



OCTOBER 2021

**“Winter is an etching, spring a watercolor, summer an oil painting, and autumn a mosaic of them all.”**

*- Stanley Horowitz, Poet*



# MIDWEST RELIABILITY MATTERS

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## **DISCLAIMER**

MRO is committed to providing non-binding guidance to industry stakeholders on important industry topics. Subject matter experts from MRO's organizational groups have authored some of the articles in this publication, and the opinion and views expressed in these articles are those of the author(s) and do not necessarily represent the opinions and views of MRO.

## CEO MESSAGE



# Stakeholder Outreach and Engagement

## Learning from, and focusing on, success

As with many organizations, September was to be an important milestone for MRO – the month we planned to fully welcome staff back to the office. When we set this target earlier this year, the pandemic was receding and we were fairly confident this period would mark the next phase of our novel normal.

Fast forward to today, progress against the pandemic has been suppressed by the Delta variant. A significant rise in case numbers and hospitalizations required us to—yet again—revisit plans to reopen the office. In keeping with the strategy of “people first,” MRO’s emergency response team delayed our office reopening until January 3, 2022, with all meetings and events occurring remotely through this same timeframe. The office remains open under the current pandemic restrictions on a voluntary basis for those employees that wish to use it.

September also marked the twentieth anniversary of the 9/11 terrorist attacks - an event that, alongside the pandemic, serves as a sober reminder of our vulnerabilities. It also reminds us that unity is our greatest strength. During the attacks on September 11, our neighbors in Canada commenced “Operation Yellow Ribbon,” designed to remove potentially destructive air traffic from U.S. airspace and away from suspected targets as quickly as possible. After the FAA grounded all domestic flights, it worked with Transport Canada to reroute incoming international flights. The close coordination between the FAA and Transport Canada resulted in nearly 240 flights being diverted

## CEO MESSAGE

to 17 different airports across Canada, which then hosted thousands of stranded passengers until U.S. airspace was reopened.

This kind of unity—coming together during a disaster—is something the electric utility industry does particularly well. Before Hurricane Ida even made landfall this past August in Louisiana, the mutual aid network was already responding, with more than 25,000 utility workers at the ready to assist with restoration efforts. The well-planned, coordinated response to severe weather emergencies, wildfires, and other disasters, is a crucial component of resiliency of the North American bulk power system.

As the threats and vulnerabilities we face increase, so must our levels of information-sharing, coordination, and cooperation.

Also in September, the MRO board and leadership met in a strategic planning session. Continuing to build strong partnerships with industry, increasing outreach, promoting awareness of risk, and fostering a culture of curiosity and innovation, were key topics of discussion. I shared with the board that MRO's vision and mission (why we do what we do) are the primary drivers of high levels of employee engagement. The activities that we—and more importantly you, as industry—undertake to ensure a highly reliable and secure North American bulk power system, are easy to stand behind.

Our shared vision provides context to the work we do each day. Similarly, past experience has shown that our success lies in our ability to work together.

***Together, our future is bright!***

*-Sara Patrick, MRO President and CEO*

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coming together  
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## Remembering an MRO HERO

In September, MRO lost one of its HEROs. John Allen of City Utilities of Springfield was a familiar and friendly face to many of us here at MRO, and an advocate for reliability. His calm demeanor, pragmatic approach, technical acumen, and strong commitment led him to being a natural leader. When MRO underwent its most significant change in history, with the expansion of the region to include most of the former SPP-RE region, John was one of the key individuals that helped make that integration successful.

John was very well known throughout the SPP and NERC communities, having served on SPP's Reliability and Compliance Working Group since 2013 as well as NERC's Compliance and Certification Committee. John left a lasting imprint on this industry with his passion for reliability, exemplified by his leadership on the NERC Standards Efficiency Review project, where he spearheaded industry efforts to right-size regulations for all utilities across North America, a project that was deemed a unanimous success by both industry and the ERO. He was also a great individual with impressive personal accomplishments outside of work, including completing a 100-mile ultra-marathon as part of a very successful running career, and continuing to operate his family's farm, all while making substantial contributions to the electric industry. MRO expresses its deep condolences to his family, friends, and colleagues. Rest assured that John's impacts on this industry were deep and long lasting. We will miss his positive and committed contributions, his spirit of cooperation, his warm demeanor, and his friendship.

# COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM



## ERO Enterprise Align and SEL Update

MRO is excited to announce as of October 1, 2021, all Release 2 functionality of Align has been adopted and is live. Release 2 includes Technical Feasibility Exceptions (TFE), Periodic Data Submittals (PDS), Attestations, and Self-Certifications functionality in Align, as well as the use of the ERO Secure Evidence Locker (SEL) to collect registered entity-provided evidence to support these activities. Release 2 builds upon Release 1, which included self-reporting/self-logging, enforcement processing, and mitigation functionality in Align. Subsequent releases will introduce new functionalities to the platform throughout 2022.

MRO hosted Align Release 2 Training for all U.S. registered entity staff on September 8, 2021. The slide deck and recording are available [here](#). Please visit the [NERC Training Site](#) for access to all Align and ERO SEL training materials, including training videos and user guides. Reach out to your MRO Regional Training Leads, Jeremy Matkke, Desirée Sawyer, and Rob Quinlan at [align@mro.net](mailto:align@mro.net) with any Release 2 Align and ERO SEL-related access or training questions.

All registered entity staff seeking to access Align must register for an [ERO Portal](#) account. Each registered entity's Primary Compliance Contact (PCC) is responsible for approving access requests for their respective entity via the ERO Portal. All users who have previously been granted access, as well as those granted access in the future, to the Align Submitter Role will have access to the ERO SEL. If you have questions or problems concerning your ERO Portal account, please submit a support ticket [here](#).

The NERC project team completed the development of Release 3 in September. End-to-end quality assurance (QA) testing and user acceptance testing (UAT) commenced on October 6, 2021. Announcements regarding the go-live date and adoption plans for Release 3 will be announced in November. Release 3 functionality will consist of core capabilities for audits, audit planning, and scheduling.

As announced at the August NERC Board of Trustees meeting, the Align project team added Release 4 to the project schedule for 2022. The ERO Enterprise remains committed to the effectiveness of the Compliance Monitoring and Enforcement Program (CMEP) and invested in the Align and SEL tools to improve the security, automation/efficiency, and harmonization/consistency of CMEP activities. Release 4 will encompass functionality originally scheduled for Release 3: inherent risk assessments (IRAs), compliance oversight planning (COP), and enhancements to audits, audit planning, and scheduling.

The NERC compliance team released a [guidance document](#) on data-handling in the ERO SEL. The purpose of the guidance document is to provide clarity regarding the storage and maintenance of registered entity and ERO Enterprise-created or -provided information related to CMEP activities in Align and the SEL. For questions or more information about the guidance document, please contact [Lonnie Ratliff](#), NERC's senior manager of Cyber and Physical Security Assurance.

MRO is working with the Align project team to create project plans and activities in support of using Align for Canadian entities. These activities include determining high-level requirements by province, importing provincial standards data into Align, and defining the appropriate user roles. Future releases by province are in the works, with the target plan being that all provinces that wish to use Align can do so in 2022. Updates on those plans will be published as they are finalized.

- *Desirée Sawyer and Marissa Falco, MRO Align Change Agents*

# Life Cycle of a Self-Log or Self-Report in Align

MRO began utilizing Align and the ERO Secure Evidence Locker (SEL) to process and track instances of noncompliance on March 31, 2021. Based on the initial experiences from the first few months using the Align tool, MRO staff prepared the following life cycle analysis to assist in understanding the new Align workflows. Each section includes references to training material pertinent to the section topic.

## Self-Log and Self-Report Submittal

A Self-Log or Self-Report will start in Align when a registered entity creates the draft-finding record and saves it. The record will then need to be reopened under "My Drafts" and the registered entity can populate the draft-finding record with details of the noncompliance as required in the record before submitting to the Compliance Enforcement Authority. When a draft-finding record is created, Align will also create a draft mitigation record. The finding record and mitigation record will share a unique ID, but are two distinct and separate records in the tool. For Self-Logs, it is expected that the mitigation record is populated concurrently with the initial finding record. If the mitigating activities are known when submitting a Self-Report, MRO recommends submitting the mitigation record with the Self-Report as well.

Registered Entity User Guide<sup>2</sup>:

- *Creating a Finding (pg. 8-20)*
- *Mitigating Activities (pg. 28-33)*

Training Video<sup>3</sup>:

- *Creating a Self-Report or Self-Log*
- *Submitting Mitigating Activities*

## Updating a Finding

There may be situations after a finding is submitted when a registered entity has produced additional information pertinent to the finding that was not initially submitted. For example, if while performing an extent of condition after the finding was submitted, an additional instance of noncompliance is discovered. In this case, the registered

entity is expected to submit this additional information through a finding update record, which is located within the Enforcement Processing tab. Upon receipt of the finding update, MRO will review and acknowledge the update. Information provided in the finding update record can be found within the record under submitted finding updates.

Registered Entity User Guide<sup>2</sup>:

- *Updating a Finding (pg. 21-24)*

Training Video<sup>3</sup>:

- *Adding Information to a Self-Report after Submitting*

## Requests for Information

While processing a finding, MRO may request additional information to gain further understanding of a finding or its mitigating activities. There are two ways that MRO will request additional information within Align. The first would be from the finding record directly. When MRO submits a request for information (RFI), a task will be generated in “My Align Dashboard” along with a copy of the RFI record within the finding record. The second way MRO may request additional information is through the mitigation record. As with the finding RFI, a task will be generated in “My Align Dashboard” along with a copy of the RFI record in the mitigation record. A registered entity may choose to respond to the RFI from the Tasks dashboard or within the finding/mitigation record. If there are questions related to the RFI, reach out to the MRO contact listed in the RFI record.

