-2 Section C, Part 1.4 required entities to retain all evidence onsite to preserve confidentiality. Consequently, ERO Enterprise staff could not review evidence related to physical security and the risks of CIP-014 sites could not be assessed. While CIP-014-3 (effective June 16, 2022) removed Section C, Part 1.4 on-site evidence retention requirements, physical access to CIP-014 sites for assessment purposes may have continued to be restricted due to public health concerns, local to the Entity. With these considerations, several CIP-014 engagements were deferred by the ERO Enterprise and reported to be completed following the resumption of on-site activities.

NERC Compliance Assurance conducted a review of each Regional Entity's list of deferred CIP-014 monitoring engagements to confirm all identified activities have been addressed. Based on NERC's review, Regional Entities completed a majority of deferred CIP-014 activities, with only four engagements scheduled for completion in early 2025.

Technical Feasibility Exceptions

In September 2024, NERC filed its annual report on wide-area analysis of Technical Feasibility Exceptions (TFEs) with FERC.[13] NERC and the Regional Entities used the Align tool to gather most of the evidence for the 2024 report. The overall number of registered entities with approved TFEs has remained relatively consistent over the past three reporting periods, fluctuating between 94 (2024) and 95 (2022 and 2023) registered entities with TFEs. Registered Entities with Approved TFEs by Region (2024 Reporting Period) MRO 14, NPCC 13, RF 17, SERC 16, Texas RE 7, and WECC 27. Among all six Regional Entities, the ERO Enterprise saw a small net reduction of registered entities with approved TFEs, with SERC gaining one entity and RF and WECC removing one entity each.

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[12] *See N. Am. Reliability Corp.,* Notice of Staff Review of Enforcement Programs, Docket No. RC11-6-018 (Aug. 16, 2024), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20240816-3010.

[13] Annual Report of the North American Electric Reliability Corporation on Wide-Area Analysis of Technical Feasibility Exceptions (Sept. 27, 2024), available at
https://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/TFE%20Annual%20Report%202024_20240916_digicert.pdf.

The decrease in the number of approved TFEs and the total assets covered by TFEs since the inception of the TFE Program has consequently reduced the level of effort required of the registered entity and Regional Entity to maintain and administer a TFE. Additionally, the migration of TFE data from the Regional Entities to the Align tool made the analysis of this data less burdensome.

Certification Monitoring

NERC Compliance Assurance participated on and identified a sample of Regional Entities' certification activities conducted during 2024 to evaluate the Regional Entities' effectiveness in implementing its Certification program. During 2024, three full certifications were completed and three scheduled to be performed in Q1 2025. ERO Enterprise staff performed thirteen certification reviews of already certified and operational entities, including nine control room relocations and four Energy Management Systems (EMS) upgrades. There were no footprint changes requiring certification reviews.

Compliance Review of BPS System Events

The ERO Enterprise conducts a review of all events with a corresponding trend analysis that is conducted on a quarterly basis. In 2024, NERC Compliance Assurance engaged with each of the Regional Entities to evaluate the trend analysis that was conducted in Q3 2024. The primary objectives were to ensure completeness, accuracy and timeliness of the review and to verify that all identified events are reviewed and trended. As a secondary objective, there was an evaluation of consistency and improvement opportunities. NERC Compliance Assurance found that the analysis conducted by the Regional Entities generally identifies risks associated with the evaluated events and corresponding trends.

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 Regional Entities (WECC, MRO, and NPCC) have agreements with applicable governmental authorities or authorized entities in each province that provide the affected Regional Entities and NERC with province-specific compliance monitoring and enforcement responsibilities. NERC and the Regional Entities with responsibilities in Canada provide the NERC Board of Trustees Regulatory Oversight Committee with periodic updates on Canadian CMEP activities.

Chapter 3: Outreach and Training

Overview of Outreach

In 2024, the ERO Enterprise provided numerous outreach opportunities to industry stakeholders through technical conferences (such as the NERC Cloud Technical Conference for physical and cyber security and the NERC Cold Weather Project Technical Conference), workshops, monthly newsletters, assist visit programs, webinars, podcasts,[14] and other events. These outreach events focused on a variety of topics, including – but not limited to – the following:

- Cold weather preparedness and winterization;

- Physical and cyber security;

- Program Alignment Tool; and

- Facility Ratings

Small Group Advisory Sessions

On May 6, 2024, the ERO Enterprise hosted a webinar for Registered Entities preparing to implement the Extreme Cold Weather Preparedness and Operations Standards. The webinar was attended by approximately 500 individuals and covered compliance monitoring approaches and questions from Registered Entities pertaining to EOP-012-2, EOP-011-4 and TOP-002-5. The ERO Enterprise then hosted one-on-one sessions with Registered Entities discussing their specific questions and sharing compliance monitoring approaches to the Extreme Cold Weather Preparedness and Operations Standards. The ERO Enterprise hosted 26 of these sessions from May 7-10, 2024, which included Registered Entities from every Regional Entity. Based upon the questions received during the general session and individual Registered Entity sessions, the ERO Enterprise developed responses to these questions and posted a Frequently Asked Questions document on September 3, 2024.

Program Alignment Tool

In response to reports of inconsistency between Regional Entities in CMEP matters, NERC employed EthicsPoint, a third-party program alignment tool used in many industries, to encourage open discussions by providing a venue to communicate anonymously and establishing a workflow tracking reported issues and documenting them so they are not lost or forgotten. NERC has observed and received feedback indicating the tool is underutilized and collaborated with the Compliance and Certification Committee (CCC) to form the Consistency Reporting Tool Task Force (CRTTF). The CRTTF and NERC hosted a webinar[15] on May 22, 2024, focused on the Program Alignment process, and provided step-by-step instructions related to the use of the Consistency Reporting Tool.

Regional Workshops and Training

In 2024, the six Regional Entities hosted dozens of workshops and training events for industry in the United States and Canada on a variety of topics, including but not limited to:

- Electric and gas interdependencies;

- Events analysis;

- Enforcement Fundamentals

- Cyber and physical security, including via the third edition of the Critical Infrastructure Protection Themes and Lessons Learned report;[16]

- The evolving grid and IBRs; and protecting renewable assets from supply chain risks;

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[14] Currently Compliant Podcast, available at https://vimeopro.com/nerclearning/currently-compliant-podcast/.
[15] Program Alignment/Consistency Reporting Tool Webinar (May 22, 2024).
[16] Critical Infrastructure Protection: Themes and Lessons Learned (2024), available at https://www.rfirst.org/wp-content/uploads/2024/08/2024-CIP-Themes-and-Lessons-Learned.pdf.

- Align;

- Internal controls;

- Drones and grid security training course;

- Zero trust architecture and the potential associated risks.

Revised Registered Entity Self-Report and Mitigation Plan User Guide

In Q4 2024, the ERO Enterprise updated the Registered Entity Self-Report and Mitigation Plan User Guide.[17] The updates include: removal of references to legacy systems; updated content to address functionality and content of submissions in Align; improved explanations of what Registered Entities should provide in Self-Report submissions; updated information regarding what a Registered Entity should do if it is part of Coordinated Oversight; updated terms for consistency; and updated Appendices for the Self-Report and Mitigation checklists to reflect the changes made in the main text and included two new Appendices to show what the Self-Report and Mitigation forms look like in Align.

Cause Code User Guide

In Q4 2024, NERC Enforcement posted its first Cause Code User Guide on the Enforcement and Mitigation webpage.[18] NERC and the Regional Entities developed a succinct list of Enforcement Cause Codes for further analysis and trending of noncompliance by characterizing the causes of noncompliance in a structured, measurable, and continuously improvable method. Additionally, cause coding may be used to gain insight into effective root cause mitigation and further streamline processing of noncompliance. The newly developed Enforcement Cause Codes have been in use by Regional Entities since Q1 2024 and will be made available in Align for use by Registered Entities starting in 2025. In addition to the user guide, NERC has also posted a training video on how to use Cause Codes and where in Align they can be found on the NERC Enforcement and Mitigation webpage.

