

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Compliance Monitoring and Enforcement Program and Organization Registration and Certification Program Quarterly Report

Q1 2022

May 10, 2022

RELIABILITY | RESILIENCE | SECURITY



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# Table of Contents

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|   |           |
|---|-----------|
| Preface.....  | iii       |
| Executive Summary.....  | iv        |
| Chapter 1: CMEP Activities .....  | 1         |
| Termination of Temporary Activities Related to COVID-19 Pandemic .....            | 1         |
| Align Project.....  | 1         |
| ERO Enterprise Staff Training and Industry Outreach .....                         | 1         |
| ERO Enterprise CMEP Staff Training .....  | 1         |
| Industry Outreach via Webinars and Workshops .....                                | 1         |
| ERO Enterprise Collaboration with Stakeholders on Higher Tier Risks.....          | 2         |
| Chapter 2: Regional Entity Oversight .....  | 3         |
| Enforcement Oversight .....   | 3         |
| Focus on Serious Risk Violations.....   | 3         |
| Spreadsheet NOPS .....  | 3         |
| Annual Find, Fix, Track, and Report and Compliance Exception Programs Review..... | 3         |
| Compliance Monitoring Oversight .....   | 3         |
| NERC Oversight Priorities .....   | 3         |
| Compliance Oversight Plans .....  | 4         |
| Align Release 1 Oversight Activity .....  | 4         |
| ERO Enterprise CIP-008 Effectiveness Activity.....                                | 4         |
| Certification.....  | 5         |
| Q1 2022 Certification Completions.....  | 5         |
| Registration .....  | 5         |
| Q1 2022 Registration Changes.....   | 5         |
| BES Exception Requests.....   | 5         |
| Chapter 3: ERO Enterprise Performance Objectives .....                            | 6         |
| Priorities for 2022 .....   | 6         |
| <b>Appendix A: Enforcement .....</b>  | <b>7</b>  |
| <b>Appendix B: Compliance Assurance .....</b>                                     | <b>21</b> |
| <b>Appendix C: Registration.....</b>  | <b>23</b> |
| <b>Appendix D: Certification and Bulk Electric System.....</b>                    | <b>26</b> |

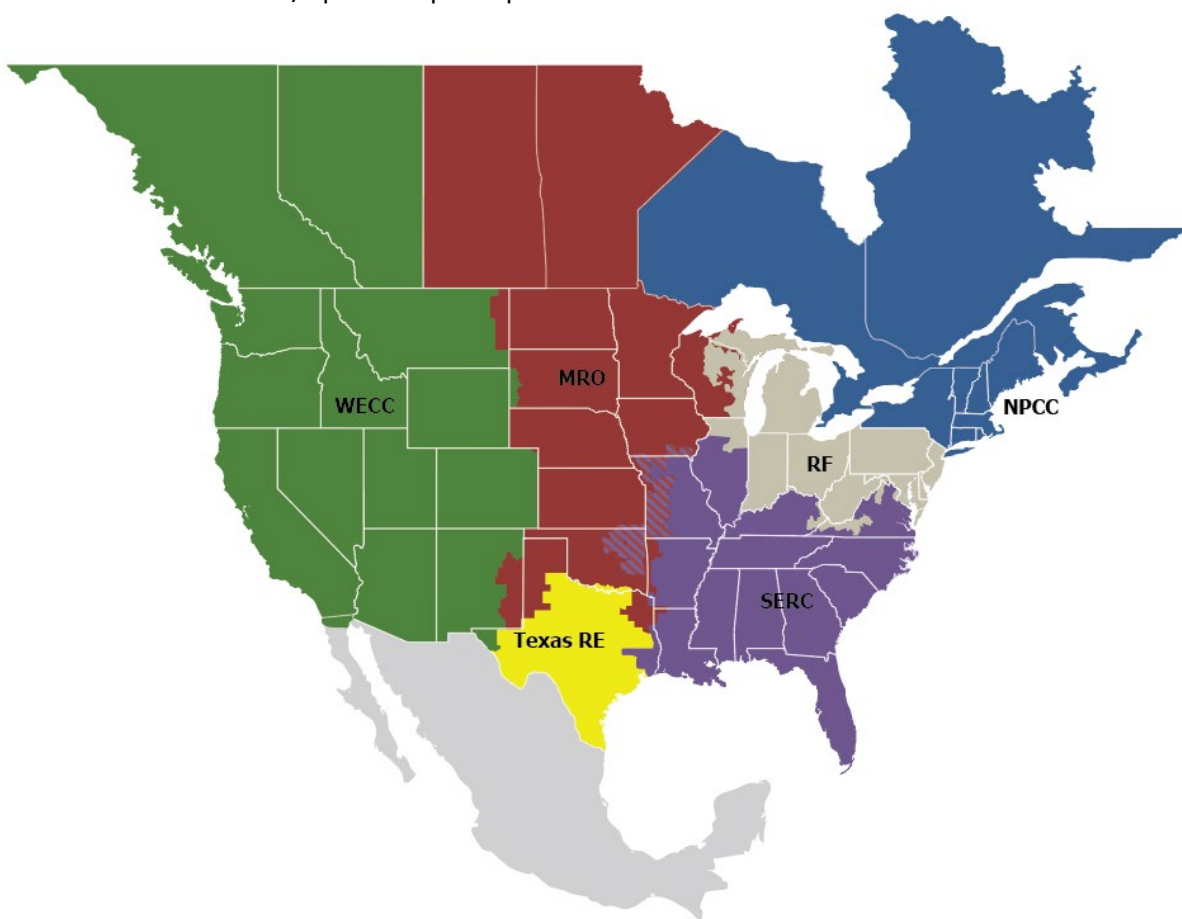
## Preface

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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, 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 made up of six Regional Entity boundaries as shown in the map and 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.



|                 |                                      |
|-----------------|--------------------------------------|
| <b>MRO</b>      | Midwest Reliability Organization     |
| <b>NPCC</b>     | Northeast Power Coordinating Council |
| <b>RF</b>       | ReliabilityFirst                     |
| <b>SERC</b>     | SERC Reliability Corporation         |
| <b>Texas RE</b> | Texas Reliability Entity             |
| <b>WECC</b>     | WECC                                 |

## Executive Summary

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This report highlights key ERO Enterprise<sup>1</sup> Compliance Monitoring and Enforcement Program (CMEP) and Organization Registration and Certification Program (ORCP) activities that occurred in Q1 2022 and provides information and statistics regarding those activities.

In Q1 2022, CMEP and ORCP activities throughout the ERO Enterprise reflected continued implementation of a risk-based approach and program alignment. The ERO Enterprise:

- Terminated the temporary activities it had put in place in response to the COVID-19 pandemic, including the temporary expansion of the Self-Logging Program and the deferment of on-site activities, and began working collaboratively with registered entities to evaluate the need for on-site activities;
- Went live with Release 3 of Align and the Secure Evidence Locker (SEL), with a phased rollout of adoption of functionality based on regional schedules.
- Filed eleven Full Notices of Penalty (Full NOPs) and five Spreadsheet Notices of Penalty (SNOPs);
- Monitored RE implementation of Compliance Oversight Plans (COPs) for their registered entities; and
- Processed 58 registration changes.

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<sup>1</sup> 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 compliance monitoring and enforcement performed in connection with United States registered entities. ERO Enterprise activities outside of the United States are not specifically addressed.

## Chapter 1: CMEP Activities

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### Termination of Temporary Activities Related to COVID-19 Pandemic

Since March 2020, the ERO Enterprise has worked with FERC and Canadian governmental authorities 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. These efforts included the temporary expansion of the Self-Logging Program to address minimal or moderate risk noncompliance related to registered entities' coronavirus response, and postponing on-site audits, certifications, and other on-site activities. As of December 31, 2021, the temporary expansion of the Self-Logging Program and the deferment of on-site activities has expired. The ERO Enterprise remains committed to working collaboratively with registered entities to understand what COVID-19 protocols they may have in place when evaluating the need for on-site activities.

### Align Project

In Q1 2022, the Regional Entities commenced adoption of Release 3 audit and scheduling functionality. The adoption plans include pilot audits in each region. After the pilot audits, the Regional Entities plan full rollouts pending lessons learned and updates to business processes.

The Align project team continues with development of Release 4, which consists of two parts. In June 2022, Release 4.0 is planned to go live with enhancements to Release 3 audit and scheduling functionality. In October 2022, Release 4.5 is planned to go live with functionality for Inherent Risk Assessments (IRAs) and Compliance Oversight Plan (COPs)

### 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 Regional Entities. 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, Regional Entity 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 February 2022, NERC provided ERO Enterprise staff technical training around Network Perception's NP-View tool. ERO Enterprise CMEP staff use NP-View to assess a registered entity's logical network configurations and help assess compliance with NERC Critical Infrastructure Protection (CIP) Standards. The key focus of the training was to ensure CMEP staff understood the recent updates to the product and to prepare for the upcoming major release. The training showcased Network Perception's latest software release, NP-Verify, which is a tool registered entities may use to eliminate issues ERO Enterprise staff may have when assessing their configuration files. The continued focus on network security controls highlight the importance of ERO Enterprise CMEP staff having a better understanding of the tools to assess a registered entity's network control posture.

NERC also conducted two live Q&A sessions in January 2022 for the CMEP staff as a follow up to the internal control assessment training.

#### Industry Outreach via Webinars and Workshops

In Q1 2022, the ERO Enterprise conducted CIP-012-1 Workshop and Small Group Advisory Sessions (SGAS). These sessions provided an opportunity for registered entities to meet with NERC and Regional Entity representatives to discuss the CIP-012-1 Reliability Standard and possible compliance approaches in an open and non-audit environment. During those discussions, NERC and Regional Entity representatives provided guidance on specific

approaches for implementing the CIP-012-1 Reliability Standard. NERC and Regional Entity representatives, however, did not guarantee compliance if those approaches were used, as compliance is necessarily dependent on how the guidance is implemented.