Registered Entity User Guide<sup>2</sup>:

- *Updating a Finding (pg. 21-24)*

Training Video<sup>3</sup>:

- *Adding Information to a Self-Report after Submitting*

## Status of Finding

After a finding has been submitted to MRO for review, there are indicators to assist in understanding the finding status as it progresses through the MRO RAM and Enforcement processes. A registered entity can find the status of a finding in the Enforcement Processing section of Align under the “My Open Findings” tab. Further details specific

**Table 1.1: My Open Findings Tab**

Finding Status	Description of Finding Status
Preliminary Screen	In review for validation of appropriate noncompliance. Per the Rules of Procedure, it needs to be completed in 5 business days.
PNC Review	In queue or under RAM review. PCC can email <a href="mailto:requestPNCupdate@mro.net">requestPNCupdate@mro.net</a> to speak to RAM about status.
Enforcement Processing	RAM’s preliminary risk determination has been completed and is being prepared for final processing or is under final processing by Enforcement
Disposition (Dismissal, CE, FFT, or Settlement)	Notice has been sent and NERC approved the disposition

## COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM

to MRO's processing can be found below in Table 1.1.

Notification: *N/A*

Registered Entity User Guide: *N/A*

Training Video<sup>3</sup>:

- *Monitoring your Findings in Align*

### Enforcement Notice

After MRO has performed its review, an official notice pertaining to the disposition will be issued in Align. When MRO issues the notice a task is generated to acknowledge the receipt of the notice within Align, as well as an email notification to the PCO and PCC.

Registered Entity User Guide<sup>2</sup>:

- *Responding to Notification Letters (pg. 27)*

Training Video<sup>3</sup>:

- *Responding to Notification Letters*

### Mitigation Record Life Cycle

The management and life cycle for a mitigation record is a shared responsibility between a registered entity and MRO. Both use the same mitigation record and perform different actions throughout the processing of mitigating activities. There are four stages a mitigation record will go through before it is completed. Table 2.1 provides the different stages a mitigation record will go through and who owns the Save and Action activity. Table 2.2 is a list of the specific status descriptors provided in Align and the intended description of that status. MRO recommends reviewing the NERC Self-Report User Guide<sup>4</sup> for additional details on mitigating activity types and controls associated with mitigating activities.

**Table 2.1: Mitigation Stages**

<b>Draft</b>	<b>Action:</b> Registered entity enters mitigating activity information in Align and submits to MRO for Review.  <b>"Save and Action" owner:</b> registered entity
<b>MRO Review</b>	<b>Action:</b> MRO will review the mitigating activities. MRO may submit an RFI to the registered entity and request additional information or return the mitigation record to the registered entity for resubmittal. When MRO is satisfied with the mitigating activities they will be accepted.  <b>"Save and Action" owner:</b> MRO
<b>Active</b>	<b>Action:</b> Registered entity tracks the mitigating activities and when complete, updates the record with the completion dates and submits to MRO for completion review.  <b>"Save and Action" owner:</b> registered entity
<b>MRO Completion Review</b>	<b>Action:</b> MRO reviews the completion of mitigating activities and updates record complete. MRO may request verification evidence during this stage as well through RFIs.  <b>"Save and Action" owner:</b> MRO

**Table 2.2: My Active Mitigations Tab**

Status	Description of Status
<b>CEA Processing</b>	The entity submitted mitigation and the record is in queue to be reviewed. Mitigation will be reviewed concurrently with PNC record.
<b>NERC Processing</b>	RAM has approved the mitigation plan, is waiting for NERC approval
<b>Active</b>	Mitigation has been reviewed and approved by RAM. Entity needs to verify mitigation has been completed within Align once complete.
<b>Active-Returned as Incomplete</b>	Entity has verified mitigation, RAM has reviewed the record and deemed mitigation incomplete. Entity will need to resubmit for verification with further evidence.

As a reminder, there are two actions a registered entity will need to take associated to a mitigation record within Align. The first action is to “Submit for CEA Review,” typically done while submitting the Self-Log or Self-Report. The second action will occur after MRO has accepted the mitigation record. When the mitigating activities are complete and MRO has accepted the mitigation record, the registered entity will then have to submit the mitigation record for “CEA Verification.”

There may be scenarios where a mitigation record could be marked “Complete” prior to the Enforcement processing being complete and vice versa.

Registered Entity User Guide<sup>2</sup>:

- *Mitigating Activities (pg. 28-33)*
- *Mitigation Status Progression (pg. 34)*

Training Video<sup>3</sup>:

- *Submitting Mitigating Activities*
- *Monitoring your Findings in Align*

If you have any additional training questions on the use of Align, please reach out to [align@mro.net](mailto:align@mro.net) for assistance.

## References:

- 1) [MRO Align website](#)
- 2) [Registered Entity Release 1 User Guide](#)
- 3) [NERC Training Videos](#)
- 4) [Self-Report User Guide](#)

- Ben Lewiski, Sr. RAM Engineer; Marissa Falco, RAM Technical Coordinator; Michael Spangenberg, RAM Engineer III CIP; and Romyana Kreidler, Sr. RAM Engineer

# CMEP Update

*This document was prepared to provide a quarterly summary of areas addressing key issues, trends, and significant events in the MRO Region related to its delegated authorities set forth in the Compliance Monitoring and Enforcement Program (CMEP).*

## **Key Issues in Compliance, Risk Assessment and Mitigation, and Enforcement**

### *Compliance Oversight Plans (COPs)*

A COP is an oversight strategy for a registered entity that provides comparative assessments to shape oversight planning and resource allocation for Electric Reliability Organization (ERO) Enterprise staff and place emphasis on understanding internal controls and other performance considerations of a registered entity. MRO's process for developing COPs requires input from the Reliability Analysis (which includes Registration), Risk Assessment and Mitigation, Compliance, and Enforcement departments. The resulting COP from this process documents MRO's holistic assessment of the registered entity's inherent risk and the performance considerations assessing the entity's management of its risk. The resulting COP guides MRO's monitoring activities for that individual entity. MRO currently has completed 86 percent of the COPs for Transmission Operators, Balancing Authorities, and Reliability Coordinators where MRO is the Compliance Enforcement Authority (CEA) or the Lead Regional Entity.

### *2021 Compliance Audit Status*

MRO completes periodic Compliance Audits to assess registered entities' compliance with NERC Reliability Standards. MRO staff has completed eleven scheduled Compliance Audits for 2021. MRO will provide resources and participate in coordinated oversight audits led by other Regional Entities. MRO has observed seven coordinated oversight audits led by another Region thus far. Coordinated oversight is a joint engagement with other Regions for ERO-approved multi-regional registered entities. Coordinated oversight audits allow for more efficient monitoring activities for the affected registered entities. MRO also leverages these engagements to identify and share best practices with the other Regional Entities. Please visit MRO's [website](#) to view MRO's 2021 audit schedule.

MRO continues to perform all audits remotely and plans to do so through at least the fourth quarter of 2021. When necessary, due to COVID-19, an exception to the Rules of Procedure three-year onsite requirement has been filed with NERC. MRO is working with the ERO Enterprise to develop strategies for resuming on-site audits in a safe, effective, and efficient manner.

### *2021 Self-Certifications*

In between scheduled Compliance Audits, registered entities complete Self-Certifications of NERC Reliability Standards. MRO has revised the Self-Certification scoping process and implemented a guided Self-Certification process. The risks identified in MRO's Regional Risk Assessment and the ERO Enterprise CMEP Implementation Plan are the two primary considerations for guided Self-Certification scoping. The advantage of using Self-Certifications is that it allows MRO to address continent-wide risks and region-wide risks throughout MRO's footprint through a single process at a faster interval than audits. MRO's Self-Certification schedule is available on its [website](#).

### *Highly Effective Reliability Organizations® (HEROs) Update*

The MRO Risk Assessment and Mitigation (RAM) department continues to monitor and respond to questions submitted to [Heros@mro.net](mailto:Heros@mro.net). This feedback tool is widely used by MRO registered entities and serves as a great mechanism for fielding compliance-related questions. This email address has received more than 400 questions

since it started in November of 2016. Over the last quarter, MRO has received 11 HEROs questions with an average response time of 12 days. This average is significantly better than the 30-day response goal.

*Expanded COVID-19 Reporting Guidance*

The ERO Enterprise has expanded regulatory discretion to include any potential noncompliance between March 1, 2020, and December 31, 2021, where COVID-19 contributes materially or completely to the root cause. The ERO Enterprise recognizes the fluidity of this emergency and will reassess the timeline if needed. In the event that a potential noncompliance was caused by COVID-19, MRO registered entities should report the issue through MRO’s enhanced file transfer server using the NERC-provided [COVID-19 reporting template](#). Because COVID-19-related noncompliance is eligible for regulatory discretion, the established processes for self-logging/self-reporting noncompliance are not necessary for these issues. This additional level of monitoring, provided by MRO, assists registered entities in prioritizing compliance activities during the pandemic. For more guidance on this process, please refer to the information provided in [MRO’s Hot Topic](#).

*Risk Determinations Associated with Self-Logged Noncompliances (Figure 1 and Figure 2)*

Figure 1: Total Registered Entities Self-Logging by Regional Entity, shows that as of September 30, 2021, there are 31 MRO entities participating in the Self-Logging program which accounts for 34 percent of all ERO Self-Logging participants. Self-Logged instances of noncompliance submitted by these participants are monitored separately as the program is designed to quickly resolve minimal risk issues that are self-identified by entities. These issues are presumed minimal risk Compliance Exceptions (CE); however, MRO has the discretion to elevate the disposition based on the RAM risk determination analysis.