Overview of ERO Enterprise Staff Training

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 Regional Entities. These opportunities focus on identifying gaps in staff knowledge and capabilities related to the risk-based CMEP. ERO Enterprise staff provide training and educational opportunities concerning Reliability Standards, compliance monitoring and enforcement processes, and other supporting functional areas to other NERC staff, Regional Entity staff, and industry participants at various events through the year. These programs enhance the knowledge and capabilities of the ERO Enterprise and industry in identifying and addressing risk, thereby improving the reliability of the BPS.

CMEP Workshop

In April 2024, NERC conducted the Annual ERO Enterprise CMEP Staff Workshop in Atlanta. Over 270 ERO Enterprise CMEP staff attended the workshop. The theme for the 2024 workshop was "One CMEP" with continued focus on the transformation of the CMEP. The workshop included a NERC-led exercise with a strong focus on entity risk identification, scope determination, monitoring and enforcement. A key focus of the workshop was to understand risk perspectives and role of CMEP in risk mitigation. The workshop also covered topics that are essential to the successful implementation of risk-based compliance monitoring such as understanding the importance of internal controls, as well as techniques used for gathering and sharing entity information. Understanding entity practices and controls assists in ensuring a reliable and secure BPS and requires CMEP staff to ask questions that go beyond basic

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[17] Registered Entity Self-Report and Mitigation Plan User Guide (Oct. 2024), available at
https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/Registered%20Entity%20Self-Report%20and%20Mitigation%20Plan.pdf.
[18] ERO Enterprise Enforcement Cause Code User Guide, (Dec. 2024), available at
https://www.nerc.com/pa/comp/CE/Enforcement%20Actions%20DL/ERO%20ENF%20Cause%20Coding%20User%20Guide_V1.pdf.

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. NERC staff provided information on IBR registration and how that will impact the CMEP role across the ERO Enterprise. NERC staff also provided results of the Align oversight activity which was conducted last year, and shared best practices for use of Align. To receive credit for specific sessions, and associated competencies, the attendees were required to demonstrate an understanding of the material by successfully completing learning assessments in the ERO Enterprise Learning Management System (LMS).

Training for Audit Team Lead, Certification Team Lead, and Compliance Investigator

In May and October 2024, NERC staff conducted Team Member Training (TM) and Team Leader Training (TL) in accordance with Sections 402.9, 403.7.5, and 502.2.2.7, and Appendix 4C of the NERC Rules of Procedure. This training is conducted over one week concurrently with Certification Team Leader Training and Compliance Investigator Training. A total of 52 ERO Enterprise CMEP personnel attended these training sessions. To receive course credit, and certificate if applicable, the attendees were required to demonstrate an understanding of the material by successfully completing learning assessments in the ERO Enterprise LMS.

Crucial Conversations for Mastering Dialogue

In November 2024, NERC staff conducted Crucial Conversations for Mastering Dialogue for regional CMEP staff. This training was conducted over two days and hosted by Texas RE. Crucial Conversations gives people the skills to step into disagreement— rather than over or around it—and turn disagreement into dialogue for improved relationships and results. These skills can help auditors in the field navigate difficult conversations that may arise as a result of delivering less than desirable findings such as an entity may have a reportable non-compliance event. A total of13 ERO Enterprise CMEP personnel attended this training session. To receive course credit and a course certificate, the attendees were required to demonstrate an understanding of the material and demonstrate the skills learned by successfully navigating a simulated hostile conversation. Enrollment and participation were tracked in the ERO Enterprise LMS.

Chapter 4: Year in Review

Overview of the Year

NERC has historically provided a variety of ORCP and CMEP information in its quarterly, semiannual, and annual reports to highlight trends and other useful information to industry. Stakeholders have communicated to NERC via the CCC that they use this ORCP and CMEP information for a variety of purposes.

Functional Registration Changes by Region

In 2024, the ERO Enterprise processed 347 registration changes, 218 of them being activations and 129 deactivations. Most of this registration activity was concentrated in the Generator Owner (GO) and Generator Operator (GOP) functions, consistent with prior years.
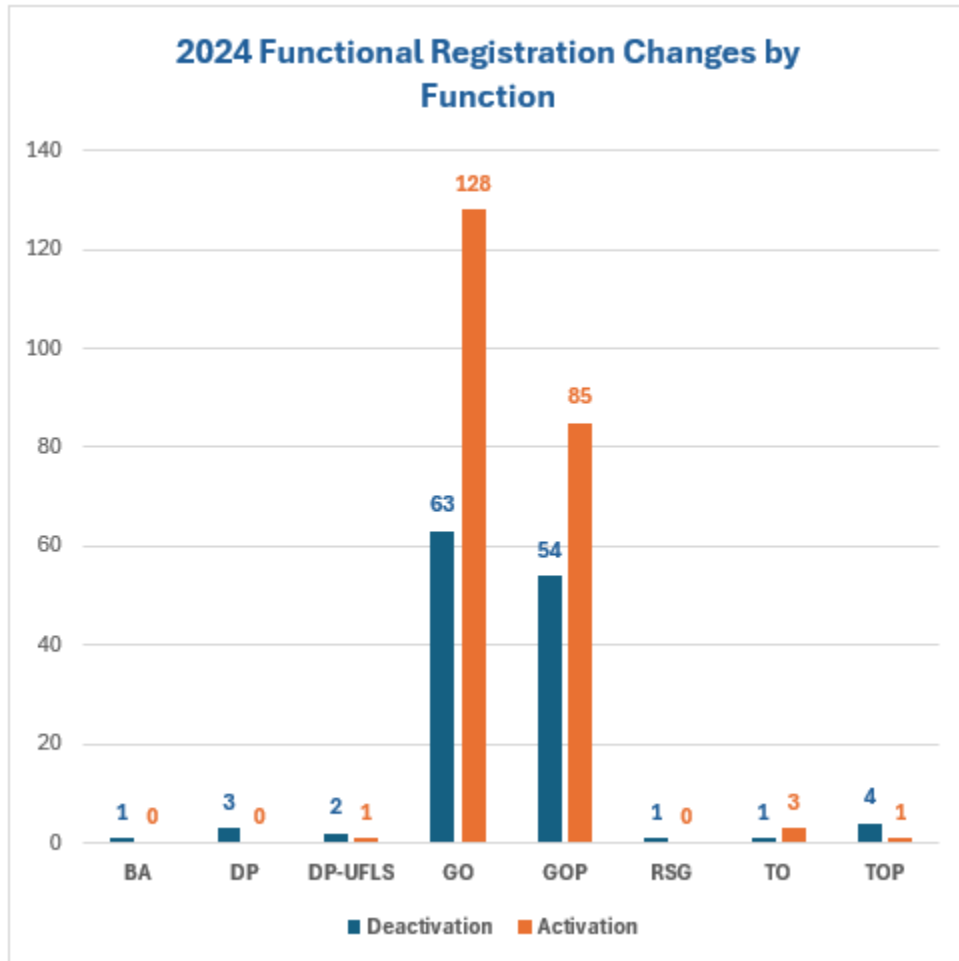