The general session webinar and SGAs were conversational in nature and the ERO Enterprise did not collect data from the registered entities. The ERO Enterprise regarded this effort as highly beneficial with a great level of detail and candor around CIP-012 planning and implementation.

## **ERO Enterprise Collaboration with Stakeholders on Higher Tier Risks**

The ERO Enterprise continues to engage with stakeholders regarding the uptick in moderate and serious risk violations of the NERC Reliability Standard for Facility Ratings (FAC-008/FAC-009). The North American Transmission Forum (NATF) continues working with its members to implement best practices related to Facility Ratings and the ERO Enterprise continues to provide outreach to industry through presentations at the NERC and Regional Entity Board meetings, webinars, and continued focus on Facility Ratings during compliance monitoring and enforcement activities. This remains a focus of the risk element, “Gaps in Program Execution,” which has remained as part of the 2022 CMEP Implementation Plan.

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 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.

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.

In Q1 2022, the ERO Enterprise collected information to understand registered entities’ implementation of CIP-008, specifically how registered entities define Reportable Cyber Security Incident and attempts to compromise. The ERO Enterprise anticipates that the CIP-008 effectiveness activity will be complete in Q2 2022.

In Q1 2022, the ERO Enterprise engaged with Subject Matter Experts (SMEs) at the various Reliability Coordinators (RCs) to understand how they are performing their analysis and determining Interconnection Reliability Operating Limits (IROLs), including how RCs have incorporated the recommended practices outlined in the Reliability Guideline – Methods for Establishing IROLs.<sup>2</sup> This activity started in Q4 2021 and aggregated information on potential industry best practices and the ERO Enterprise will outline any concerns in a public report after completion of the activities, expected in the second half of 2022.

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<sup>2</sup> NERC Reliability Guideline, Methods for Establishing IROLs (2018), available at [https://www.nerc.com/comm/PC\\_Reliability\\_Guidelines\\_DL/Reliability\\_Guideline\\_Methods\\_for\\_Establishing\\_IROLs.pdf](https://www.nerc.com/comm/PC_Reliability_Guidelines_DL/Reliability_Guideline_Methods_for_Establishing_IROLs.pdf).

## Chapter 2: Regional Entity Oversight

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### Enforcement Oversight

#### Focus on Serious Risk Violations

In Q1 2022, NERC filed five Full NOPs with FERC that included six violations of the operations and planning (O&P) Reliability Standards, carrying a total penalty of \$ 841,000. The O&P Full NOPs filed in Q1 2022 addressed a mix of serious and moderate risk violations, including failures to:

- Maintain sufficient alarm management for the Real-time Contingency Assessment system;
- Implement and maintain accurate Facility Ratings;
- Implement and maintain accurate methodology for determining Facility Ratings, including failure to adhere to the most limiting applicable equipment rating, identify points of interconnection, and specify conditions for use;
- Provide timely and accurate information to the Balancing Authority regarding unit availability.

NERC filed six Full NOPs in Q1 2022 that included 91 violations of the CIP Reliability Standards.

#### Spreadsheet NOPs

In Q1 2022, NERC filed two SNOPs with FERC that included four violations of the O&P Reliability Standards, carrying a total penalty of \$132,000. The O&P SNOPs filed in Q1 2022 addressed moderate risk issues, including failures to:

- Maintain visibility into remote terminal unit and Inter-Control Center Communications Protocol (ICCP) data during a planned outage, and resulting failure to perform a Real-time Assessment;
- Timely recognize and respond to SCADA alarms to maintain reliability of transmission operations.

NERC filed three SNOPs in Q1 2022 that included 16 violations of the CIP Reliability Standards.

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

In Q1 2022, NERC completed its review of the documentation provided by the Regional Entities for the FY2021 Annual Find, Fix, Track, and Report (FFT) and Compliance Exception (CE) Survey that NERC jointly conducts with FERC. In Q2, NERC will issue requests for information (RFIs) to the Regional Entities.

### Compliance Monitoring Oversight

#### NERC Oversight Priorities

In Q1 2022, NERC began developing its 2022 Compliance Monitoring Oversight Plan based on the 2022 ERO Enterprise Work Plan Priorities. NERC Compliance Assurance staff will focus on the following:

#### Focus Area 1: Expand Risk-Based Focus in Standards, Compliance Monitoring, and Enforcement

##### 1. Standards

- **Cyber:** Registered entity implementation of recommendations from the supply chain report<sup>3</sup>. Regional Entity implementation of supply chain report recommendations into monitoring engagement planning and fieldwork.
- **Energy and Reliability:** Registered entity implementation of recommendations from the 2021 FERC/NERC Cold Weather Report<sup>4</sup>. Regional Entity implementation of 2021 FERC/NERC Cold Weather Report recommendations into monitoring engagement planning and fieldwork.

##### 2. Compliance

- Regional Entity effectiveness of addressing Facility Rating issues.

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<sup>3</sup> Supply Chain Risk Assessment (2019), available at

<https://www.nerc.com/pa/comp/SupplyChainRiskMitigationProgramDL/Supply%20Chain%20Risk%20Assesment%20Report.pdf>.

<sup>4</sup> The February 2021 Cold Weather Outages in Texas and the South Central United States: FERC, NERC and Regional Entity Staff Report (2021), available at <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>.

## **Focus Area 2: Assess and Catalyze Steps to Mitigate Known and Emerging Risks to Reliability and Security**

### **1. Assessment:**

- **Energy and Reliability:** Regional Entity use of technical guidance provided during the 2022 ERO Enterprise Spring Workshop IBR/DER session and through the DER Practice Guide.
- **Supply Chain and Security Engineering:** Implement Supply Chain report's recommendations

## **Focus Area 5: Capture Effectiveness, Efficiency, and Continuous Improvement Opportunities**

### **1. Align/SEL**

- Explore potential additional uses of Secure Evidence Locker (SEL) functionality for other registered entity data gathering (e.g., NERC Alerts)

## **Oversight Activities**

In addition to any identified O&P or CIP targeted risks, audit observations will focus on how Regional Entities are integrating an evaluation of the effectiveness of registered entities risk mitigation, including an evaluation of internal controls into its compliance audit engagements.

## **Compliance Oversight Plans**

During Q1 2022, Regional Entities continued to develop COPs using results of the IRA and performance considerations such as internal controls, culture of compliance, compliance history, event analysis trends, or other regional considerations to identify key risks. COPs include the NERC Reliability Standards and Requirements associated with identified risks, the targeted interval of monitoring activities, and the type of CMEP tools (such as Compliance Audit, Spot Check, or Self-Certification). NERC will continue to monitor development of COPs throughout the remainder of 2022 to ensure ERO Enterprise alignment.

## **Align Release 1 Oversight Activity**

During Q1 2022, NERC began to perform oversight of the Align tool's usage by the ERO Enterprise and registered entities, and will continue this oversight. These oversight activities may include both uses of the Align tool and SEL as deemed appropriate for evaluation of implementation. These oversight activities will be restricted to Release 1 of the Align and SEL tools, and will include a review of sampled data as entered by the ERO Enterprise and registered entities. The objectives of the review activity will be to evaluate a sampled use of the tool for effectiveness and that use adheres to ERO Enterprise expectations for data confidentiality. NERC will create an internal report and conduct training with ERO Enterprise and registered entity users as needed to ensure appropriate use of the Align and SEL tools.

## **ERO Enterprise CIP-008 Effectiveness Activity**

On January 1, 2021, CIP-008-6 became effective and it expanded the applicable systems to include Electronic Access Control or Monitoring Systems, as well as an additional reporting requirement for defined "attempts to compromise". In Q3 2021, the ERO Enterprise began conducting this activity to gain visibility and better understand how industry has implemented their program in response to these changes and will continue this oversight through Q2 2022. NERC Compliance Assurance initiated this ERO Enterprise activity to understand how registered entities are defining Cyber Security Incidents and "attempts to compromise". The team will engage with registered entities remotely, as well as review recently conducted CMEP monitoring engagements in collecting data to analyze. The activity is intended to better understand industry practices for defining key incident response terms and the impact those definitions have on required reporting. The team will release an ERO Enterprise report as well as consider other opportunities to share lessons learned and/or develop guidance based on the activity (e.g., Practice Guide, outreach, etc.)



## **Certification**

### **Q1 2022 Certification Completions**

During Q1 2022, the ERO Enterprise performed no full certifications, two certification reviews of entity EMS changes, and one certification review of a new primary Control Center. The ERO Enterprise continues to implement a risk-based approach on certification engagements and it determined that no further reviews were necessary for one industry-submitted possible trigger for certification review activity (concerning a new backup Control Center). Appendix D provides a breakdown by Regional Entity.

## **Registration**

### **Q1 2022 Registration Changes**

NERC completed virtual Regional Entity Oversight Engagements for the 2021 calendar year in Q1 2022. In addition, in Q1 2022, NERC processed 58 Registration changes, of which 46 were functional activations and 12 were functional deactivations. Of the 12 functional deactivations:

- Six were due to sales to other Registered Entities,
- Four were shutdowns,
- One was determined to no longer meet registration criteria and
- One was where another Registered Entity assumed compliance responsibility.

### **BES Exception Requests**

In Q1 2022, one Exception Request is under NERC review and will complete in Q2.

## Chapter 3: ERO Enterprise Performance Objectives

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### Priorities for 2022

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

- Deliver Release 4.0 and 4.5 of the Align tool;
- 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;
- 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;
- Rollout of enhanced Compliance Oversight Plans for engagements in 2022; and
- Focus on how registered entities have mitigated reliability and security risks while achieving compliance with the Reliability Standards, including intentional focus on internal controls.