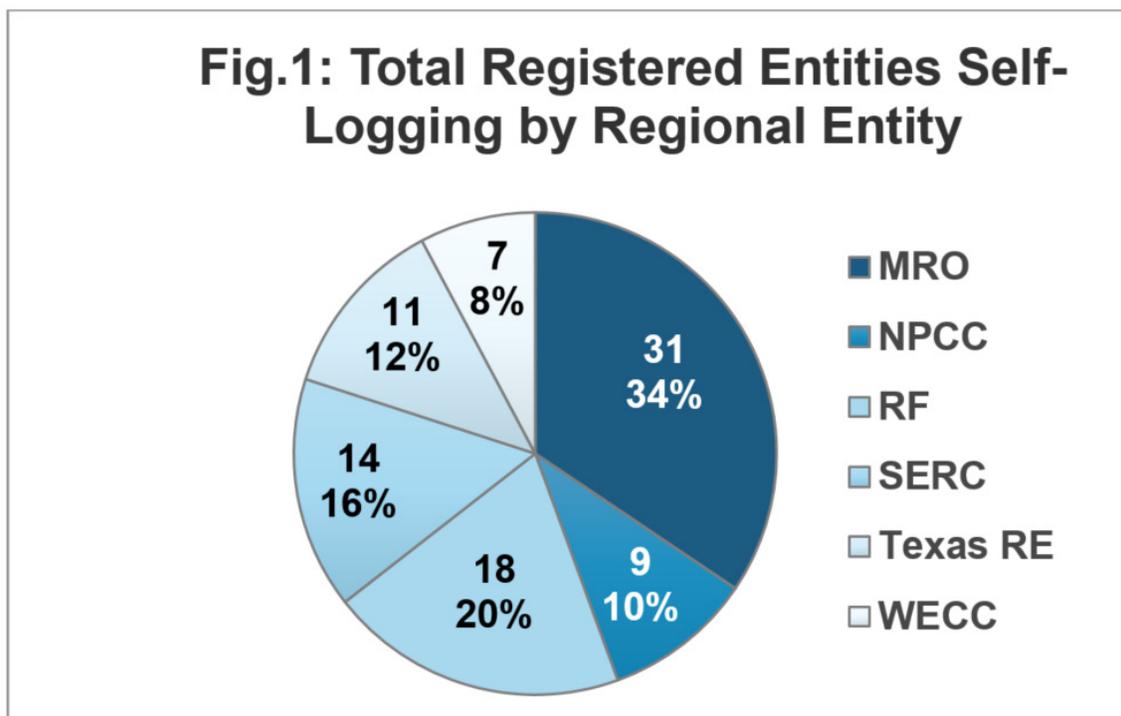
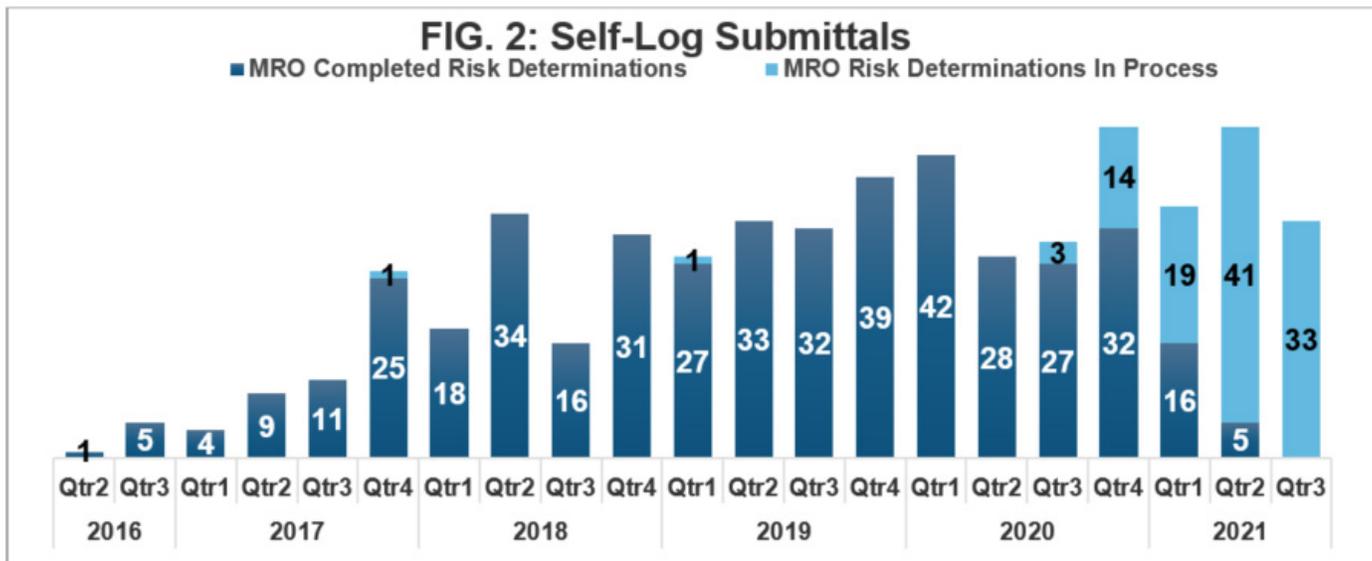


Figure 2 (on page 12): Self-Log Submittals illustrates Self-Logged instances of noncompliance by submittal dates. Please note submittal dates are not the start of potential noncompliance or when MRO completed its risk determination analysis.

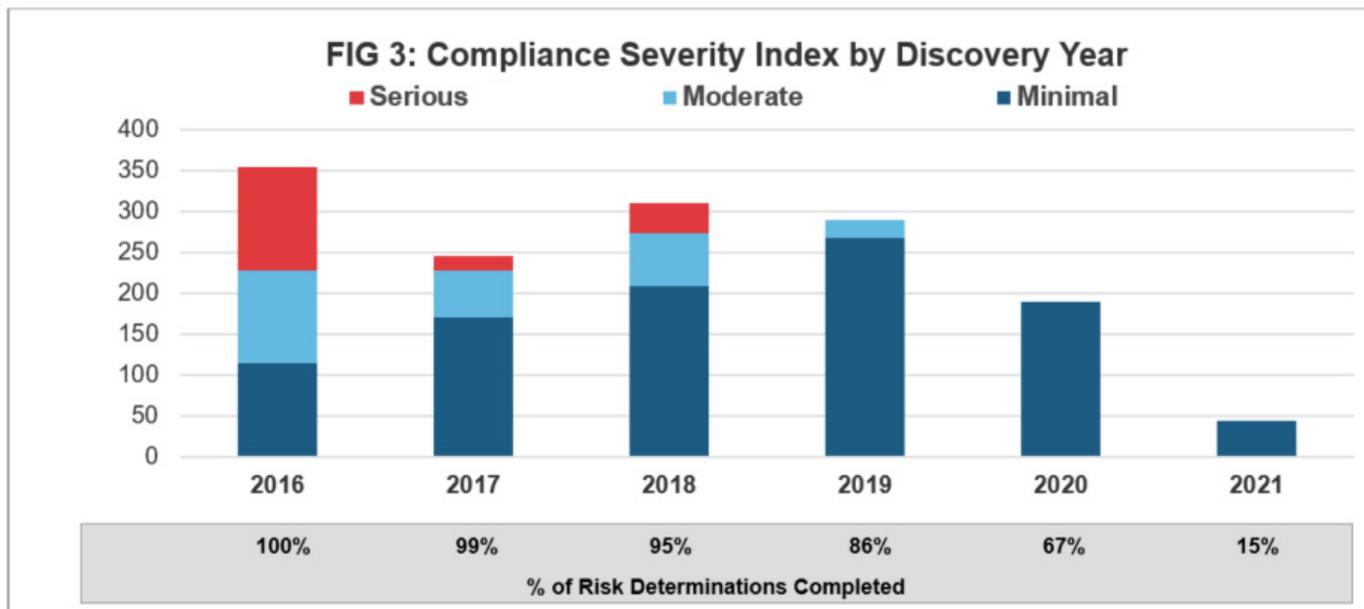


### Risk Assessment and Mitigation Trends

In the following Risk Assessment and Mitigation Trend charts and statistics, the numbers reflect all historic issues of noncompliance in the expanded MRO Region.

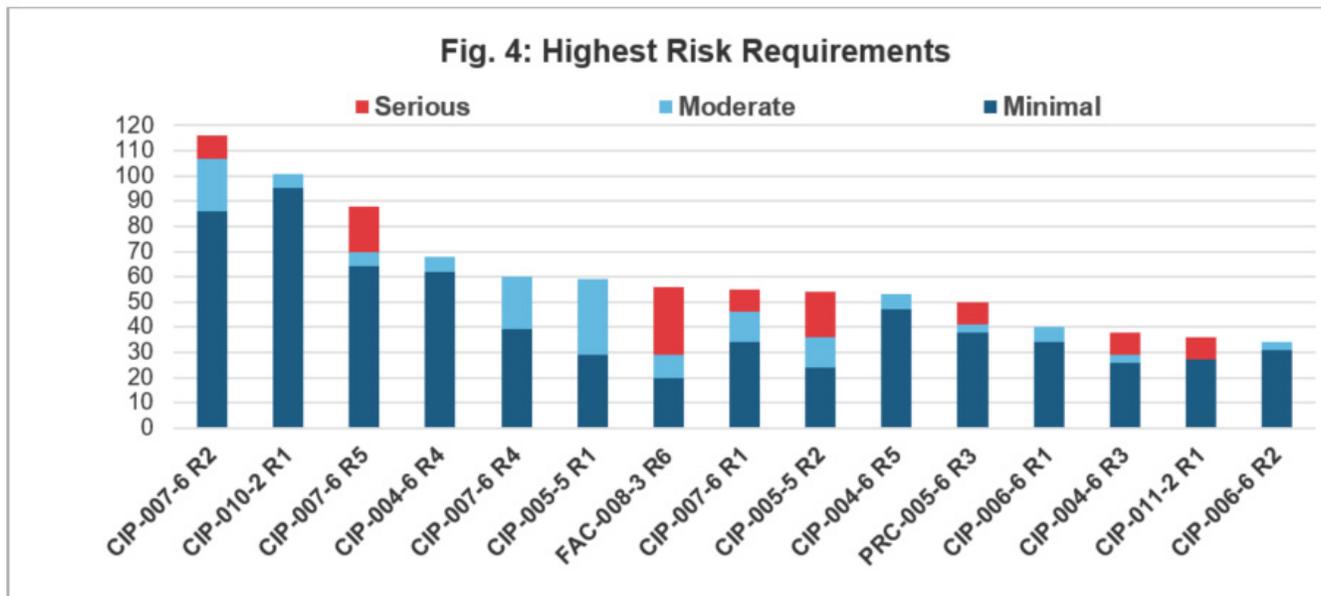
#### Compliance Severity Index (Figure 3)

MRO staff use the Compliance Severity Index (CSI), shown in Figure 3, to evaluate progress toward a key reliability goal of less severe violations. The CSI represents the total risk that instances of noncompliance bring to the reliability or security of the bulk power system in the MRO Region. The CSI is calculated using the Risk Determination and Discovery Method for each noncompliance. For more information on how this process was developed and implemented, please see the article on [“The Benefits of Risk-Based Regulation.”](#) MRO has seen a notable decrease in the risk of noncompliances over the past decade due to an overall improvement in the culture of compliance. Registered entities are self-identifying issues of noncompliance in a timely manner prior to issues presenting a greater risk to reliability.