2024 Functional Registration Changes by Regional Entity
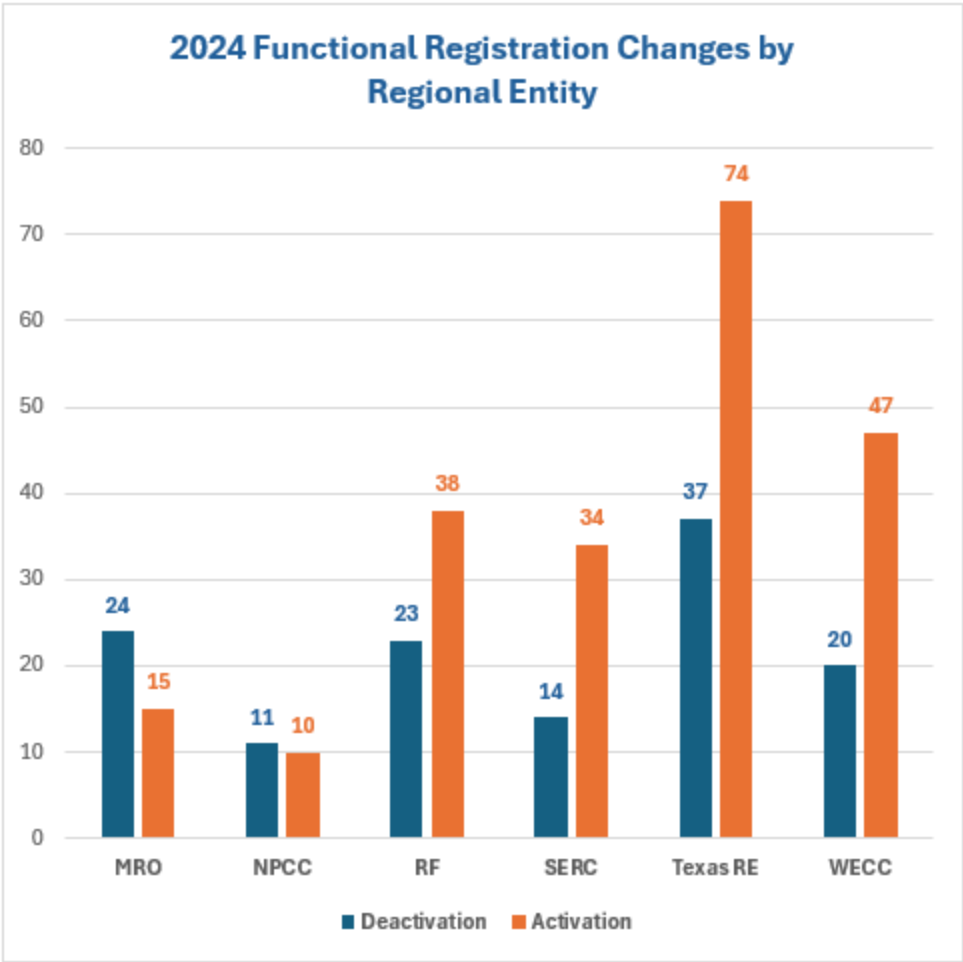
	MRO	NPCC	RF	SERC	Texas RE	WECC
Deactivations	24	11	23	14	37	20
Additions	15	10	38	34	74	47

Figure 2: 2024 Functional Registration Changes by Regional Entity

Functional Registration Changes by Function

In 2024, the ERO Enterprise processed 347 registration changes, 218 of them being activations and 129 deactivations. Most of this registration activity was concentrated in the Generator Owner (GO) and Generator Operator (GOP) functions, consistent with prior years.

	BA	DP	DP-UFLS	GO	GOP	RSG	TO	TOP
Deactivations	1	3	2	63	54	1	1	4
Additions	0	0	1	128	85	0	3	1

Figure 3: 2024 Functional Registration Changes by Function

Registration Change Basis

In 2024, NERC processed 92 function deactivations. NERC seeks justification from each Regional Entity when approving functional registration deactivations. The table below shows the bases for the 2024 function deactivations.
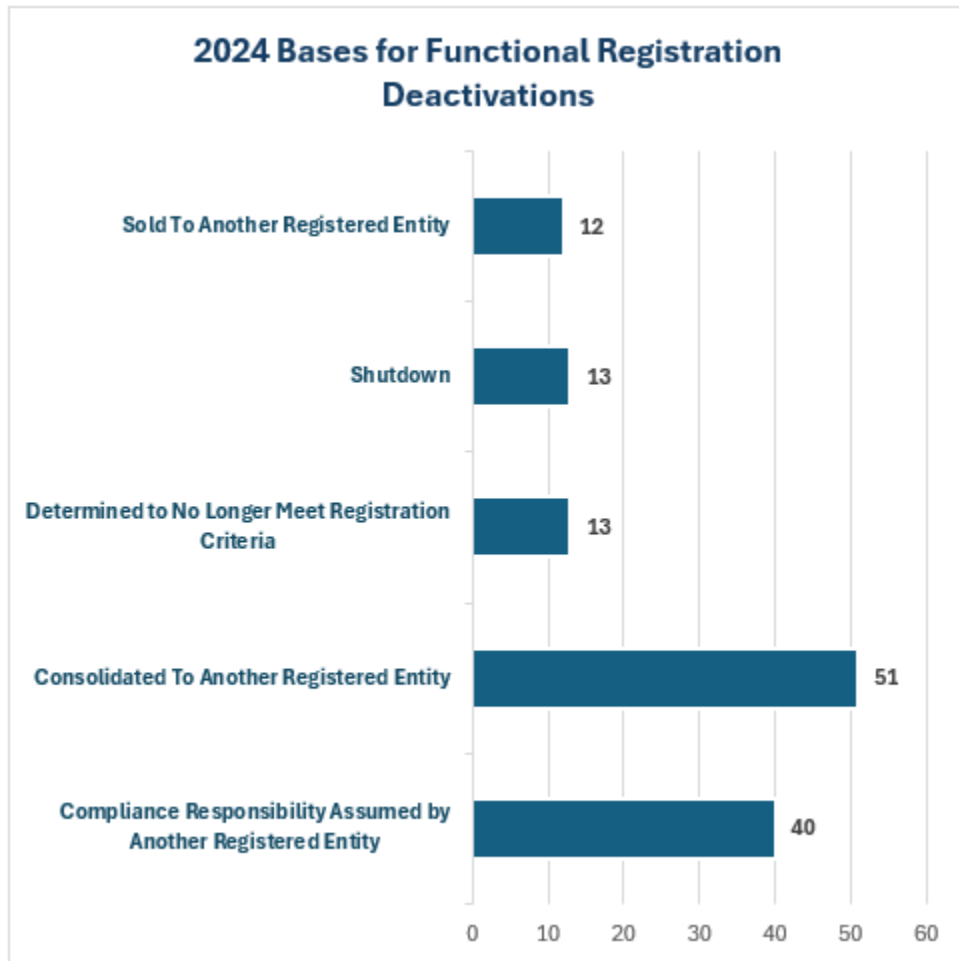