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

## Appendix A: Enforcement

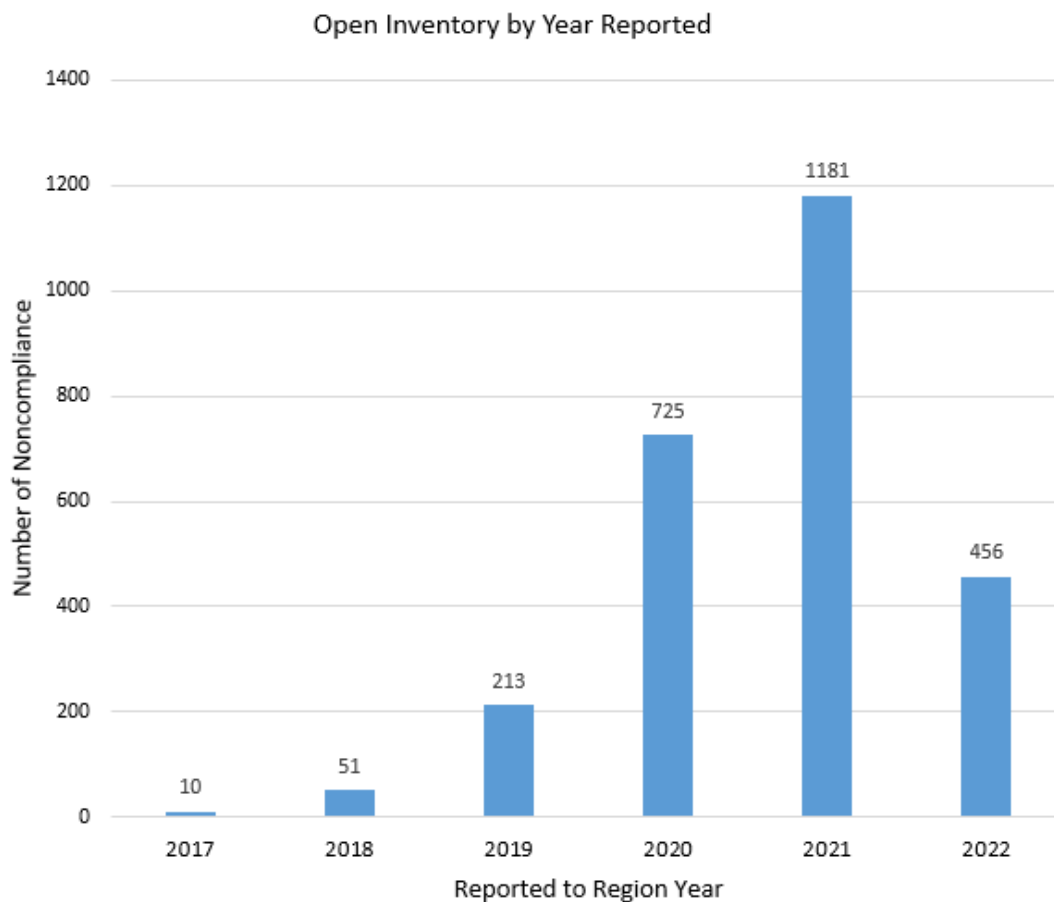
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Information regarding the ERO Enterprise’s Enforcement activities and metrics is provided below, focusing on noncompliance inventory; identification, mitigation, disposition, and risk of noncompliance; and vegetation management.

### Noncompliance Inventory

#### Open Noncompliance in the ERO Enterprise Inventory

Figure A.1 shows the ERO Enterprise’s open noncompliance inventory by the year reported to the Regional Entity. The 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. As of Q1 2022, only 10% of open noncompliance was reported in 2019 or earlier.

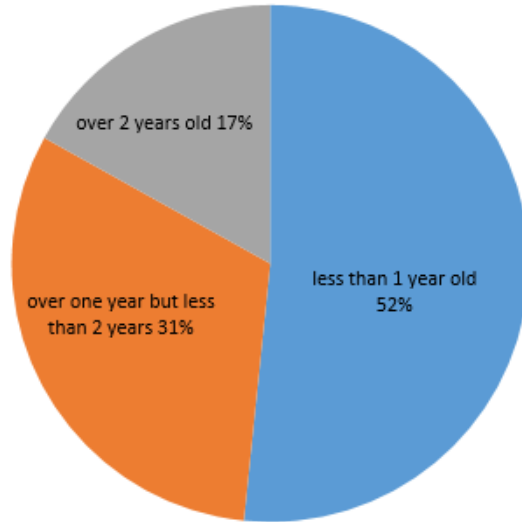


**Figure A.1: ERO Enterprise Inventory by Year Reported**

### 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

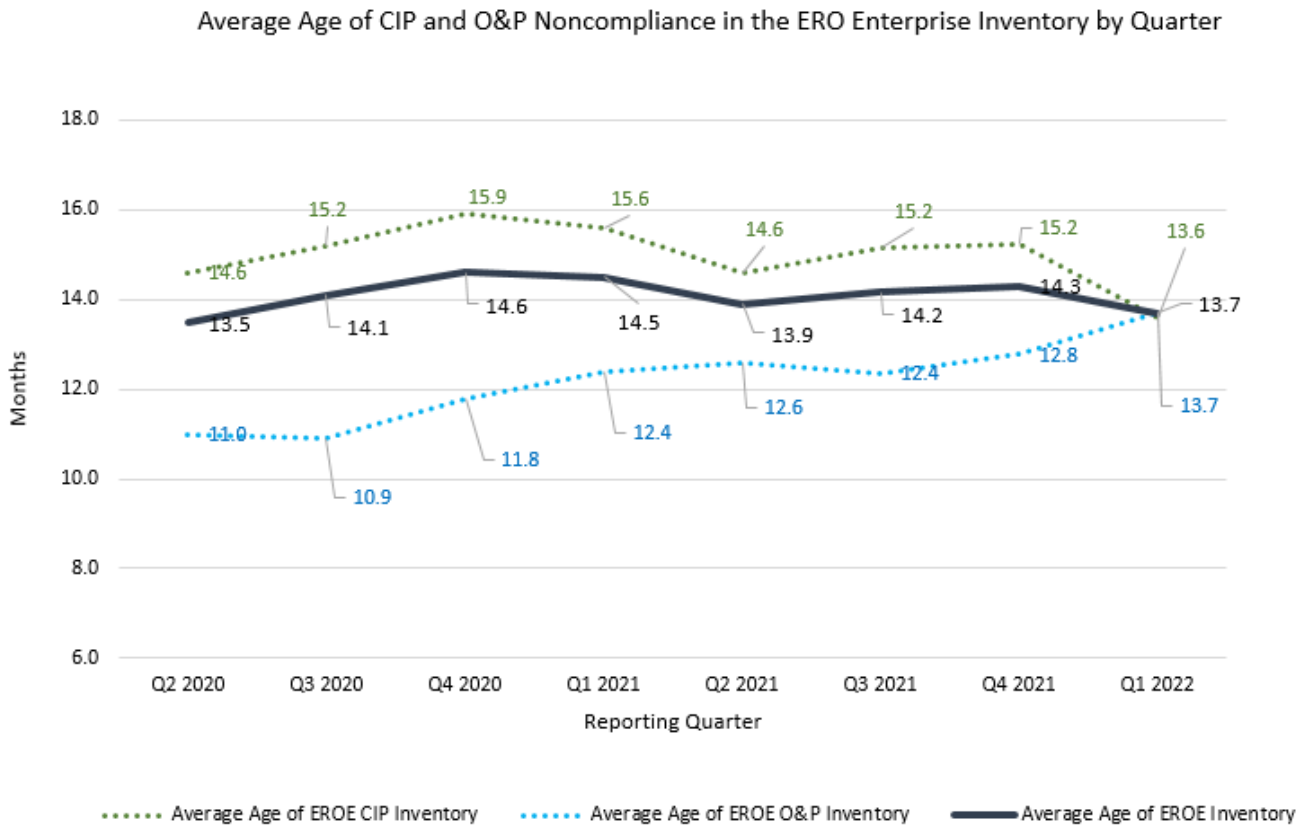


**Figure A.2: Age of Noncompliance in ERO Enterprise Inventory**

### Average Age of Noncompliance in 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.<sup>5</sup> 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. At the end of Q1 2022, the average age of both CIP and O&P noncompliance was approximately 14 months old.

Noncompliance with the currently effective CIP Standards represents approximately 65 percent of all open noncompliance in the inventory.



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

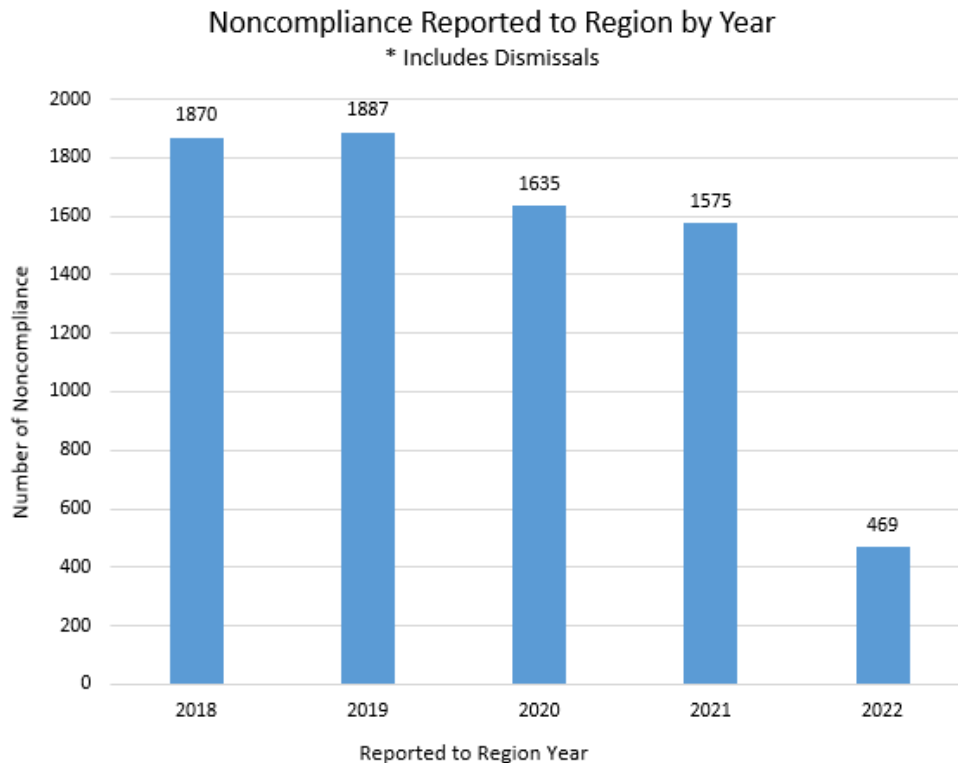
<sup>5</sup> The age of noncompliance in the inventory runs from the time the noncompliance is reported to the end of the calculated quarter.