Highest Risk Requirements (Figure 4)

Figure 4 provides the 15 highest risk requirements from January 1, 2016, to September 30, 2021, that have a history of issues of noncompliance, based on the CSI. Higher risk violations are associated with cyber and physical security standards, accurate facility ratings, and timely maintenance of protection systems.

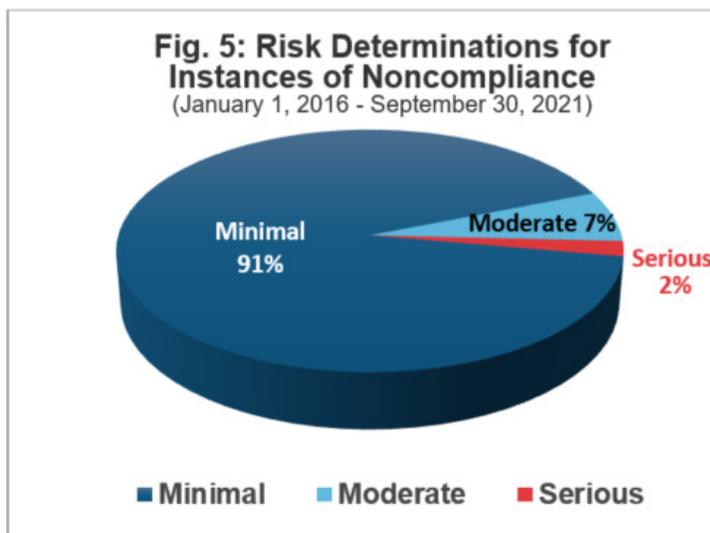


Description of the Top Five Highest Risk Requirements

- CIP-007-6 R2: Requires a patch management process for tracking, evaluating, and installing cyber security patches for applicable Cyber Assets. A high volume monthly requirement in which even the most mature security programs will have an occasional non-compliance.
- CIP-010-2 R1: Requires current baseline configurations for applicable Cyber Assets.
- CIP-007-6 R5: Has a method(s) to enforce authentication of interactive user access to applicable Cyber Assets.
- CIP-004-6 R4: Implement access management programs that authorize access to applicable BES Cyber Systems.
- CIP-007-6 R4: Log events for identification of, and after-the-fact investigations of, Cyber Security Incidents for applicable Cyber Assets.

Risk Determinations for Instances of Noncompliance (Figure 5)

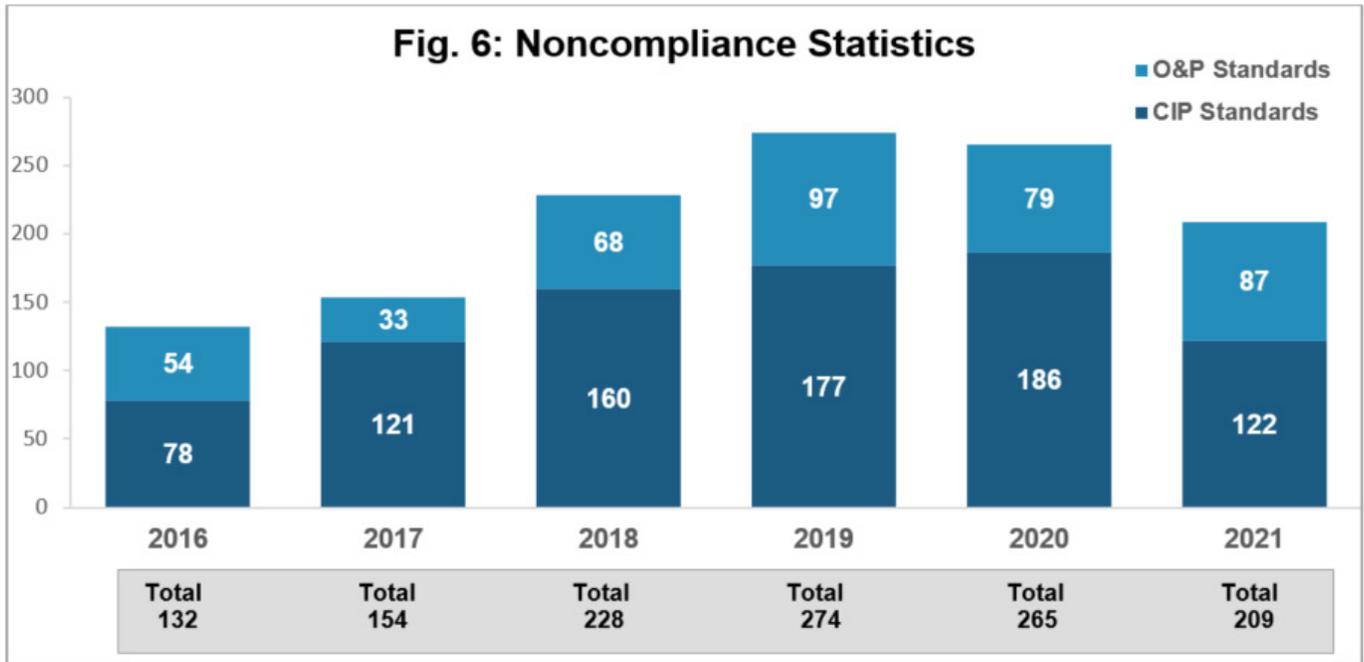
Ninety-two percent of all instances of noncompliance from January 1, 2016, to September 30, 2021, were minimal risk. There is a correlation between the increasing percentage of issues of noncompliance being minimal risk (Figure 5) and the increasing percentage of self-reported issues of noncompliance (Figure 7). Entities are identifying noncompliance earlier before the issues become more impactful to the reliability and security of the Bulk Electric System.



### Noncompliance Trends and Statistics

*Breakdown of Critical Infrastructure Protection (CIP) vs. Non-CIP Possible Issues of Noncompliance (Figure 6)*

The noncompliance statistics and trends in Figure 6 were annually discovered and reported to NERC from January 1, 2016, through September 30, 2021.



*Registered Entity Responsibility (Figures 7)*

MRO staff analyzes how often registered entities self-identify noncompliance. The high percentages, reflected in Figure 7, demonstrate a strong governance and compliance culture of registered entities in the MRO Region, as well as registered entities’ willingness to accept, and learn from, discovered issues of noncompliance in order to prevent future noncompliance with NERC Reliability Standards.

Figure 7 reflects issues of noncompliance that MRO processed from January 1, 2016 to September 30, 2021.

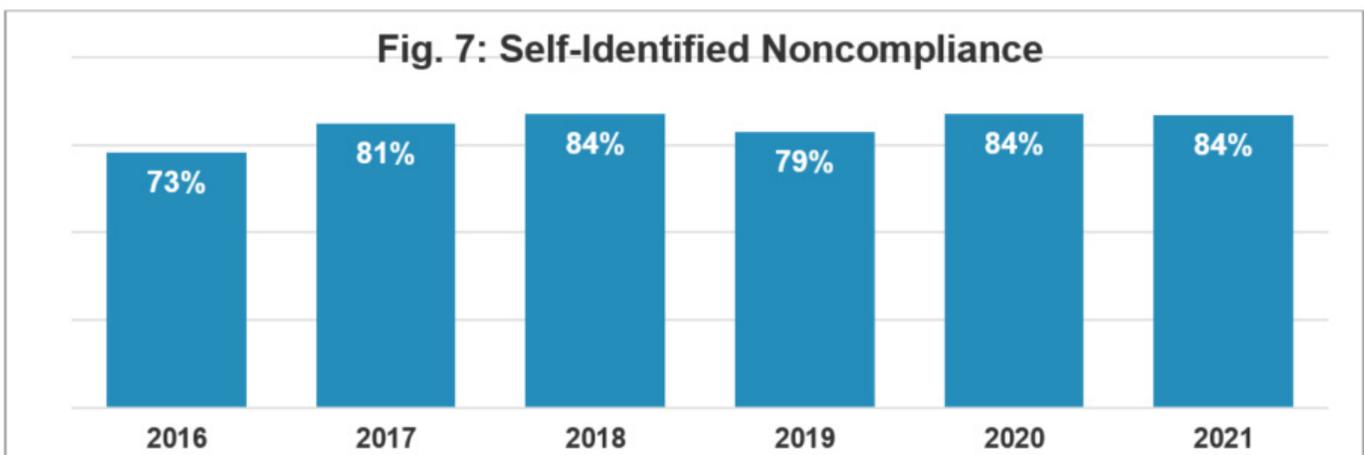


Figure 8 shows the percentage of time that registered entities have accepted responsibility for noncompliance submitted to NERC or another applicable Regulatory Authority from January 1, 2016, through June 30, 2021.