Figure 4: 2024 Bases for Functional Registration Deactivations

Noncompliance Discovery Methods

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

> In 2024, approximately 87% of reported noncompliance was self-identified by registered entities.
>
> Over the last five years, registered entities have self-identified approximately 85% of reported noncompliance.
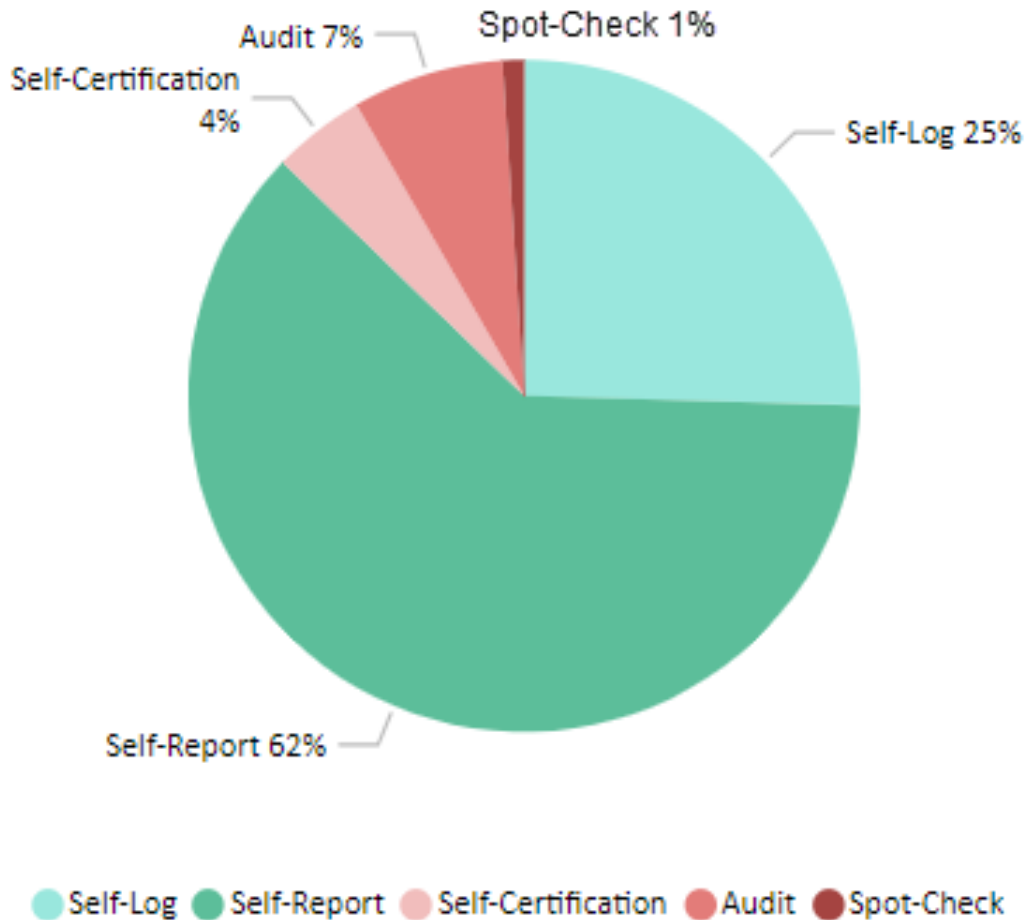

Figure 5: 2024 Noncompliance by Discovery Method

Top 10 CIP Noncompliance Reported in 2024

> In 2024, the most frequently reported noncompliance involving the CIP Standards included CIP-010, CIP-007, and CIP-004, which all involve high volume and high frequency conduct.
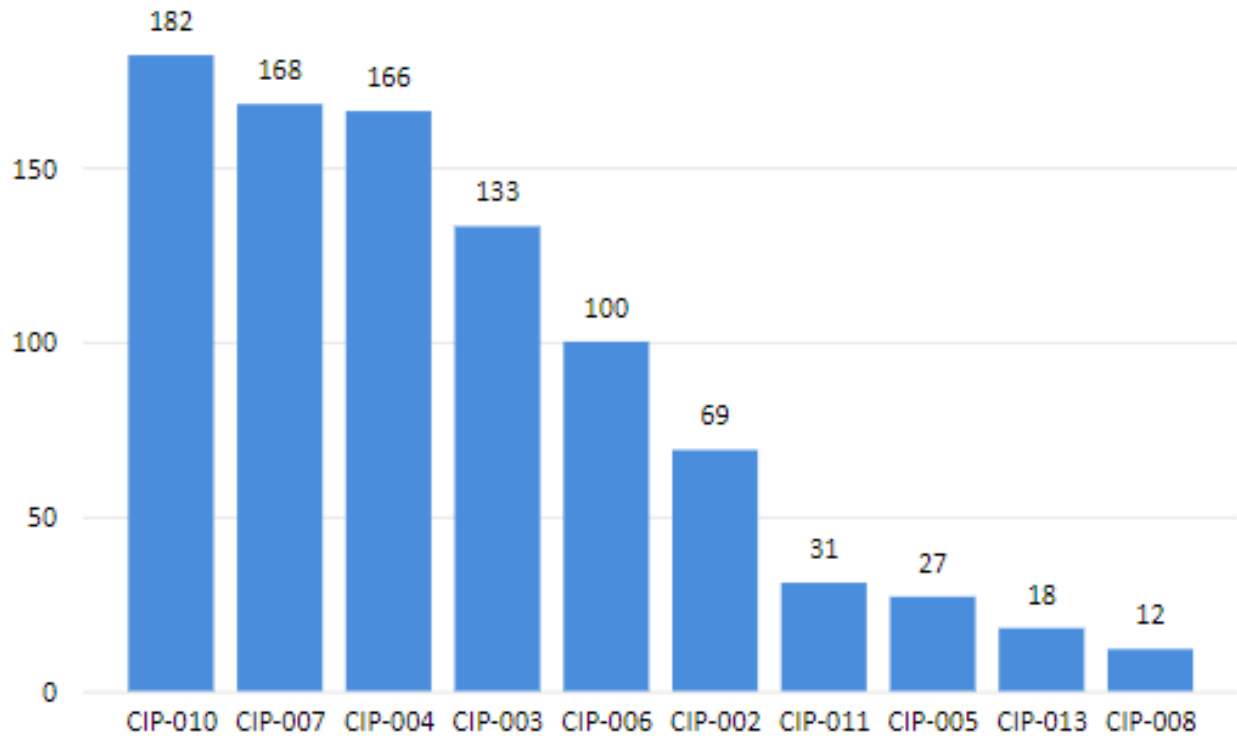

Figure 6: Top 10 CIP Noncompliance Reported in 2024

Top 10 O&P Noncompliance Reported in 2024

In 2024, the most frequently reported noncompliance involving the O&P Standards included PRC-005, FAC-008, MOD-025 and VAR-002. FAC-008 has been an ERO Enterprise focus area for several years. PRC-005 and VAR-002 both involve high frequency conduct. MOD-025 involves verification and reporting of generator and synchronous condenser real and reactive power capability to the transmission planners. MOD-025 has the highest reported noncompliance of the MOD family.
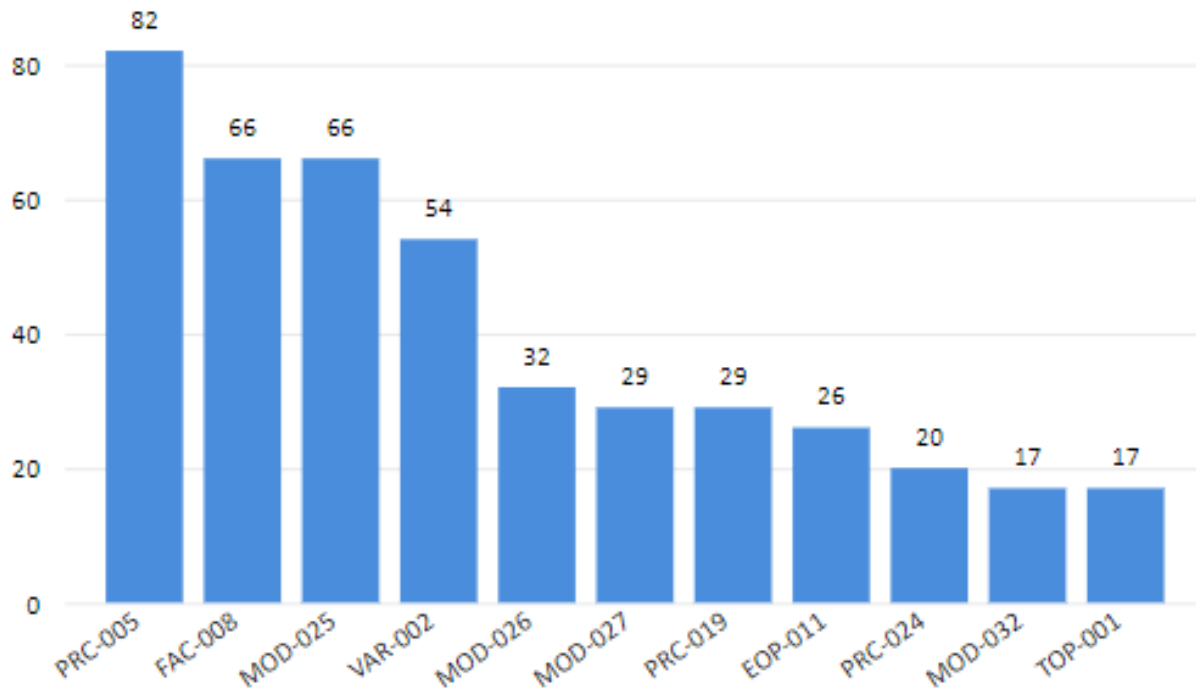