## Identification of Noncompliance

### Number of New Noncompliance Discovered through Q1 2022

Figure A.4 shows the number of noncompliance submittals in the past five years by the year reported. 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.

As of the end of Q1 2022, 469 noncompliance were reported to the ERO Enterprise in 2022. If this trend continues through the end of 2022, the number of noncompliance discovered this year would be higher than in the prior two years and more in line with noncompliance levels last seen in 2018 and 2019. The ERO Enterprise will monitor the level of reported noncompliance in 2022 to determine if it needs to take additional action.



**Figure A.4: Noncompliance Discovered by Year**

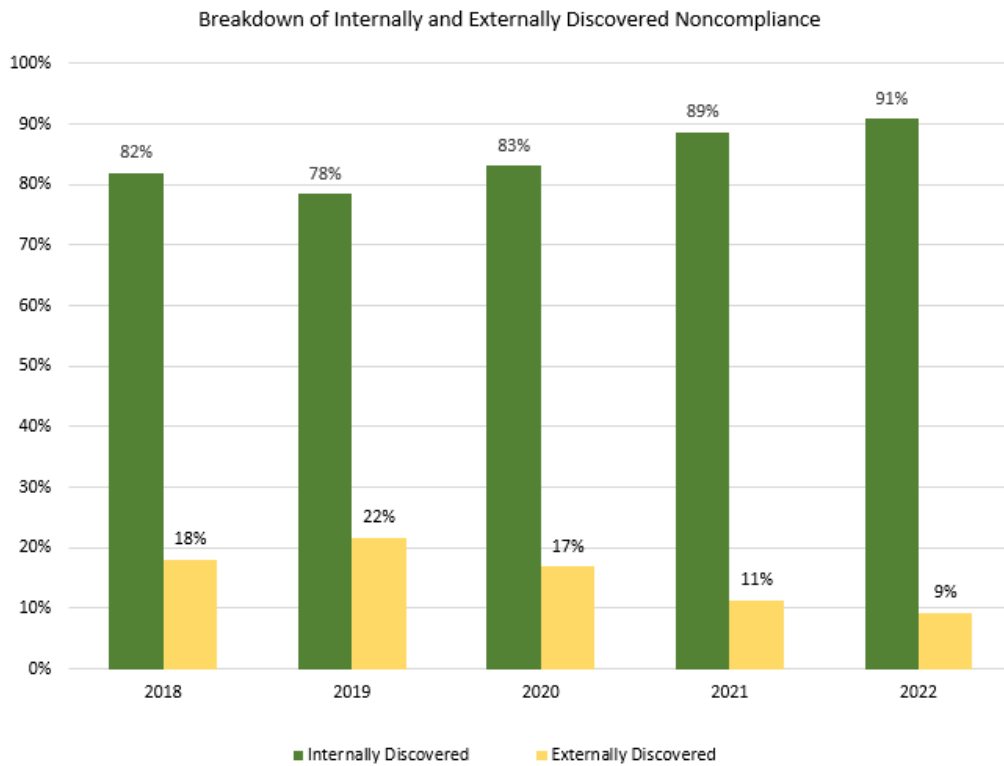
### Self-Assessment and Self-Identification of Noncompliance

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

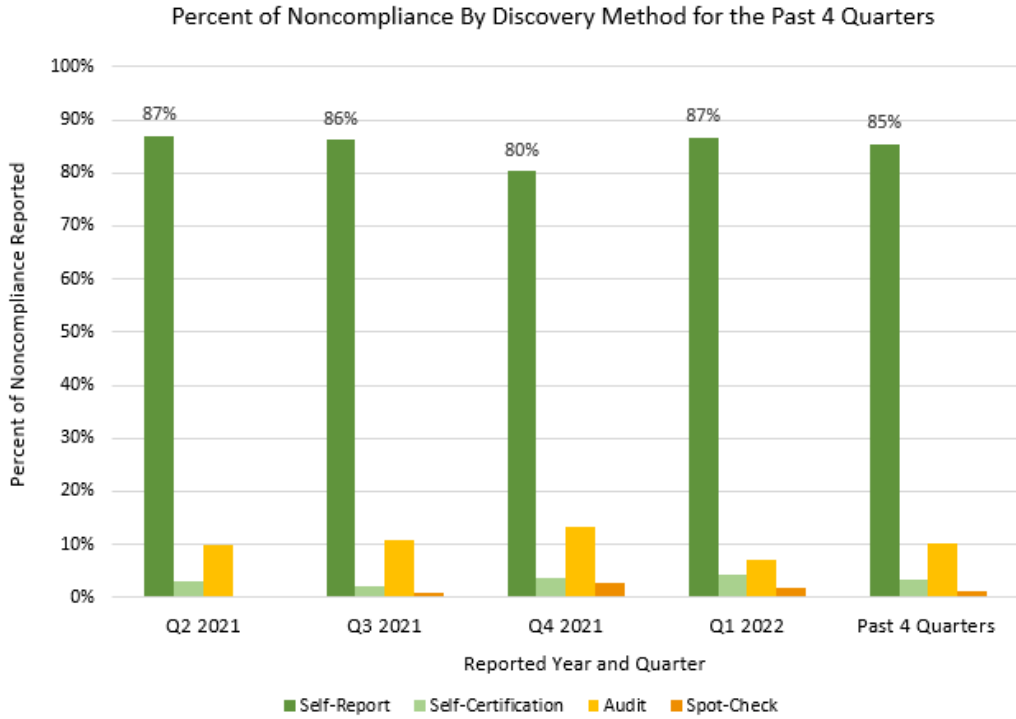
The ERO Enterprise looks for high levels of self-reported noncompliance as indicators that registered entities have good detective controls and strong cultures of compliance.

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 85% 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

Table A.7 shows the progress that registered entities have made in mitigating the older noncompliance they have reported. Registered entities have completed mitigation of all noncompliance reported prior to 2017. A small percentage of pre-2019 noncompliance do not yet have verified mitigation completion dates, but are part of ongoing discussions between Regional Entities 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 Regional Entity;
2. passed the expected completion date (and presumably have been completed) but have not been certified complete by the registered entity, or
3. a future completion date, ensuring risk to the BPS is being addressed via ongoing mitigation efforts.

The ERO Enterprise continues to monitor the status of mitigation for older noncompliances as priorities for confirmation that registered entities have completed mitigation.

**Table A.7: Mitigation Completion Status of Noncompliance by Year Reported**

| Time Frame | Noncompliance Requiring Mitigation | Noncompliance Without Mitigation Completion Date <sup>6</sup> | Percentage of Noncompliance With Mitigation Completion Date |
|------------|------------------------------------|---|---|
| 2017-2019  | 5,066                              | 176   | 96.5%   |
| 2020       | 1,480                              | 428   | 71.1%   |
| 2021       | 1,491                              | 792   | 46.9%   |
| 2022       | 467                                | 434   | 7.1%  |

<sup>6</sup> Includes noncompliance with and without mitigation verified as complete.

## Disposition and Assessed Risk of Noncompliance

Figure A.7 provides detail on the disposition of the noncompliance resolved since 2018. Over this period, self-logged CEs were 15% of the overall dispositions while CEs that were not self-logged were 58% of the overall dispositions. Full NOPs were 9% of the overall dispositions in the past five years. The 2022 data only covers Q1 2022 but shows a large number of Full NOPs filed in 2022 to date compared to prior years. This is due to several large Full NOP packages filed in Q1 2022. As the ERO Enterprise resolves more noncompliance in 2022, the disposition percentages will likely move closer to the disposition percentages shown in the five-year pie graph.

Similarly, Figure A.8 provides detail on the assessed risk of the noncompliance resolved since 2018. While the Q1 2022 data shows a large percentage of serious and moderate risk violations, this is due to several large Full NOP packages filed in Q1 2022. As the ERO Enterprise resolves more noncompliance in 2022, the risk percentages will likely move closer to the percentages shown in the five-year pie graph. The majority of the serious risk violations and other violations resolved in Full NOPs in 2022 were mitigated by the registered entity prior to filing with FERC. In addition, the Regional Entities have actively engaged with the registered entities involved in the larger compliance failures to improve their reliability and security programs going forward.