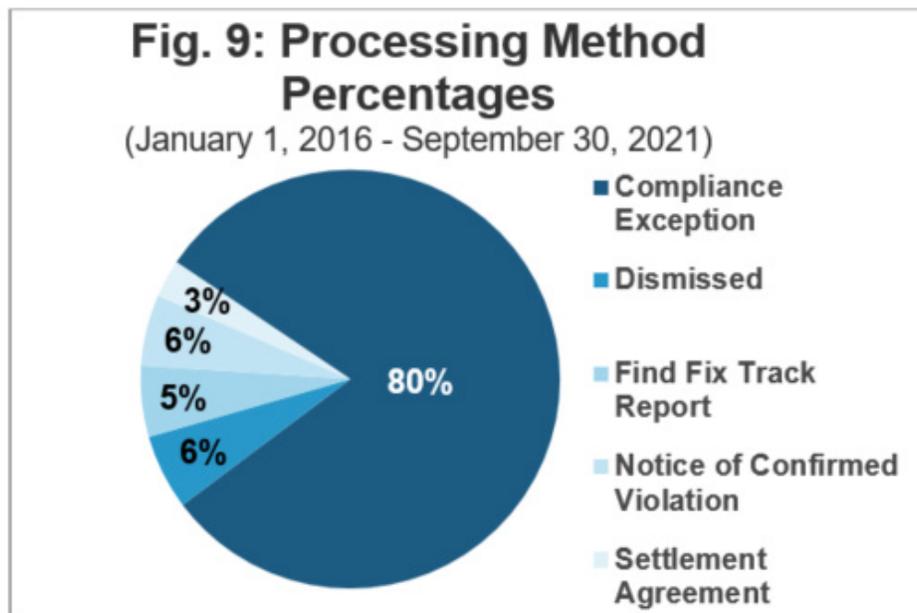
*Discovery Method Detail (January 1, 2016 through September 30, 2021) (Figure 8)*

In Figure 8, the numbers reflect all noncompliances in the MRO Region that were reported to NERC.

<b>Figure 8: Discovery Method</b>									
Discovery Method Detail	2016	2017	2018	2019	2020	2021	Sub Total	(-less) Dismissed	Total
Compliance Audit	25	26	33	47	40	7	178	19	159
Compliance Investigation	0	0	0	0	0	0	0	0	0
Data Submittal	0	0	0	0	0	0	0	0	0
Self- Certification	11	2	23	10	5	9	60	12	48
Self-Log	6	50	99	132	146	114	547	8	539
Self-Report	90	74	73	85	74	82	478	24	454
Spot Check	0	2	0	0	0	0	2	0	2
<b>Totals</b>	<b>132</b>	<b>154</b>	<b>228</b>	<b>274</b>	<b>265</b>	<b>212</b>	<b>1265</b>	<b>63</b>	<b>1202</b>

*Noncompliance Processing (Figure 9)*

MRO staff analyzes trends in the status of noncompliance processing by compiling all available processing methods, the average age of open noncompliances, and the closure percentage of noncompliances for each year. This analysis indicates progress towards simpler, more expedited processing due to the increased use of CEs to process minimal risk noncompliance. Figure 9 includes issues of noncompliance for entities that were registered in the MRO Region during the specified time periods.



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*Noncompliance Processing Time (Figures 10 and 11)*

Figure 10 illustrates the trend of the average age for open noncompliances in MRO’s inventory. The average processing for these open noncompliances is calculated by using the date reported to MRO until the last day of the noted quarter or specific date indicated and taking the average of the calculated days.

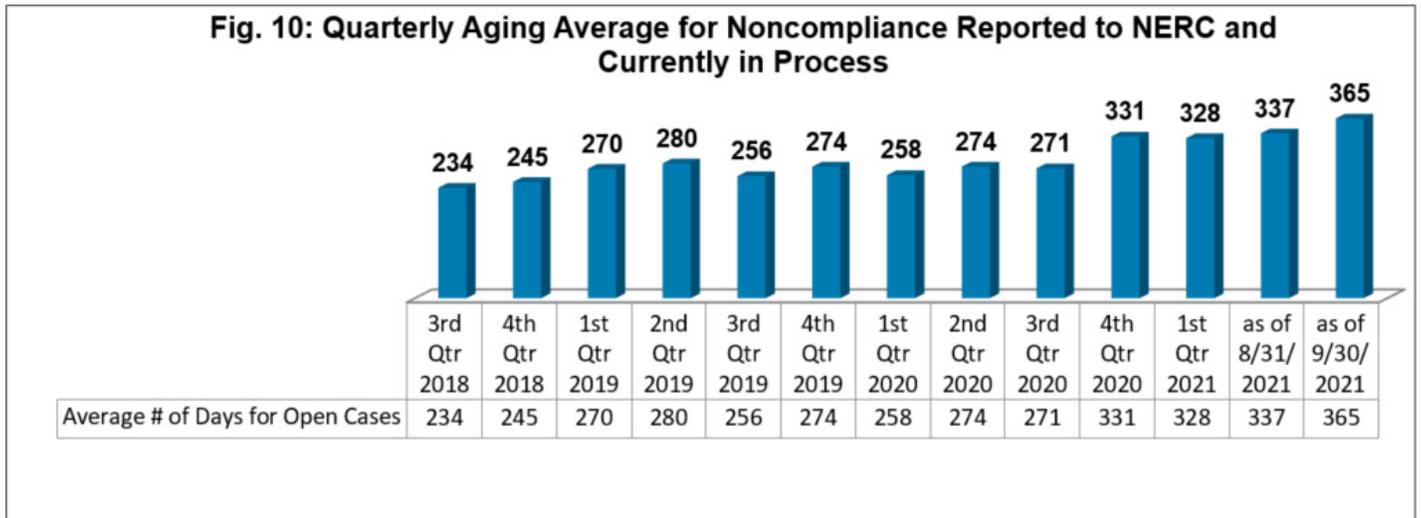
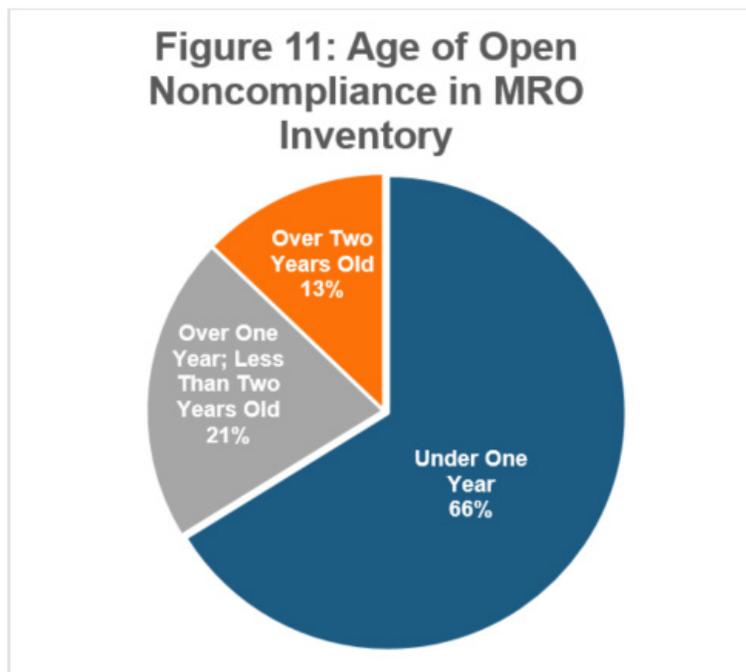


Figure 11 illustrates the average processing time for all open instances of noncompliance reported to MRO until they are fully closed and no further action is requested by the applicable government authority.



**For questions on this report, please contact the following individuals:**

- Compliance Monitoring: Jeff Norman at 651-855-1703 or [jeff.norman@mro.net](mailto:jeff.norman@mro.net)
- Risk Assessment and Mitigation: William Steiner at 651-855-1718 or [william.steiner@mro.net](mailto:william.steiner@mro.net)
- Enforcement: Tasha Ward at 651-256-5188 or [tasha.ward@mro.net](mailto:tasha.ward@mro.net)

# Configuration Monitoring

## A security and CIP compliance opportunity

The use of an automated configuration monitoring tool has security and compliance benefits when protecting BES Cyber Systems. However, MRO has observed a potential pitfall from the singular reliance on an automated tool used to prevent and detect unauthorized changes to BES Cyber Systems (CIP-010 R1, R2), and its downstream effects on a myriad of other Standards which may have interdependencies on the output of such tool (e.g. - CIP-007 R1.1 and R2.1, CIP-005 R1.3, CIP-004 R4). Considering the criticality of the automated tool and all the potential downstream effects, implementing secondary detective controls to verify the automated tool's functionality can enhance the security of your systems and reduce compliance risk.

Through MRO's Risk Assessment and Mitigation (RAM) team's exposure to multiple implementations, we have observed that running a single solution for configuration monitoring in a set-and-forget manner results in demonstrated weaknesses. The general areas of weakness are listed below along with some examples:

### 1. Tool misconfiguration

- Due to user error (e.g. - not setting up alerts)
- Unknown upgrade issues (e.g. - failure to parse configuration information from a device after a firmware change)

### 2. Undetected spontaneous failure of the tool itself (e.g. - OS registry corruption, bug in the tool itself)

### 3. Inherent tool limitations

- Relies on system configuration data (e.g. - such as what is available in the Windows registry)
- Inaccuracy in a recorded baseline from its inception

### 4. Challenges with consuming the data output of the tool

- Tool not designed to provide actionable information
- Excessive alerting and reporting

These weaknesses are not insurmountable. Running periodic detective controls can serve as a backstop against a primary automated tool failure. An opportunity may exist in your device onboarding process, as the initial baseline discovery likely uses multiple methods to compile a complete configuration. The tools used in the initial discovery could be periodically run while the device is in service, and their outputs could be used to flag discrepancies by comparing to the primary automated tool's recorded baseline. This provides a sanity check that periodically helps to verify your primary tool is working. Some simple and ubiquitous options for initial discovery and periodic secondary controls are NMAP port scans, command line scripts, file system scans, or whitelisting output (easy to consume and a completely off-the-shelf-solution).