Figure 7: Top 10 O&P Noncompliance Reported in 2024

Top 10 Serious and Moderate Risk Noncompliance Filed in 2024

Four serious risk 2024 filings involved CIP-004, CIP-007, CIP-010 and FAC-003.

FAC-008 was the most moderate risk O&P Standard filing in 2024.
CIP-003 was the most moderate risk CIP Standard filing in 2024.
CIP-007, CIP-004, and CIP-010 were also on the top 10 filed moderate and serious risk violations in 2024.
FAC-003 was the only serious risk O&P filed in 2024 however it was not on the top 10 most reported or filed violation in 2024.
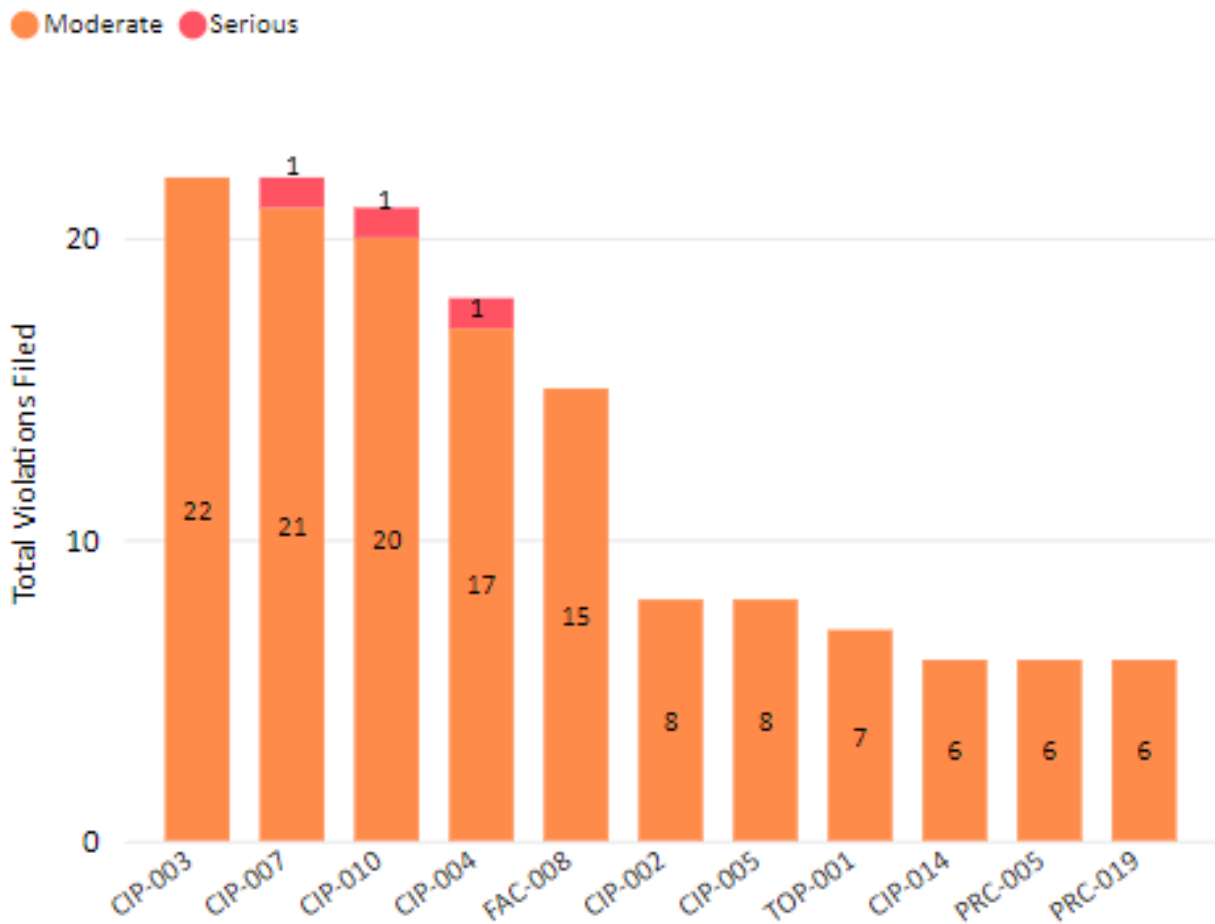

Figure 8: Top 10 Serious and Moderate Risk Noncompliance Filed in 2024

Focus on Reducing Older Inventory

ERO Enterprise's open noncompliance inventory consists of noncompliance reported to or identified by the Regional Entities or NERC that has not yet been processed by filing with FERC (Full NOPs and SNOPs), submission to FERC (FFTs and CEs), or being dismissed. In 2024, the ERO Enterprise focused on reducing the volume of its oldest open inventory and made substantial reductions.

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.

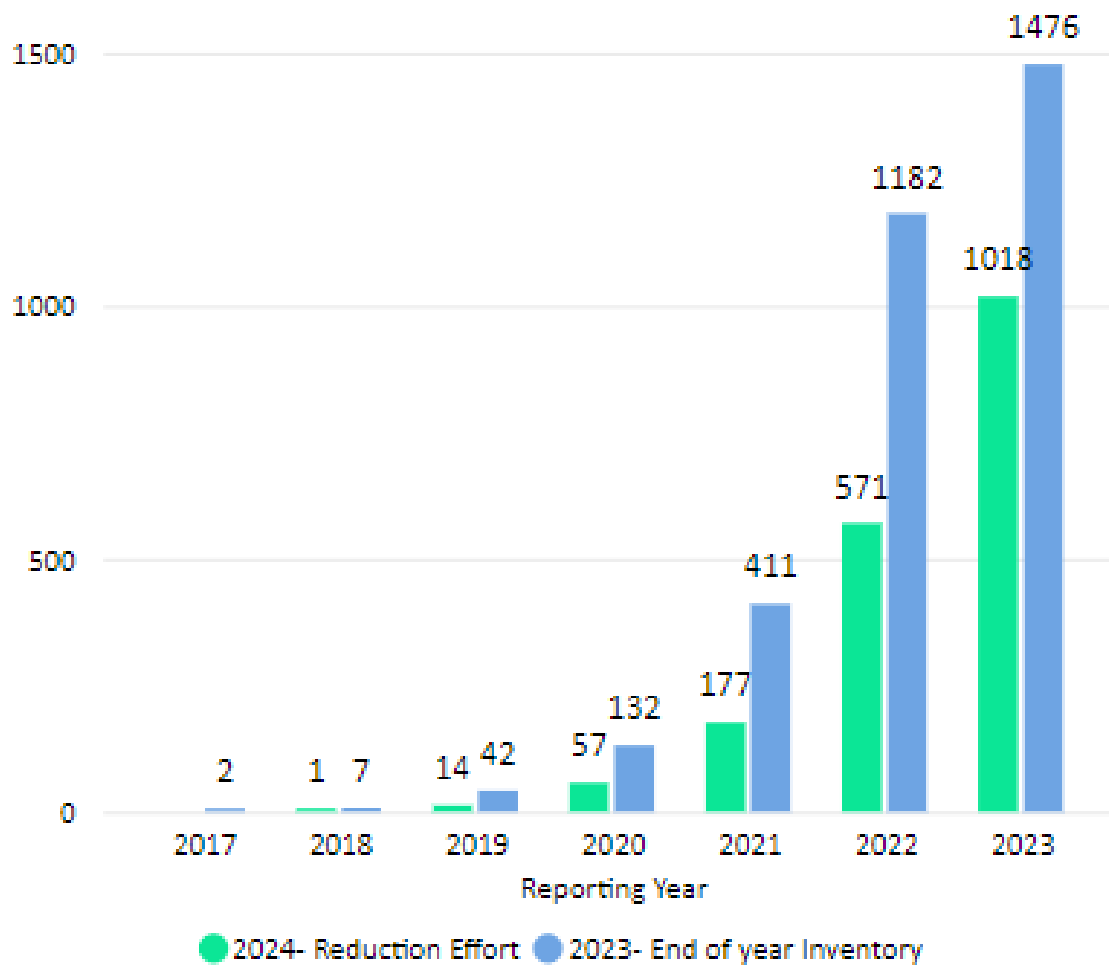> In 2024, the ERO Enterprise processed over 64% of 2023 and older noncompliance.