Filing by Disposition for EROE  
2018 to March 2022

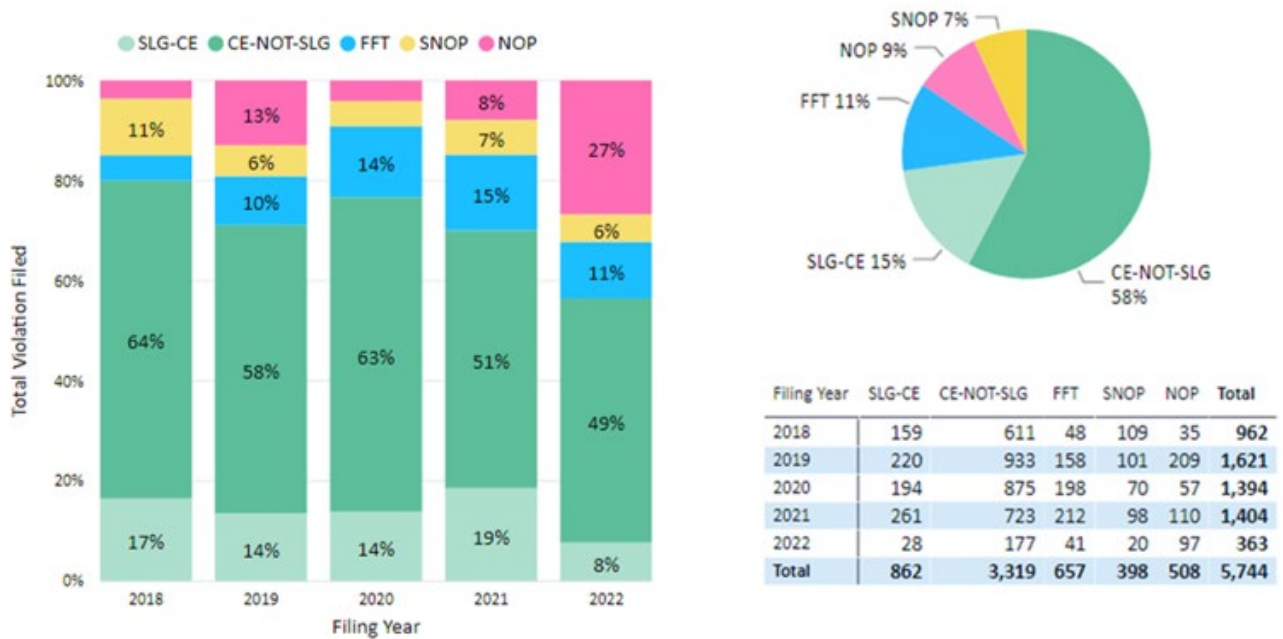
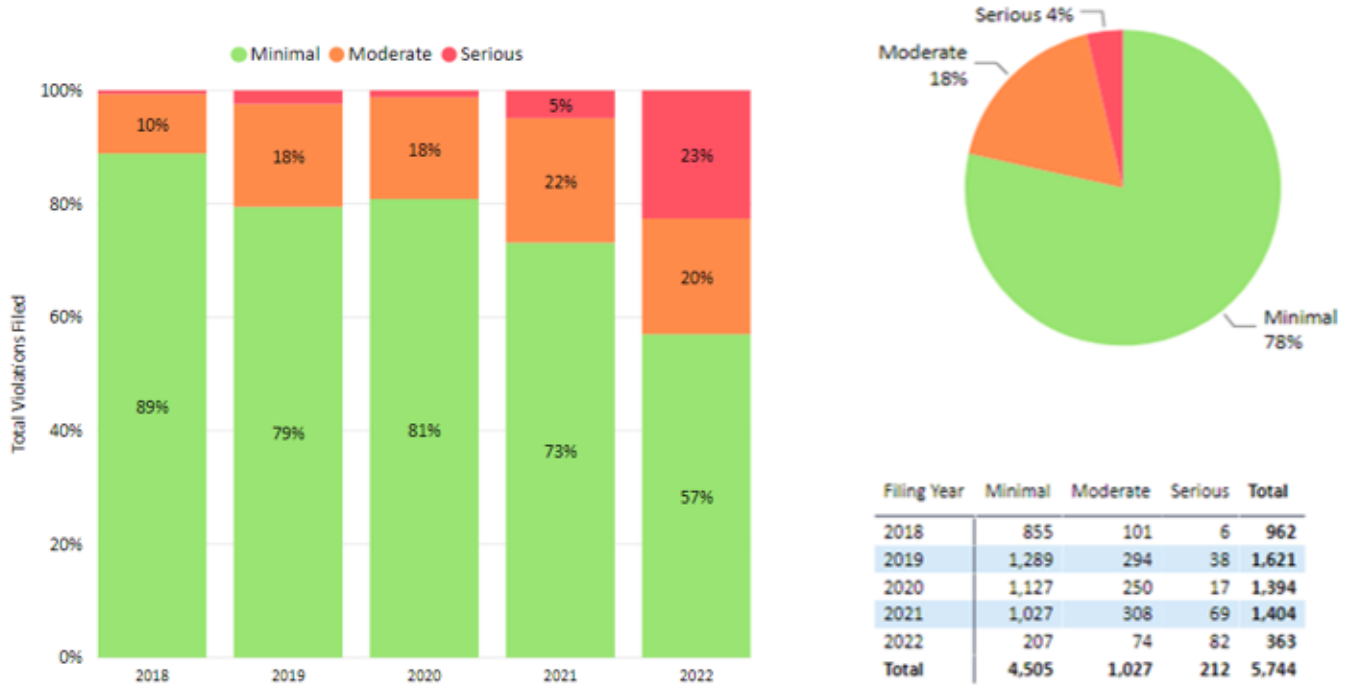


Figure A.7: Disposition Type of Noncompliance Processed by Filing Year

Assessed Risk for EROE  
2018 to March 2022

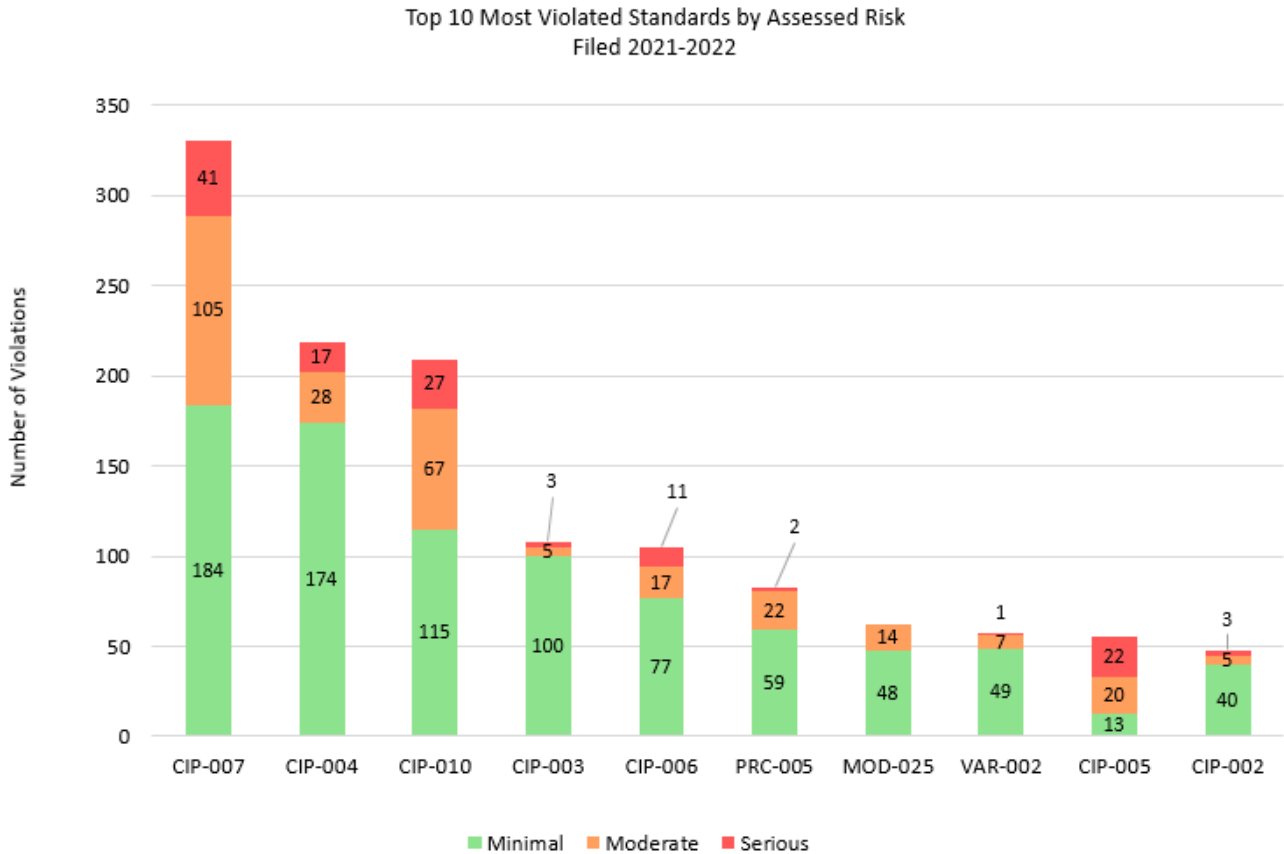


**Figure A.8: Assessed Risk of Filed Noncompliance by Filing Year**

## Risk of Noncompliance

### Most Violated Standards by Risk in 2021–Q1 2022

Figure A.9 shows the top 10 most violated Standards, broken down by assessed risk, for noncompliance processed in the period from 2021 through Q1 2022. CIP-007 remains the most frequently violated Reliability Standard in the period from 2021 through Q1 2022, followed by CIP-004 and CIP-010. Approximately two-third of the noncompliances processed during this period were disposed of as CEs.



| Standard     | Minimal    | Moderate   | Serious    | Total       |
|--------------|------------|------------|------------|-------------|
| CIP-007      | 184        | 105        | 41         | 330         |
| CIP-004      | 174        | 28         | 17         | 219         |
| CIP-010      | 115        | 67         | 27         | 209         |
| CIP-003      | 100        | 5          | 3          | 108         |
| CIP-006      | 77         | 17         | 11         | 105         |
| PRC-005      | 59         | 22         | 2          | 83          |
| MOD-025      | 48         | 14         |            | 62          |
| VAR-002      | 49         | 7          | 1          | 57          |
| CIP-005      | 13         | 20         | 22         | 55          |
| CIP-002      | 40         | 5          | 3          | 48          |
| <b>Total</b> | <b>859</b> | <b>290</b> | <b>127</b> | <b>1276</b> |

**Figure A.9: Most Violated Reliability Standards by Risk Level in 2021–Q1 2022**

### Violations Posing a Serious Risk

Figure A.10 shows the most violated Standards for noncompliance processed as a serious risk in the period from 2021 through Q1 2022. NERC has gathered data and regularly monitored violations posing serious risk to the reliability of the BPS. As shown in Figure A.10, majority 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, and categorization of BES Cyber Systems. The serious risk O&P violations involved Facility Ratings and vegetation management. As noted above, the majority of the serious risk violations and other violations resolved in Full NOPs in 2022 were mitigated by the registered entity prior to filing with FERC. In addition, the Regional Entities have actively engaged with the registered entities involved in the larger compliance failures to improve their reliability and security programs going forward.