As for the timeframe, many entities rely on the CIP-010 Vulnerability Assessment, but automation horsepower is essentially free. Why not run the secondary detective control weekly, thus helping to ensure the functionality of a critical component in your CIP program that affects not only CIP-010 R1 and R2 baseline requirements, but also has a myriad of potential downstream effects in other Standards, as well as enhance security?

- Lee Felter, Principal Risk Assessment and Mitigation Engineer CIP and Michael Spangenberg, Risk Assessment and Mitigation Engineer III CIP

The most recent NERC Standards, Compliance and Enforcement Bulletin  
can be found [here](#).

## EXTERNAL AND REGULATORY AFFAIRS

# State Regulatory Outreach Initiative

The interconnectedness of the North American bulk power system, coupled with shared challenges that impact the reliable and secure delivery of power to consumers, provides many opportunities for information-sharing and coordination across government and industry partners. The ERO Enterprise State Regulatory Outreach Initiative is continuing to grow and create opportunities to share information with state regulatory agencies on the important work NERC and the Regional Entities are doing to protect the reliability and security of the bulk power system.

As this State Regulatory Outreach Initiative progresses, MRO continues to reach out to state commission staff within its regional footprint to schedule introductions and provide information on MRO and the ERO Enterprise. On August 23, 2021, MRO sent a message to state commissioners and state commission staff that included links to [NERC's 2021 State of Reliability Report](#), the [2021 ERO Reliability Risk Priorities Report](#), and information about MRO's Reliability Advisory Council conference. Subsequently, on October 1, 2021, Bryan Clark, Director of Reliability Analysis, Drew Slabaugh, Senior Legal Counsel from SERC Reliability Corporation, and I met with Commissioners and staff of the Iowa Utilities Board to inform them about the work of the ERO Enterprise, MRO, and SERC Reliability Corporation, and gave a high level overview of the ERO Reliability Risk Priorities Report. On October 13, 2021, Bryan Clark and I, along with Richard Burt, Senior Vice President and Chief Operating Officer, gave a similar presentation to the North Dakota Public Service Commission. MRO will continue to send communications about MRO and ERO reports and outreach opportunities to state commissioners and commission staff and will continue to coordinate with Reliability First, SERC Reliability Corporation, and the Western Electric Coordinating Council, on outreach opportunities in states within multiple regional footprints.

## Federal Regulatory Update

On September 29, 2021, NERC and the Regional Entities (collectively the ERO Enterprise) submitted to the Federal Energy Regulatory Commission (FERC) a [Petition for Approval of Revisions to the NERC Rules of Procedure](#). The proposed revisions are related to the Compliance Monitoring and Enforcement Program (CMEP), the Personnel Certification and Credential Maintenance Program, and the Training and Education Program. In the petition, NERC and the Regional Entities proposed revisions to further streamline and enhance the risk-based approach to the CMEP so "registered entities and the ERO Enterprise focus on the greatest risks to the reliability and security of the bulk power system (BPS)." The petition also states, "Regarding the Personnel Certification and Credential Maintenance Program, the ERO Enterprise proposes moving credential maintenance activities from the Reliability and Security Technical Committee ("RSTC") to the Personnel Certification and Governance Committee ("PCGC") under the NERC ROP. The ERO Enterprise also proposes to move the credential maintenance requirements to Section 600 with the other requirements applicable to the Personnel Certification Program, principally the System Operator certification." Public comments are due October 20, 2021.

In the August issue of Midwest Reliability Matters, we highlighted that the July announcement of the newly-created FERC task force will help to provide information about the [new reform process](#) to build the transmission

system of the future. The nominated commissioners for the new Federal-State Electric Transmission Task Force were accepted by FERC with Maryland Public Service Commissioner Jason Stanek announced as vice chair. This Federal-State Electric Transmission Task Force is comprised of FERC's five commissioners and ten state commission representatives holding seats. The first meeting of the task force will be held during the NARUC annual meeting on November 10, 2021, in Louisville, Kentucky.

If you have any questions about these reports, do not hesitate to reach out to me at [tasha.ward@mro.net](mailto:tasha.ward@mro.net).

- Tasha Ward, Director of Enforcement and External Affairs



## NERC Standards in Align

The NERC Standards department is pleased to announce that Standards in Align reports are now live on the Reliability Standards webpage. Associated reports including the One-Stop-Shop, US Effective Date Status/Functional Applicability spreadsheet, and VRF and VSL matrices are now generated from Align.

The objectives and benefits of the Align Project are:

- Single, common portal for registered entities, enabling consistency of experience
- Real-time access to information, eliminating delays and manual communications
- Improved capability to support the Risk-Based Compliance Oversight Framework
- Enhanced quality assurance and oversight, enabling consistent application of the CMEP
- Improved analytics, including visibility into compliance and reliability risks
- Increased capability to implement audit best practices and processes (planning, fieldwork, reporting, quality assurance)
- Standardization and implementation of common business processes and workflows, enabling increased productivity (estimated 15 percent gain for ERO Enterprise CMEP staff)

Links to the webinar providing an overview of the changes are below.

Click here for: [Slide Presentation](#)

Click here for: [Recording](#)

# BULK POWER SYSTEM RELIABILITY



## Assessing Stability Impacts of Inverter-Based Resources in the Operating Horizon

Power system engineers have long studied generator stability as part of the work to ensure the reliability of the electric grid. Generator stability studies utilize electromechanical transient stability simulations to identify instability that can result from faults on the system and necessary mitigation. These types of transient stability study tools are accepted by industry and used to evaluate performance of synchronous generation such as coal, gas, nuclear, and hydro plants.

While the dynamic response of synchronous generation is largely driven by the generator's spinning mass, inverter-based resources (IBRs) such as solar and wind, use power electronics to synchronize with the grid. These power electronics are controlled by sophisticated control schemes. The speed of the controls responds faster than what the transient stability software can fully represent. The consequence, however, is that traditional study tools may not accurately represent the dynamic behavior of IBRs and their impact on the electric grid.

Controls instability in IBRs can take on different modes, such as high frequency output oscillations and mode switching where an IBR repeatedly enters and exits fault ride-through modes. It's necessary to identify and mitigate this kind of instability to prevent it from impacting reliability of the grid.

Controls instability is typically identified in two major steps. First, key post-contingency system topologies are evaluated for system strength. The ratio of the system strength in Mega Volt Amps is compared against the IBR plant capacity in MW. This is known as the short circuit ratio (SCR). When this ratio of system strength to plant capacity is higher than 3.0, controls instability is rarely found and typically doesn't require further evaluation. When the SCR is lower than 3.0, further analysis should be completed using tools that can accurately model the fast controls speed of IBRs. The SCR screening value of 3.0 is a typical value, though some literature has explored other values.

While SCR screening can provide a good degree of confidence that a plant will be stable in stronger systems (with high SCRs), it can't definitively identify the point where a plant will become unstable. Detailed analysis using electromagnetic transient (EMT) simulations is the accepted process to identify such instability as the IBR plant controls can be modeled explicitly – the actual hardware code is typically embedded in the plant model. Many results will identify that the plant and system recover from a disturbance because IBRs may be stable in some weak grid scenarios.

If instability is identified in the operating horizon, mitigation will also need to be identified and verified through study. In the operating horizon, this will typically take the form of a restriction on generation output during outages in preparation for a second outage. Other system sensitivities, such as load levels and shunt device status, should be considered as they may have material impacts on IBR stability and necessary output limitations.

Lastly, it is essential to consider how system operators will take the necessary actions to mitigate the instability. Initiating conditions need to be clearly identified by operators, and the reliability actions similarly unambiguous.

*- Nick Giffin, Operations Engineer at American Transmission Co. and Reliability Advisory Council Member*

## MRO Cold Weather Preparedness Workshop

October 21, 2021 | 8:00 a.m. to 12:00 p.m. Central

### Webinar Details

MRO is pleased to announce it will host a workshop on Cold Weather Preparedness. The purpose of this webinar is to educate and inform participants on the latest activity on a variety of cold weather preparedness topics from a national, regional, state, and utility perspective. Topics will include cold weather preparation recommendations, lessons learned from previous events and best practices to ensure bulk power system reliability during extreme weather events.

### Registration

To register for this webinar, click [here](#). Registration closes on October 20, 2021. WebEx information will be provided after registering for the webinar.

# FERC and ERO Enterprise Real-Time Assessment Report

NERC's real-time assessment (RTA) requirements necessitate that Transmission Operators (TOPs) and Reliability Coordinators (RCs) perform an RTA at least once every thirty minutes to ensure that instability, uncontrolled separation, or cascading outages that could adversely impact the reliability of the Interconnection will not occur. NERC developed these requirements to address recommendation 12 from the [2011 Southwest Blackout Report](#) to ensure that real-time tools are adequate, operational, and used frequently enough to provide system operators with the situational awareness necessary to identify and plan for contingencies and reliably operate their systems.

FERC and the ERO Enterprise published a [joint report on Real-time Assessments](#) in July 2021 with participants on the RTA team including several NERC staff and 2-3 participants from each of the six regional entities I was one of the participants representing MRO, along with Bill Steiner, Director of Risk Assessment and Mitigation. The main objective of this report was to understand the approaches that industry is using to perform RTAs, particularly during a loss or degradation of data or primary tools. The FERC/ERO team reviewed relevant reports and documentation provided by each of nine industry participants (Transmission Operators (TOP) and Reliability Coordinators (RC)), and then met with the participants to gain further insight. The joint review team examined the participants' understanding of the RTA requirements and the tools and procedures that participants rely on to achieve situational awareness under varying conditions. The end goal was to identify beneficial practices and develop recommendations to provide to industry.