Figure 9: Reduction in Older Inventory at End of 2024

> 73% of ERO Enterprise inventory is from 2024 and 2023.
>
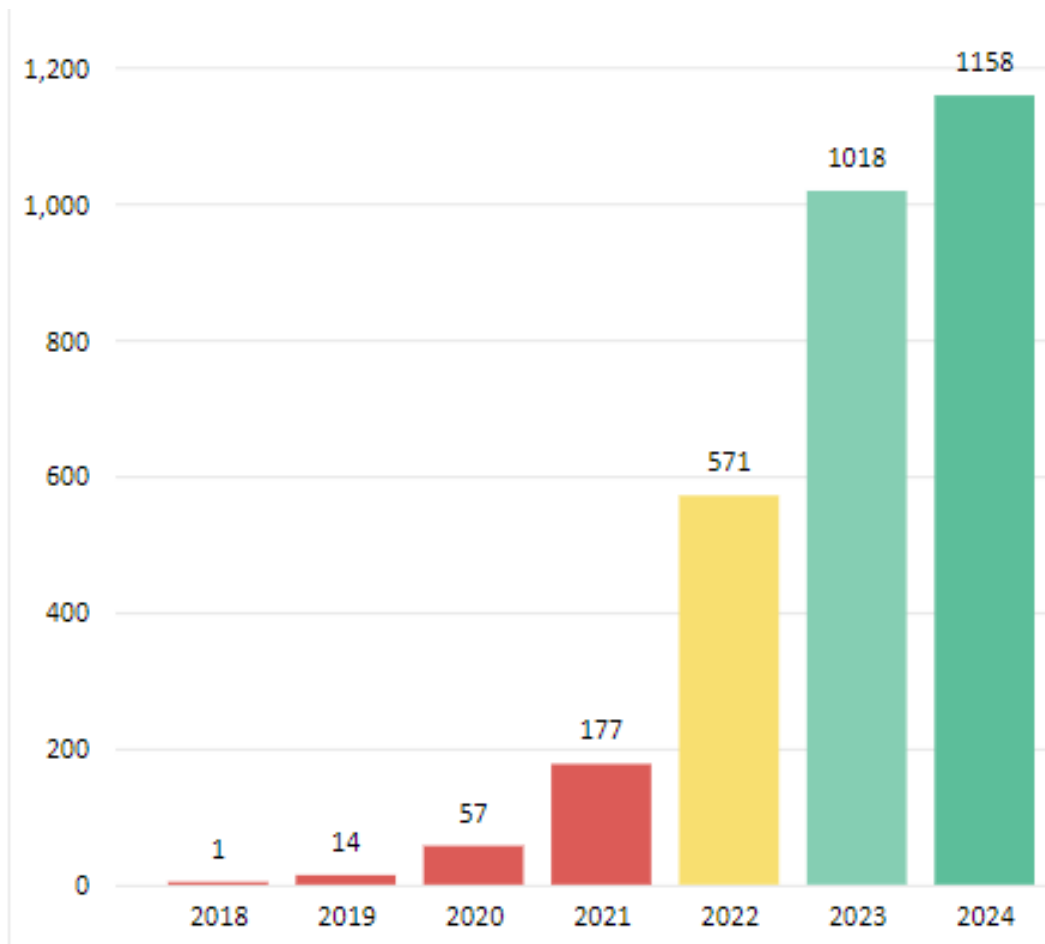> Approximately 8% of the EROE Enterprise open noncompliance is from 2021 and earlier.

Figure 10: Open Inventory at End of 2024

Disposition of Noncompliance

The ERO Enterprise continues to use a risk-based enforcement approach to process noncompliance. In 2024, the ERO Enterprise processed approximately 83% of filed or submitted noncompliance as CEs and 13% as FFTs, disposition methods involving minimal and moderate risk noncompliance that do not involve settlement agreements or monetary penalties. The remaining processed noncompliance was resolved using the SNOP and Full NOP disposition methods, which address more significant noncompliance and usually involve settlement agreements and monetary penalties and/or non-monetary sanctions.

> Self-logged CE dispositions nearly doubled in 2024 compared with 2023.
>
> Approximately 95% of 2024 dispositions were Compliance Exception (CE) or Find, Fix, Track and Report (FFT).
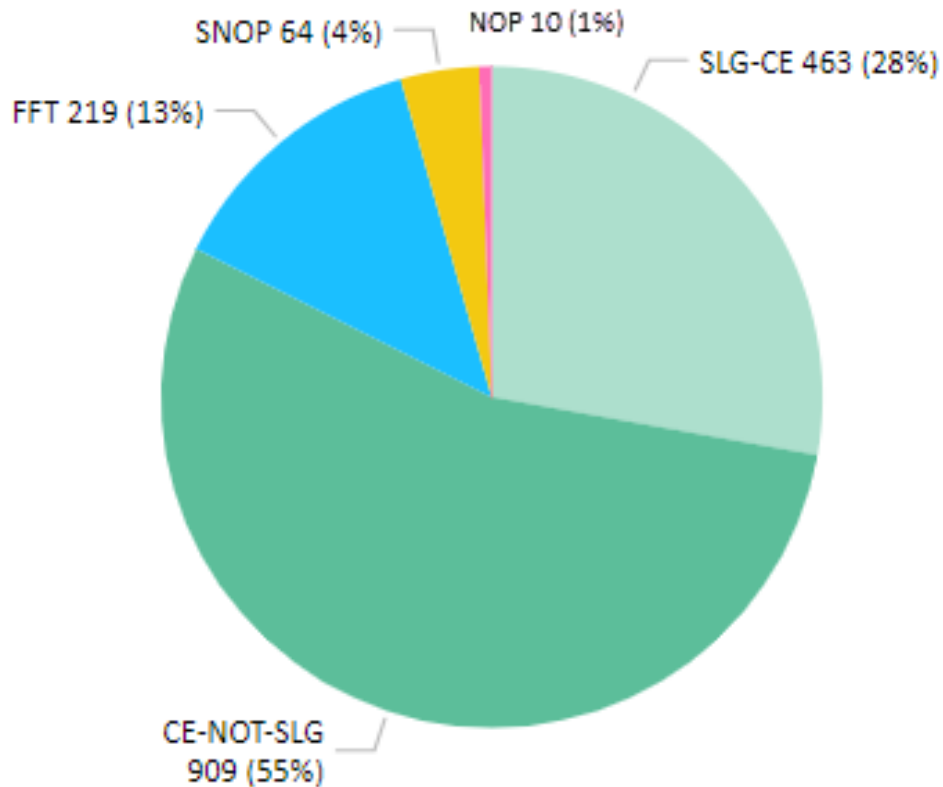

Pie chart segments:
- SNOP 64 (4%)
- NOP 10 (1%)
- FFT 219 (13%)
- SLG-CE 463 (28%)
- CE-NOT-SLG 909 (55%)

Figure 11: Disposition of Noncompliance Processed in 2024

Mitigation of Noncompliance

Mitigation of noncompliance involves both the correction of the immediate issue that led to the noncompliance as well as steps to minimize future recurrence. Entities with noncompliance with ongoing mitigation have measures in place to reduce risk to the BPS while the entities are working to remediate the issue and implement controls to minimize future recurrence.