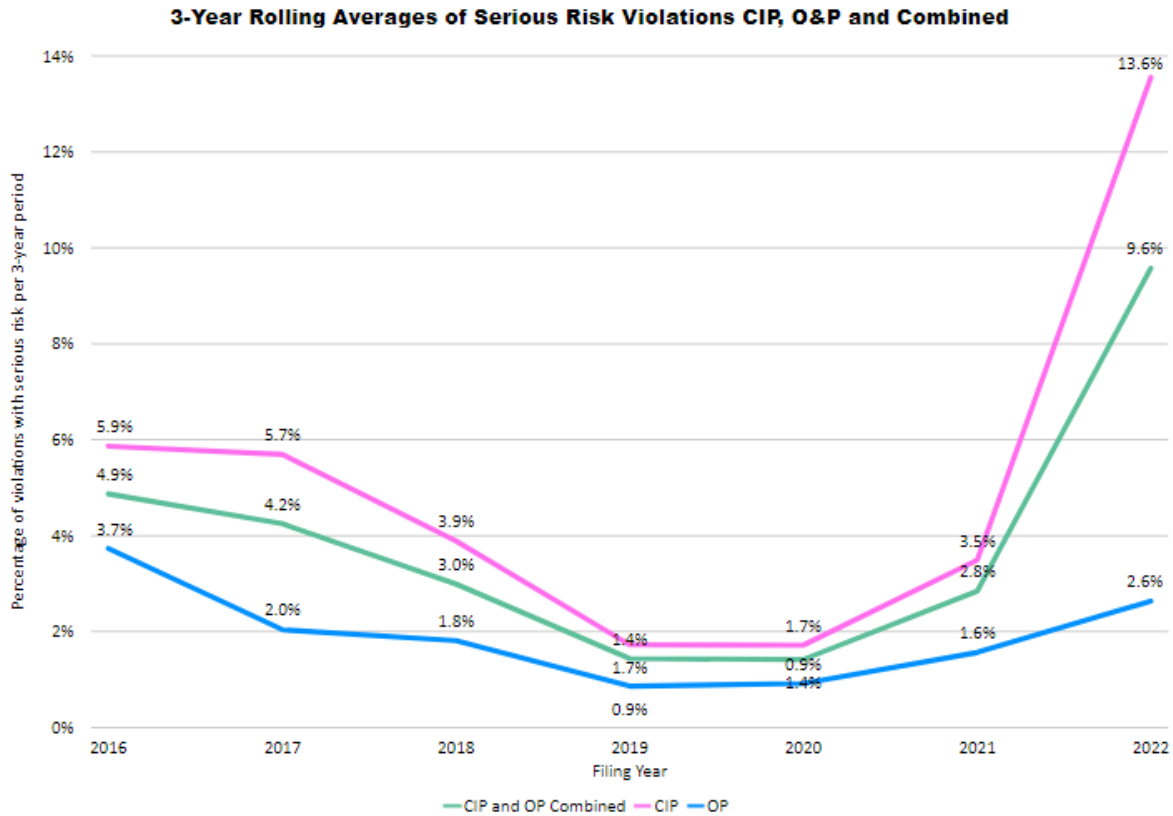


**Figure A.10: Reliability Standards with Serious Risk Violations<sup>7</sup>**

<sup>7</sup> 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.15.

### Serious Risk Averages

Figure A.11 shows the percentage of serious risk violations processed over a rolling three-year average. The percentages are determined based on the number of serious risk violations filed compared to the total number of noncompliance filed in a given three-year period. As noted in Figure A.8, serious risk violations are about four percent of all filings in the past five years. The rolling average for 2020-2022 is high due to high numbers of serious risk violations filed in 2021 and 2022, but will likely drop down in the remaining quarters of 2022 as the ERO Enterprise files more violations that are not serious risk.

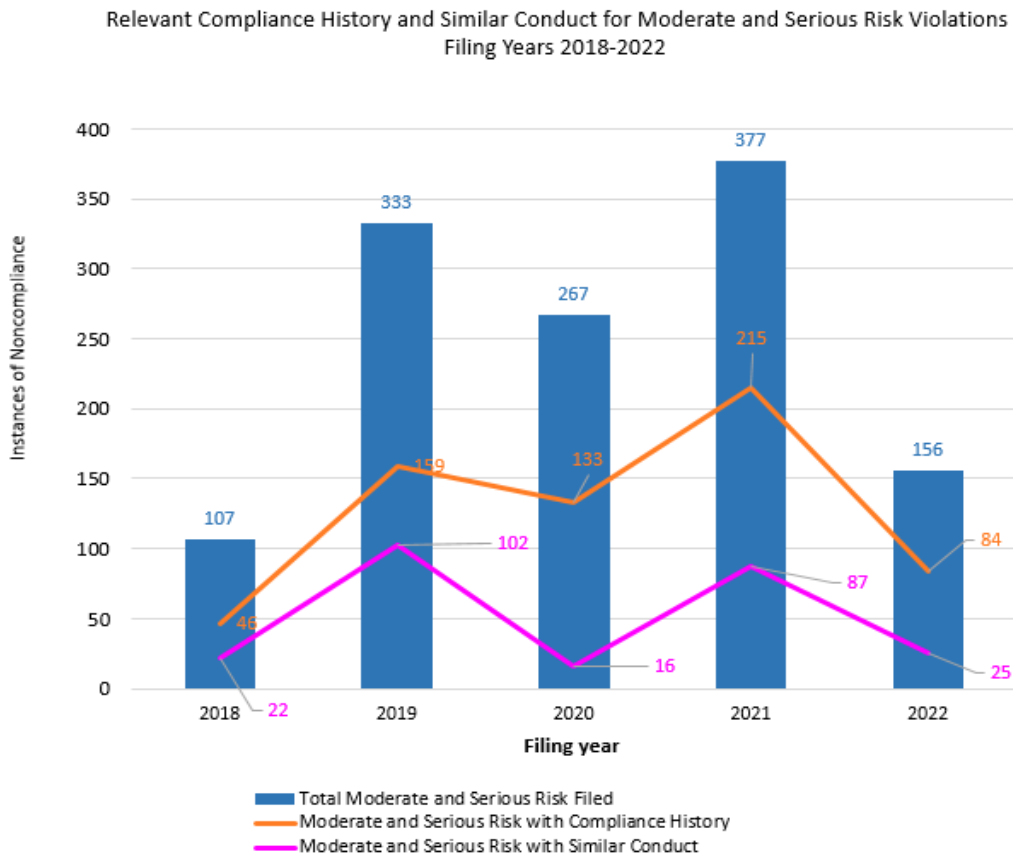


**Figure A.11: Serious Risk Violations (CIP and O&P)**

### 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 explore the relationship of prior mitigation to repeat noncompliance and to identify any additional areas of focus and future actions.

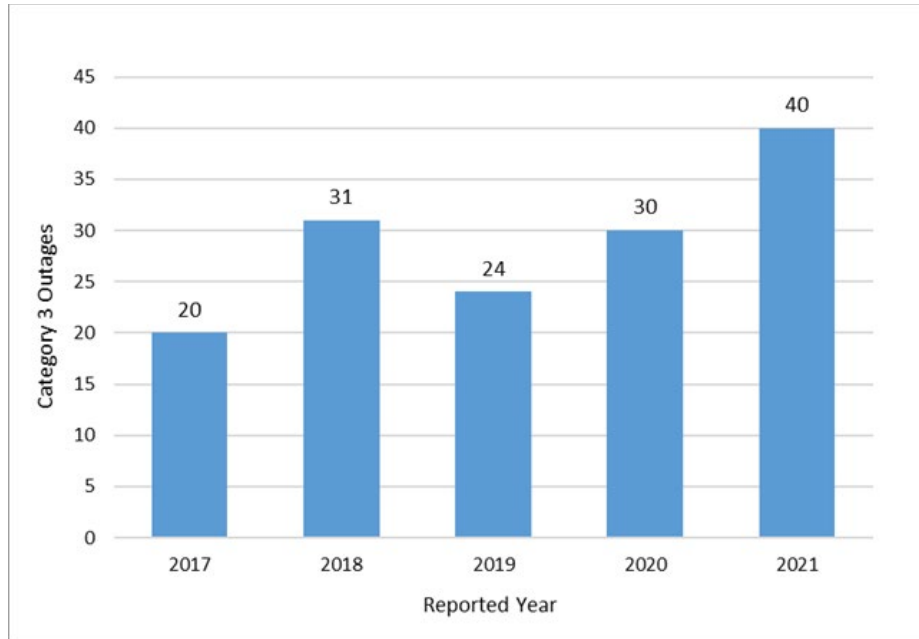
Figure A.12 shows the number of all moderate and serious risk noncompliance filed in the past five years, including those with relevant compliance history and those with compliance history involving similar conduct. Noncompliance with similar conduct is a subset of the wider group of repeat noncompliance, 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. Generally, serious risk violations have higher likelihood of repeat and similar conduct compared with moderate risk violations. The ERO Enterprise will continue to analyze the information as the year progresses and highlight any notable trends in future quarterly reports.