Seven technical areas were examined:

- RTA tools under normal operating conditions
- Real-time data and data quality
- Managing the loss of real-time data
- Alternative RTA and study tools
- Model management
- Control center hardware configuration
- Major system upgrades/vendor changes

The team's recommendations focus on the following issues and objectives:

- Maintaining situational awareness when tools are impacted
- Ensuring actions are known and consistent in timing and scope
- Having feasible, accurate backup plans with related training programs
- Establishing verification procedures to ensure that models are accurate and consistent
- Maintaining awareness of changes/upgrades to Energy Management Systems (EMS)

One of the most important areas for maintaining bulk power system situational awareness is making sure that real-time data is accurate and fresh. Redundancy is key to maintaining quality data. Most participants stated that their systems and their neighbors' systems provided redundant data through overlap between Remote Terminal Units (RTU) and Inter-Control Center Communications Protocol (ICCP) data links. Often the duplicate

values were presented on displays side-by-side, using color coding to highlight the magnitude of differences and allowing the entities to compare the values and select the best values when the sources diverged. Some entities were able to switch between redundant data sources on a point-by-point basis, and other participants were measuring State Estimator (SE) convergence rates and could anticipate an SE failure if it was taking longer to solve. Some entities were even performing stress tests on backup systems where they removed a large piece of data to see how the system would respond to ensure they had enough redundancy.

Another important area for maintaining bulk power system situational awareness is to have a back-up plan if primary EMS systems are compromised or become unavailable. NERC Reliability Standards do not provide exceptions to the 30-minute requirement to complete an RTA. RCs and TOPs are required to perform a quality RTA, even during the partial or complete loss of primary tools or real-time data. This includes Real-time Contingency Analysis (RTCA) when the primary RTCA tool is not available. Alternate RTCA practices are no doubt one of the most challenging requirements in RTA. Here are some of the practices that the RTA Assessment participants shared with the team:

- Six of the nine participants indicated they can perform RTCA with off-line tools, such as powerflow programs. However, if a planning model is used instead of an EMS model snapshot, that planning model needs to be maintained daily to reflect current system conditions to meet the 30-minute requirement for RTCA.
- Two of the TOP participants did not use offline tools and instead relied on their RC's RTCA results to meet the RTCA portion of the RTA. Typically, the RC is already using the full contingency set from the TOP.
- One RC participant obtained the RTCA results from its TOPs if/when its own RTCA was not available.
- One RC, in addition to its offline tool capability, developed its own separate contingency analysis tool to use when its primary RTCA application is not available.

**“Another important area for maintaining bulk power system situational awareness is to have a back up plan if primary EMS systems are compromised or become unavailable.”**

EMS outages are often unpredictable and can impact even the best RCs/TOPs. However, this industry has a strong track record of having very high availability of EMS systems. Still, entities must consider a full or partial EMS outage to be the N-1 condition, and the NERC/ERO Joint report on RTA can serve as one of several resources to help set up contingency plans. While all entities may not need to implement every recommendation or best practice, there are certainly some recommendations that can help most entities improve existing plans.

The changing generation profile, fast load ramps and renewable generation ramps, increasing DER netted with distribution load, more frequent severe weather events, and the potential for cyberattacks will continue to be challenges that bulk power system operators face. It is more imperative now than ever to diligently maintain accurate and timely RTAs as this is the first line of defense to raising situational awareness so that operators can manage through the rapidly changing conditions as they occur on the system.

- John Seidel, Principal Technical Advisor



## 2021 MRO Reliability Conference

The MRO Reliability Advisory Council (RAC) held its annual Reliability Conference on August 24, 2021. For the second year in a row, this conference was held virtually by Webex. The conference had over 400 participants—nearly twice as many as last year—and the feedback so far has been incredibly positive. In case you missed it, here's a summary of the important topics discussed.

Bryan Clark, MRO Director of Reliability Analysis, welcomed attendees and highlighted some of the recent accomplishments of the RAC that support the organization's core purpose. Sara Patrick, President and CEO, reiterated Clark's remarks by sharing how the RAC and the expertise of RAC members supports our collective vision of a highly reliable and secure North American bulk power system. Patrick stressed the importance of sharing best practices and lessons learned across the ERO Enterprise and industry – an increasingly more important task as the grid continues to transform to include more intermittent resources. Dallas Rowley, Director of System Operations at Oklahoma Gas & Electric, was gracious enough to emcee the event for the second year in a row.

As the keynote speaker, Renuka Chatterjee, Executive Director of System Operations at MISO, discussed the importance of reliability and resilience in the future and highlighted some of the challenges that are expected as a result of the significant shift in the resource fleet, increased customer electrification, and the growing frequency of extreme weather events. MISO's Reliability Imperative is aimed at preparing for the future and outlines four key initiatives: 1) Market Redefinition, 2) Long Range Transmission Planning, 3) Market System Enhancements, and 4) Operations of the Future. The purpose of this plan is to prepare the MISO region for a future with a different risk

profile stemming from a high penetration of renewables.

Thomas Popik, Chairman and President of the Foundation for Resilient Societies, discussed the importance of resource adequacy during extreme weather events. Popik shared information about the cold weather event in February this year and how it impacted the electric grid in the Electric Reliability Council of Texas (ERCOT) region. The main takeaways were that resource shortfalls can occur simultaneously for different fuel types during extreme weather events. The electric grid is increasingly dependent on the reliability and availability of natural gas supply; wind and solar generation are viable power resources, but are weather dependent; aging coal plants can be quick to trip during underfrequency conditions; and nuclear plants can take days to restart after tripping off line. The February event emphasizes the need for registered entities to plan for extreme weather.

Christopher Cerveny, plant manager for Sheldon Station with Nebraska Public Power District (NPPD), and Kari Hassler, Senior Manager of Market Operations with Xcel Energy, discussed their individual company experiences on how their respective coal plant operations have been impacted by the changing resource mix. Cerveny shared that the Sheldon Station has transitioned from a base-load dispatch to an intermediate dispatch due to changes in the resource mix within the Southwest Power Pool (SPP) footprint. Challenges that NPPD has faced with this change in dispatch have included maintaining a safe work environment, changing how the units are offered into the market, and the frequency of performing preventative maintenance. Hassler described Xcel Energy's vision to become 100 percent carbon free by 2050. To reach this vision, challenges such as seasonal impacts on reliability and extreme weather events must be addressed by having a diverse mix of resource types and fuels, and having these resources distributed at locations across the region. As part of a reliable low cost future, she expressed the need for a change to the MISO Market Design to allow for multi-day financial commitments and for units to reflect actual operating requirements in market offers.

Thomas Galloway, President and CEO of the North American Transmission Forum (NATF), and Ken Keels, Director of Initiatives for NATF, reviewed the NATF Facility Ratings Practices Initiative. Galloway and Keels discussed how the Electric Reliability Organization (ERO) has identified two emerging issues around facility ratings that include inaccuracies in ratings and the increased potential for reliability impacts. As a result, the NATF has launched a Facility Rating Practices Initiative to improve the accuracy of facility ratings throughout the industry. This initiative is focused on operational excellence through implementing member-developed best practices and processes to improve accuracy of facility ratings in a sustainable manner. The NATF has developed a Facility Ratings Practices document based on reviewing the methodologies, procedures and practices shared by more than 15 NATF member companies. Going forward, the NATF plans to increase member participation in subsequent data collections, leverage expertise from strong performers to facilitate information-sharing throughout the membership, and work with members to develop activities that will improve performance in areas with lower implementation progress.

CJ Brown, Director of System Operations with SPP, and Durgesh Manjure, Director of System Operations with MISO, discussed the findings and lessons learned from their company's respective reviews of the 2021 Cold Weather Event. Brown reviewed the operations activity of the SPP Balancing Area that occurred February 4 through 20, 2021, with the Emergency Energy Alerts in place February 14 through 19, 2021. Following the event, SPP staff and stakeholders performed a comprehensive review and summarized 7 observations that led to the eventual identification of 22 recommendations. These recommendations were grouped into nine categories and divided into three tiers with Tier 1 being the most urgent and Tier 3 being the least urgent. In total, there were four Tier 1 recommendations, thirteen Tier 2 recommendations, and five Tier 3 recommendations. Manjure provided MISO's summary of the 2021 Cold Weather Event and indicated that MISO was well-positioned for the event due to ongoing actions and operating procedures before and during the event. MISO published an event report that included five key takeaways from the post-event evaluation. Through its efforts, MISO also identified a variety of lessons learned that were grouped into three main categories: System Planning/Event Preparation, Operations/Event Management, and Market Efficiency. He shared that the lessons learned from the 2021 Cold Weather Event confirm and build upon what MISO has learned from past major events and ongoing assessments of the evolving energy landscape.

Eldrich Rebello, Grid Integration Engineer with the Wind Energy Institute of Canada, and Jason MacDowell, Senior Director of Technology, Strategy and Policy at GE Power Consulting, concluded the conference by providing a review of the Canadian Provincial Grid Code. Rebello provided background on the formation of a utility forum in Canada that was developed in 2018 to discuss issues around operating the system with significant amounts of non-synchronous generation. A report is publicly available online that primarily focuses on transmission-level aspects of integrating inverter-based technologies, with some limited focus on distribution-connected resources. MacDowell compared the recently-developed Canadian Grid Codes to the International Grid Codes and emphasized the importance of creating and maintaining an application guide to meet the various requirements within the code. Lastly, there were a variety of recommendations shared around future modeling and performance requirements in light of the increasing amount of inverter-based resources.

Feedback from conference participants is still being collected through the [online survey](#), which is still available to complete. Sheer attendance at this year's Reliability Conference indicates the RAC successfully achieved its objective of sharing reliability best practices and lessons learned across the MRO Region. Recordings from conference presentations are available [here](#). The individual presentations and full agenda packet are available on [MRO's website](#).

Planning has already started for the RAC's 2022 Reliability Conference to be held on May 18. Mark your calendars and keep an eye on your inbox for further details as the date draws nearer. For more information on the RAC's 2021 Reliability Conference or to share suggestions on potential topics for the upcoming 2022 Reliability Conference, please contact [Dana Klem](#).