> Approximately 73% of completed mitigation occurs within six months of a noncompliance being reported to a Regional Entity, and approximately 87% of completed mitigation occurs within one year of the noncompliance reporting date.
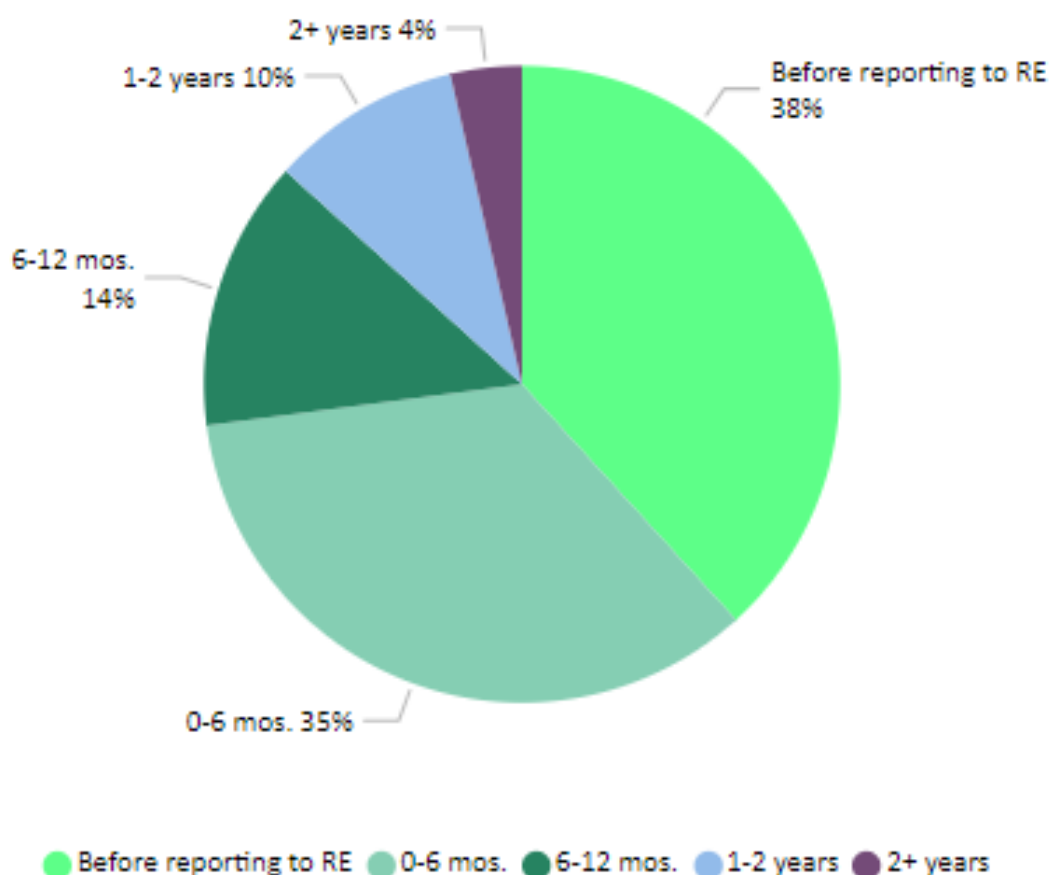

Figure 12: Timeframe for Completed Mitigation in the Past 5 Years

Compliance History

The ERO Enterprise monitors compliance history (defined as a prior noncompliance of the same or similar Reliability Standard and Requirement) and aggravating noncompliance with similar conduct (defined as a prior noncompliance 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.

The figure below shows all filed moderate and serious risk noncompliance in the past five years including those with relevant compliance history and those with aggravating 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 noncompliance 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.

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

> Approximately 14% of the moderate and serious risk filings in the past five years had aggravating compliance history. Since 2021, the ERO Enterprise has been a decreasing trend in aggravating compliance history for the moderate and serious risk filings.
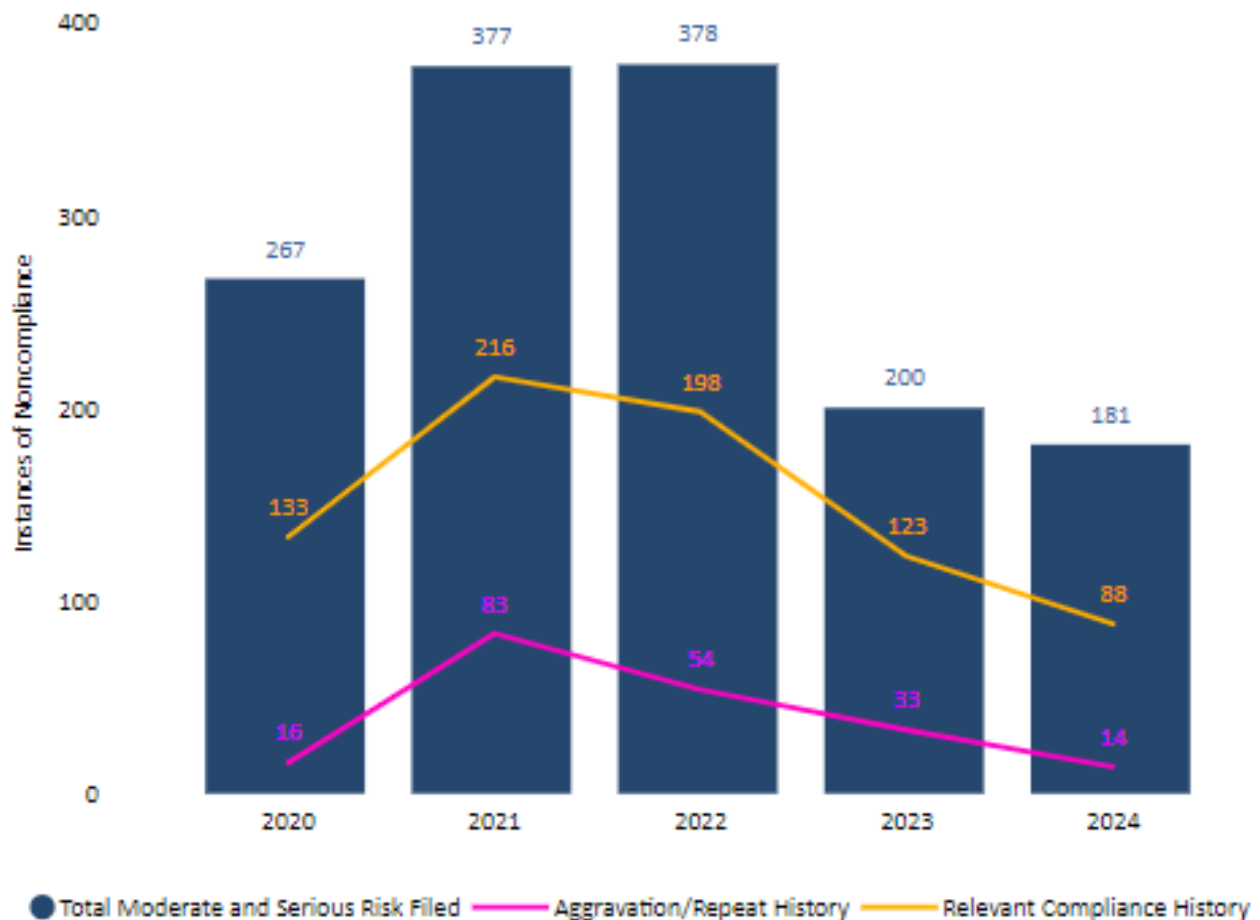