**Figure A.12: Compliance History and Similar Conduct for Moderate and Serious Risk Violations**

## Vegetation Management

NERC regularly reports on two items related to vegetation management: (1) the violations filed and (2) vegetation-related outages reported to NERC as part of Periodic Data Reporting (PDS) of the Transmission Vegetation Management (FAC-003) Standard. Figure A.13 shows the number of Category 3 vegetation-related outages from outside of the right-of-way reported over the last five years. Vegetation-related outage information is consolidated on a delayed quarterly basis. Information related to Q1 2022 will be available in Q2 2022. The ERO Enterprise did not file any violations of FAC-003-4 in Q1 2022.



**Figure A.13: Vegetation-Related Outages from Outside of the Right-of-Way (Category 3)**



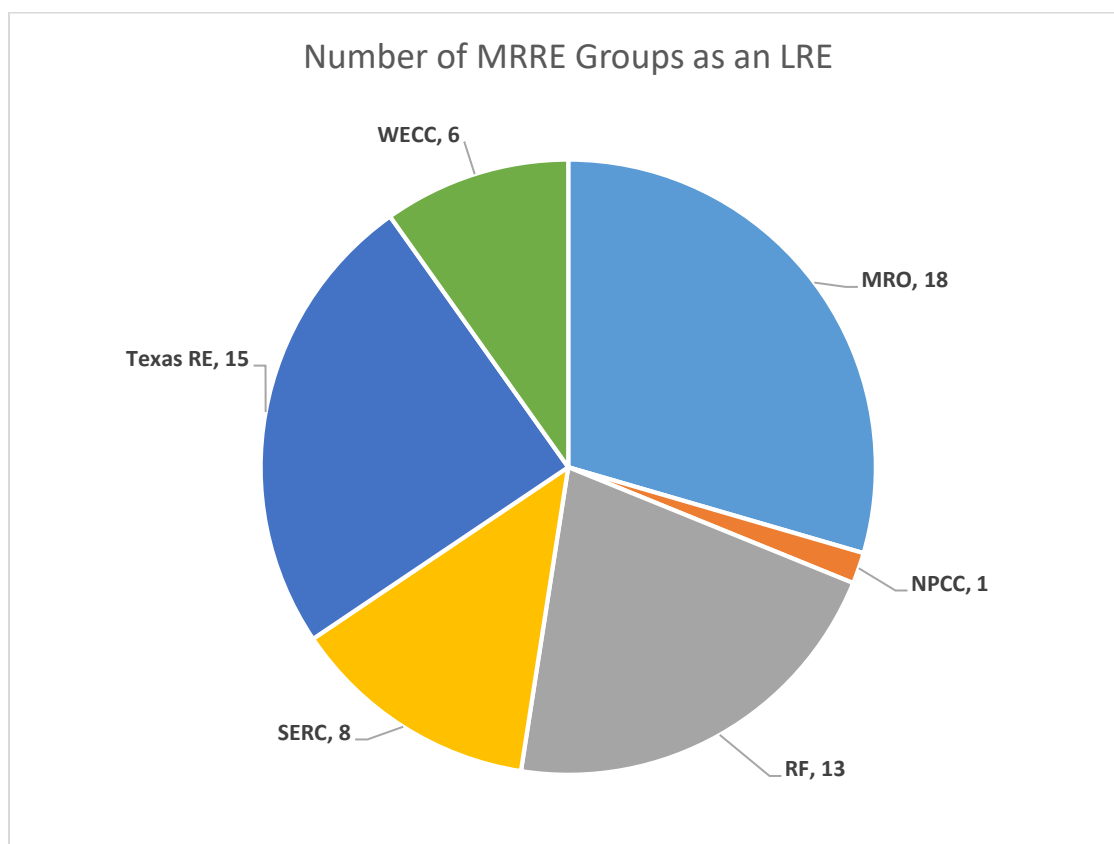
## Appendix B: Compliance Assurance

### Coordinated Oversight Program for MRREs

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 Regional Entities' 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.

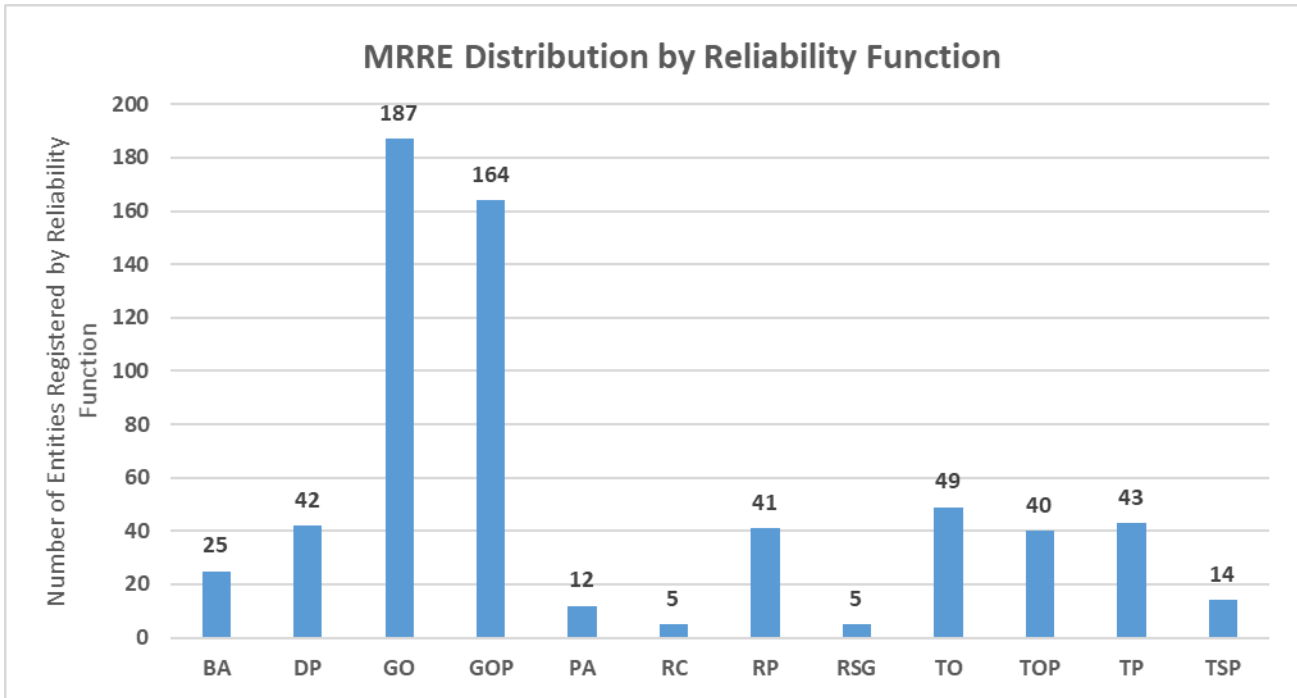
In Q1 2022, the ERO Enterprise approved eight additional MRREs for entry into the Coordinated Oversight Program, increasing the total count of registered entities participating to 270.<sup>8</sup>

Figure B.1 represents the distribution of the 61 MRRE groups (comprising 270 separate registered entities) by Lead Regional Entity, 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 Regional Entities.



**Figure B.1: Distribution of MRREs under Coordinated Oversight by Lead Regional Entity**

<sup>8</sup> Appendix B includes further information on the MRREs participating in the Coordinated Oversight Program.



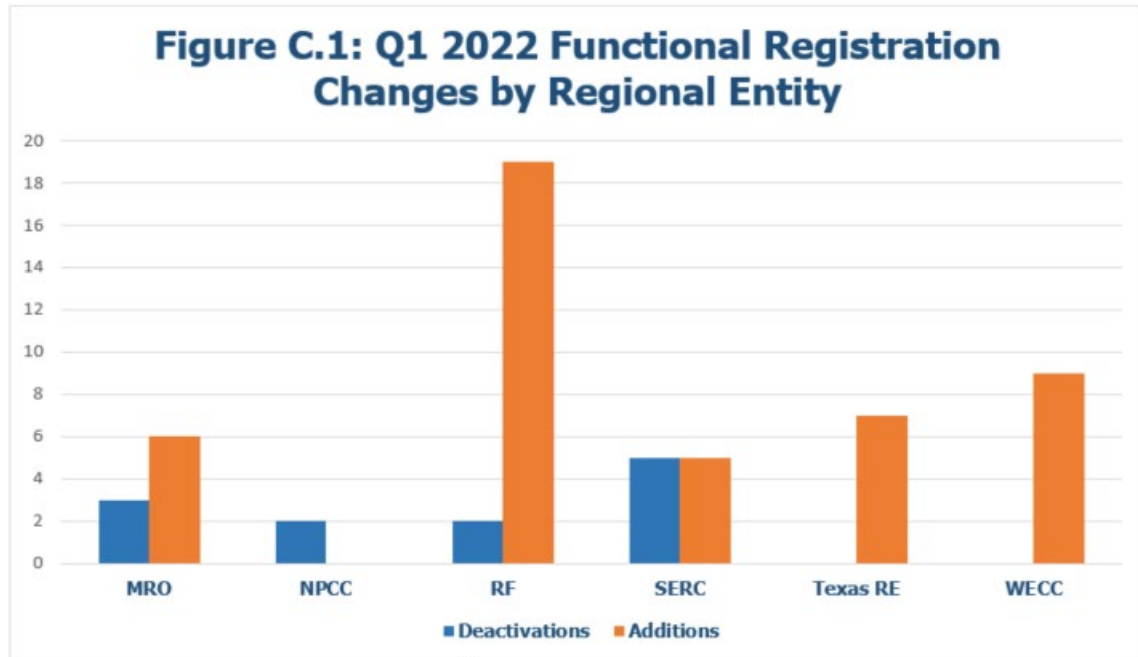
**Figure B.2: Coordinated Oversight Distribution by Registered Function<sup>9</sup>**

<sup>9</sup> Each bar represents the number of registered entities by function in the Coordinated Oversight Program for MRREs.

## Appendix C: Registration

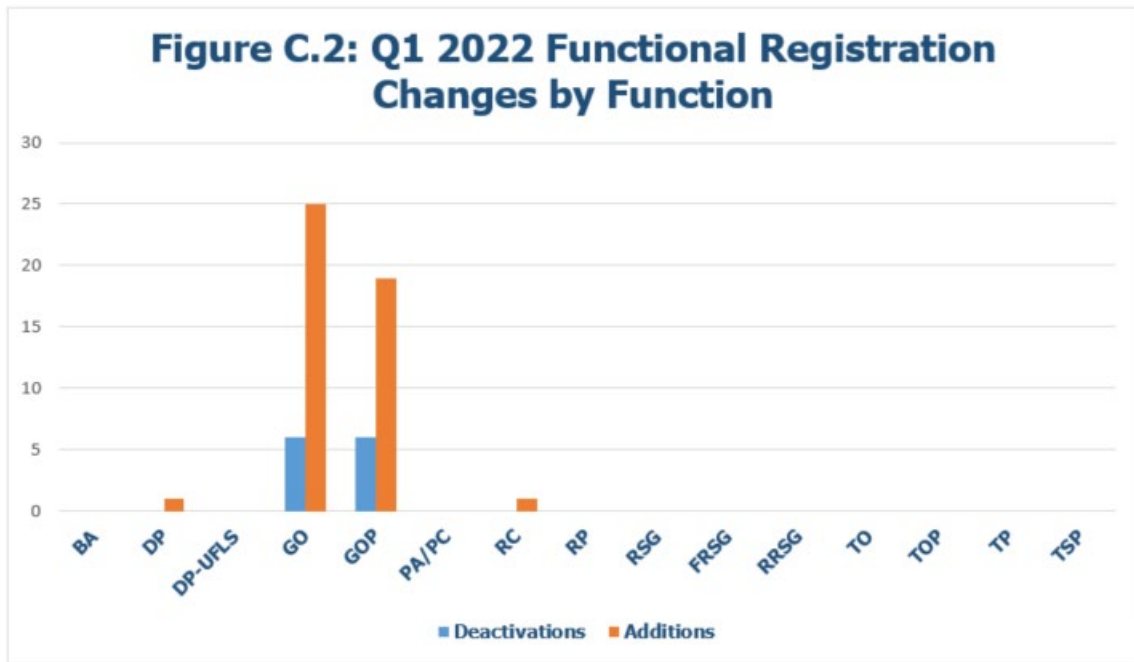
### Registration Change Activity by Function

Figure C.1 and Table C.1 depict Q1 2022 registration change activity by Regional Entity. Figure C.2 and Table C.2 depict Q1 2022 registration change activity by function.



**Figure C.1: Q1 2022 Functional Registration Change Activity by Regional Entity**

|               | MRO | NPCC | RF | SERC | Texas RE | WECC |
|---------------|-----|------|----|------|----------|------|
| Deactivations | 3   | 2    | 2  | 5    | 0        | 0    |
| Additions     | 6   | 0    | 19 | 5    | 7        | 9    |



**Figure C.2: Q1 2022 Registration Change Activity by Function**

| <b>Table C.2: Q1 2022 Registration Change Activity by Function</b> |           |           |            |           |
|--|-----------|-----------|------------|-----------|
|  | <b>DP</b> | <b>GO</b> | <b>GOP</b> | <b>RC</b> |
| <b>Deactivations</b>   | <b>0</b>  | <b>6</b>  | <b>6</b>   | <b>0</b>  |
| <b>Additions</b>   | <b>1</b>  | <b>25</b> | <b>19</b>  | <b>1</b>  |

Table C.3 shows the basis for Q1 2022 registration deactivations. NERC seeks justification from each RE when approving functional registration deactivation.

| <b>Table C.3: Q1 2022 Registration Change Basis</b>                       |          |
|---|----------|
| <b>Sold to Another Registered Entity</b>                                  | <b>6</b> |
| <b>Shutdown</b>   | <b>4</b> |
| <b>Compliance Responsibility Transferred to Another Registered Entity</b> | <b>1</b> |
| <b>Determined to Not Meet Registration Criteria</b>                       | <b>1</b> |

## 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 Q1 2022 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 Regional Entity during Q1 2022 and the number of certification reviews in process at the end of Q1 2022.

Q1 2022 Certifications

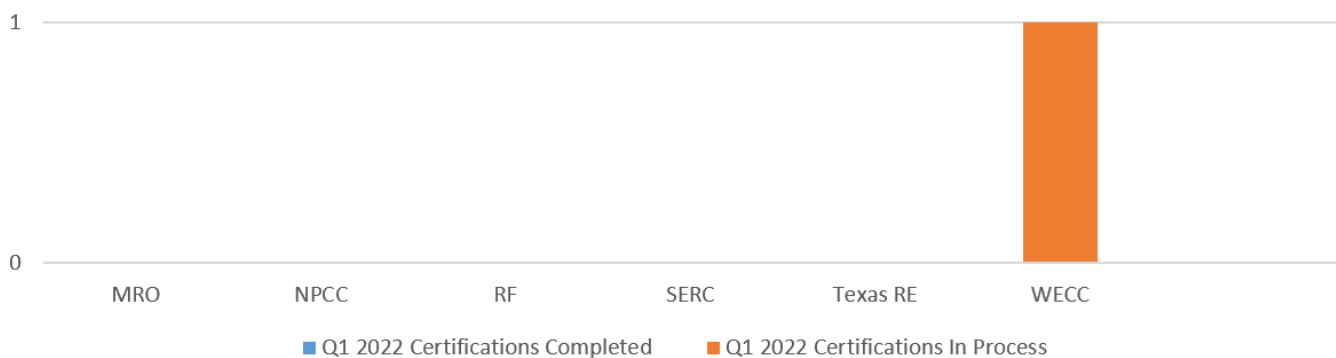
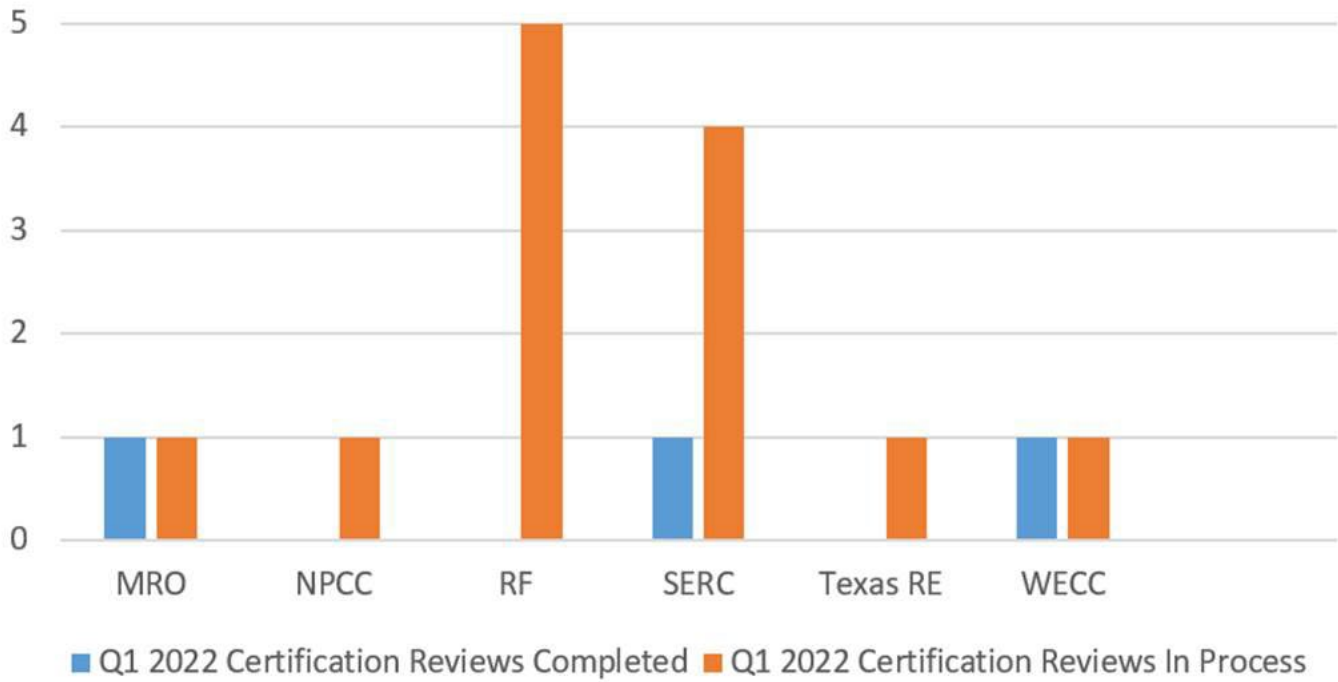


Figure D.1: Q1 2022 New Entity Certifications by RE

| Table D.1: Q1 2022 Organization Certification |           |            |
|---|-----------|------------|
| Function                                      | Completed | In Process |
| Reliability Coordinator                       | 0         | 0          |
| Transmission Operator                         | 0         | 1          |
| Balancing Authority                           | 0         | 0          |

### Q1 2022 Certification Reviews



**Figure D.2: Q1 2022 Certification Review Activity by RE**

| Change Basis  | Completed | In Process       |
|---|-----------|------------------|
| Changes to a registered entity’s footprint  | 0         | 1                |
| Relocation of the Control Center  | 1         | 5                |
| Changes to Supervisory Control and Data Acquisition (SCADA)/Energy Management System (EMS) System | 2         | 10 <sup>11</sup> |

<sup>10</sup> Some entities have multiple triggering events for certification reviews while some engagements have participation from more than one Regional Entity.

<sup>11</sup> One of these activities has the participation of three Regional Entities.