Figure 13: Compliance History for Moderate and Serious Risk Noncompliance

Reliability Standard Audit Worksheets

During 2024, NERC issued announcements for six Reliability Standard Audit Worksheets (RSAWs) available on the NERC website.[19]

Certification Completions

During 2024, three full certifications were completed and three scheduled to be performed in Q1 2025. ERO Enterprise staff performed ten certification reviews of already certified and operational entities, including seven control room relocations and three Energy Management Systems (EMS) upgrades. There were no footprint changes requiring certification reviews.

Program Alignment Process

The ERO Enterprise Program Alignment Process is intended to enhance efforts to identify, prioritize, and resolve alignment issues across the ERO Enterprise. This is a repeatable, transparent process that registered entities (or other relevant industry stakeholders) may use to report any perceived inconsistency in the approach, methods, or practices implemented and executed by the Regional Entities.

Using this process, NERC will capture identified issues from the various resources in a centralized repository. NERC will classify the issue through an initial screening process to ensure the appropriateness for this process, then work with Regional Entities and stakeholders (Compliance and Certification Committee) to analyze the issues and determine the scope and material impact. The ERO Enterprise will develop recommendations and determine the priority of the activities taking into consideration all ERO Enterprise efforts. Finally, NERC will post the issue along with the recommendations/results in the Program Alignment – Issues and Recommendations Tracking document and provide status updates on its activities.

The ERO Enterprise Program Alignment Process relies on input from NERC's oversight and monitoring, regional observations, and registered entity reporting. The program aims to strengthen the ERO Enterprise's collaborative and transparent approach to resolving consistency issues.

In 2024, three submissions were added to the Program Alignment – Issues and Recommendations Tracker.[20] A submitter reported that some Regional Entities publicly posted their 2024 audit schedules while others did not. In 2022, changes to the NERC Rules of Procedure removed the requirement to publish annual audit schedules, replacing it with a 270-day advance notice to each entity. Posting of the 2024 schedules by some Regional Entities this year was an unintended byproduct of that transition and none of the Regional Entities will post annual audit schedules going forward. Two additional issues related to the timing of completion of the asset verification form and validation of the asset verification form are in the process of being reviewed. NERC will update the tracker when the appropriate resolution has been determined.

FERC Filings and Orders and Other Developments of Note

In 2024, FERC issued several orders impacting the ORCP and CMEP programs. Of note are issuances related to inverter-based resources (IBRs) and the Five-Year Performance Assessment. These issuances and related petitions by NERC address the reliability and security needs of the BPS presented by the transforming grid, evolving resource mix, and extreme weather.

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

[20] Program Alignment – Issues and Recommendations Tracker, available at https://www.nerc.com/pa/comp/ERO%20Enterprise%20Program%20AlignmentDL/Issues-Recommendations_EXTERNAL.xlsx.

On June 27, 2024, FERC issued an order approving NERC's proposed revisions to the NERC Rules of Procedure that change the generator owner and generator operator registry criteria in Appendix 5B to reflect a new category of entities (collectively "Category 2 entities") that own or operate non-BES IBR resources that: (1) have or contribute to an aggregate nameplate capacity greater than or equal to 20 MVA; and are (2) connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage greater than or equal to 60 kV.[21] After obtaining FERC approval, the ERO Enterprise sent requests for information to currently registered Balancing Authorities and Transmission Owners asking them to help identify potential Category 2 entities that would be subject to future registration. The ERO Enterprise will continue working in 2025 to identify potential registrants and initiate contact with them to bring them up to speed on their obligations as future registered entities.

The Five-Year Performance Assessment includes the supplemental filing which provided additional details on work to improve efficiencies in Reliability Standards development, Compliance Monitoring and Enforcement Program processing, and more robust data collection and analytics. Specifically, NERC's supplemental filing includes the following additional ERO Enterprise efforts to ensure its activities are risk-driven, efficient, and effective:

- The ERO Enterprise will use a Potential Noncompliance abeyance period to enhance NERC standards development process agility that the ERO Enterprise and industry have focused on the past few years. This will help to reduce the concern over compliance risk during standards development so that the focus can be on addressing risks to reliability.

- The ERO Enterprise will enhance enforcement activities by streamlining the Compliance Exception process. This will hone enforcement oversight practices for minimal risk issues to promote regulatory certainty and predictability for future compliance issues.

- The ERO Enterprise will focus on timely data analysis to report on trends, themes, and recommendations. This will help to inform opportunities for future collaboration between FERC staff, the ERO Enterprise, and industry on observed trends and themes.

NERC is committed to applying the inherent flexibility and agility that this will provide to its regulatory processes. On December 19, 2024, FERC issued an order accepting NERC's 2024 Performance Assessment and required a NERC to submit a compliance filing that will provide the metrics NERC will track and explain how those metrics will demonstrate continuous improvement in the areas of: (1) Reliability Standards development and (2) the implementation and oversight of the compliance monitoring and enforcement program (CMEP). NERC must report on these metrics and explain how the metrics demonstrate improvement in these areas over each five-year performance assessment period in each NERC performance assessment going forward.[22]

Newly Enforceable NERC Reliability Standards in 2025
In 2025, several new and updated Reliability Standards will become enforceable.

On July 1, 2025, IRO-010-5 and TOP-003-6.1 will become enforceable. These Reliability Standards were updated as part of the second phase of work on NERC's Standards Efficiency Review to clarify, consolidate, and improve approaches for data and information specification and exchange.

On October 1, 2025, TOP-002-5 will become enforceable. This Reliability Standard was updated in response to cold weather events and requires Balancing Authorities to implement comprehensive Operating Processes for extreme cold weather conditions.

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[21] Order Approving Revisions to North American Electric Reliability Corporation Rules of Procedure and Requiring Compliance Filing, 187 FERC ¶ 61,196 (June 2024), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240627-3033.
[22] Order on Five-Year Performance Assessment, 189 FERC ¶ 61,211 (December 2024), available at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20241219-3046.

Chapter 5: CMEP and ORCP Priorities for 2025

Priorities for 2025

To guide registration, certification, compliance monitoring, and enforcement, activities in 2024, NERC has identified the following priorities:

- Continued oversight of the ERO Enterprise registration, certification, compliance monitoring, and enforcement activities.

- Continued improvement of the Align and SEL tools in support of the CMEP.

- Continued focus on reducing noncompliance inventory, particularly older inventory.

- Use data to timely provide insights, trends, and recommendations to prepare for emerging risks to reliability.

- Engage with U.S. and Canadian regulators to explore opportunities for greater knowledge sharing and involvement.

- Develop a symbiotic relationship between certification, entity risk (as evaluated through IRAs and COPs), and compliance monitoring.

- Participate in ERO Enterprise monitoring activities to evaluate potential opportunities to further mature the audit process.

- Continue to engage with the CCC, and other stakeholders as appropriate, to understand, among other things, industry perceptions of the policies, practices, and effectiveness of the ORCP and CMEP.