*- Jason Weiers, Otter Tail Power Company and vice chair of the Reliability Advisory Council*

## About the Author:



### **Jason Weiers, Otter Tail Power Company**

Jason Weiers is the Manager of the Delivery Planning Department at Otter Tail Power Company. In this role, he is responsible for setting the strategic direction for Otter Tail's long-term transmission plan and ensuring the transmission system is planned pursuant to the NERC Reliability Standards and the annual transmission expansion planning process of the Midcontinent Independent System Operator (MISO). He is also responsible for negotiating and administering transmission contracts with neighboring utilities and supporting regulatory related activities.

Weiers has served on several different committees and subcommittees under the MRO in the past. He was a member of the Planning Committee and is currently the vice chair of the Reliability Advisory Council. He has also previously served as chair and vice chair of the MRO Transmission Assessment Subcommittee (TAS). Weiers graduated from North Dakota State University in 2000 with a Bachelor of Science degree in Electrical Engineering and is a licensed Professional Engineer within the State of Minnesota.



# NERC Alert

## Cold Weather Preparations for Extreme Weather Events

In response to the extreme cold weather event that occurred in February of this year, the NERC Bulk Power System Awareness Group issued a Level 2 NERC Alert on August 18, 2021. The alert was targeted at Reliability Coordinators (RCs), Balancing Authorities (BAs), Transmission Operators (TOPs), and Generator Owners (GOs), and provides these entities with five specific recommendations to consider during cold weather preparation. The recommendations stress the importance of creating and reviewing seasonal assessments, as well as maintaining communication between GOs, RCs, BAs, and TOPs during the winter season. The Alert was sent to 157 registered entities in MRO, and requires responses approved by the entity to a list of questions for each specific function these entities perform. MRO was able to collect responses from all of its impacted registered entities. Below are some of the questions that required responses in the Alert:

- If your organization owns fossil-fired units, do you conduct surveys with fuel suppliers for delivery of fuel during extreme cold weather?
- If you own wind-powered units, are they equipped with cold weather packages?
- If you own wind-powered units, do you have a procedure for mitigating blade icing?
- Has your organization developed Operating Plans that are closer to real time (2-3 days ahead)?

More information on NERC Alerts and this specific alert can be found on the NERC website.

- <https://www.nerc.com/pa/rrm/bpsa/Pages/About-Alerts.aspx>
- <https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/NERC%20Alert%20R-2021-08-18-01%20Extreme%20Cold%20Weather%20Events.pdf>

For questions on the alert, please contact [Max Desruisseaux](#), Senior Power Systems Engineer.

- *Bryan Clark, PE, Director of Reliability Analysis*



Photo by [Anna Valberg](#) on [Unsplash](#)

## ERO Enterprise Actions to Support Winter Readiness

On September 23, 2021, the [preliminary findings and recommendations](#) from the FERC and ERO Enterprise joint inquiry into the February 2021 cold weather event were released. MRO Principal Technical Advisor John Seidel and lead FERC investigator David Huff presented the details of these findings and recommendations at [MRO's September 30, 2021 board meeting](#). The speed at which this thorough, technical analysis was completed was impressive, in large part due to the talented and committed inquiry team and the cooperation of industry in learning what happened, and how we can improve in the future. MRO was represented on the inquiry team by John Seidel and Principal Reliability Specialist Russ Mountjoy, both of whom devoted over 50 percent of their time this past year to the analysis of this event. Alongside their FERC and ERO Enterprise peers, the inquiry team developed a series of recommendations and action plans aimed to prevent recurrence and minimize the reliability impact of future cold weather events.

This was unfortunately not the first impactful cold weather event in recent history. While not as severe in terms of load loss, a cold weather event in 2018 also led to a FERC and ERO Enterprise joint inquiry. One of

the most notable recommendations from that [inquiry report](#), released in July of 2019, was the development of Reliability Standards to require:

- Development of plans for cold weather preparedness by Generator Owners;
- Implementation of those plans; and
- Asset owners and operators to provide information regarding cold weather operating parameters to Reliability Coordinators, Balancing Authorities, and Transmission Operators so that they are better aware of the generation that will, or will not, be online during extreme cold weather.

Since the release of the 2018 joint inquiry report, NERC and a standard drafting team with industry volunteers worked to develop the cold weather Reliability Standards that were approved by FERC on August 24, 2021, with an effective date of April 1, 2023. While this is a major step in addressing severe cold weather risk to the BPS, the ERO Enterprise has been evaluating other opportunities for mitigation that are complementary to the new standards and the recently-released inquiry recommendations that would allow for more near-term implementation. The ERO Enterprise shared these plans with industry as part of [Policy Input](#) for the August 2021 NERC Member Representatives Committee (MRC) meeting. I had the opportunity, alongside NERC Senior Vice President and Chief Engineer Mark Lauby and NERC Senior Vice President and General Counsel Sonia Mendonca, to present this plan and answer industry questions at the August 12, 2021 MRC meeting. The plan recognizes that a “one size fits all approach” is not the most effective or efficient way to address this risk. The MRO footprint is a perfect example to illustrate this, as winter preparedness actions and expectations for northern Saskatchewan and Manitoba will vary greatly from those in Oklahoma and the Texas panhandle. The plan consists of a five-prong approach to addressing the risk and utilizes a number of tools available to the ERO Enterprise across multiple program areas.

**1. Outreach and Industry Engagement.** MRO is an advocate of outreach as a primary tool for the identification, prioritization, and mitigation of risk. Sharing information and best practices to improve winter weather preparedness is a focus across the ERO Enterprise. On August 24, MRO’s Reliability Advisory Council (RAC) hosted the annual [MRO Reliability Conference](#), with presenters from Southwest Power Pool (SPP), Midcontinent Independent System Operator (MISO), and other industry experts discussing resource adequacy during extreme weather, operational decisions made during the February 2021 event, and temperature-dependent facility ratings. The RAC, made up of industry expert volunteers from within the region, including members from both MISO and SPP, is hosting a second virtual outreach event focused specifically on [Cold Weather Preparedness](#) on October 21, 2021.

**2. Registered Entity On-Site Engagements.** Following the 2018 Inquiry, MRO has been working to implement non-CMEP generator site visits to evaluate winter preparedness. MRO partnered with ReliabilityFirst to learn how that Regional Entity utilized performance data such as Generating Availability Data System (GADS) to identify candidates, ensuring the program is collaborative and technical and not associated with compliance oversight. MRO staff attended ReliabilityFirst outreach events where this information was shared with generators across the ReliabilityFirst region, and witnessed the value that industry was seeing in this program through the information shared and learning from each other. On September 16, under strict pandemic protocol, MRO Reliability Analysis staff performed the first generator site visit under the new [MRO Generator Winterization Program](#).

**3. NERC Alerts.** NERC issued a Level 2 Alert in August to determine:

- Actions being taken to prepare for the upcoming winter season;
- Specific mitigation activities from existing Reliability Guidelines and Lessons Learned being imple-

mented and the status; and

- The timeline for completing any outstanding mitigation activities prior to the upcoming winter

There is another article within this newsletter that provides more details on this Level 2 Alert and how MRO plans to utilize the information collected.

**4. CMEP Practice Guides.** The ERO Enterprise is developing a CMEP Practice Guide to aid CMEP staff, including auditors, in facilitating discussions to better understand how entities are preparing for operational challenges related to winter weather. These discussions will include questions related to plans for complying with the newly-approved Reliability Standards EOP-011-2, IRO-010-4, and TOP-003-5 that become effective April 2023. Not only will this provide the ERO Enterprise with an understanding of how entities are managing this critical risk, but also serves as a resource to entities in augmenting compliance programs. The ERO Enterprise cannot, and will not, issue any noncompliances related to standards that are not yet effective. Rather, through already scheduled interactions with entities, such as audits, this CMEP Practice Guide will be a framework for discussions that raise awareness of this risk, existing guidance, and the upcoming mandatory requirements.

**5. Winter Reliability Assessments.** NERC annually publishes both summer and winter assessments that identify operating concerns that could impact reliability during those upcoming seasons. To complement NERC's efforts, MRO began developing regional seasonal assessments in 2020 focused on the unique operating challenges within our regional footprint. This year's winter assessment will include information related to winter preparedness challenges, including early analysis of data received from the Level 2 NERC Alert. MRO will conduct a webinar and issue a Hot Topic when that assessment is published.

Utilizing innovative approaches outside of mandatory standards to assess and mitigate risk related to severe cold weather demonstrates the ERO Enterprise's commitment to our shared vision of a highly reliable and secure North American bulk power system.

Please join us in this effort!

. - *Richard Burt, Senior Vice President and Chief Operating Officer*

## Employee Spotlight:

MRO is pleased to welcome John Grimm to the Reliability Analysis team as a Principal Systems Protection Engineer. John is a licensed Professional Engineer with over 30 years of experience, most recently with Xcel Energy, and was chair of MRO's Protective Relay Subgroup until he joined the organization. John has extensive system protection experience that will be invaluable to the Reliability Analysis team.

We'd also like to congratulate Michael Spangenberg, MRO CIP RAM Engineer III, on the newest addition to his family—a beautiful baby girl—and are happy to report that both Mom and baby are doing well. Congratulations Mike!

**MRO is hiring!** To apply, visit the [Careers Page](#) on our website or visit us on [LinkedIn](#).

## DIVERSITY, EQUITY AND INCLUSION AT MRO



### DEI Days at MRO

*“It is not our differences that divide us. It is our inability to recognize, accept and celebrate those differences.” – Audre Lorde.*

The Diversity, Equity, and Inclusion (DEI) committee will be hosting DEI Days at MRO November 1-5 in an effort to promote and celebrate the diverse backgrounds of our employees through educational events. Hosting DEI Days has been a goal of the DEI committee for the last several months. Prior to the knowledge that MRO’s workforce would still be working from home well into 2021, the idea was to host in-person events; however, this project is even more evolutionary because it will give employees a way to feel more connected, engaged and positive while remaining remote, leading to a more cohesive MRO.

The DEI committee is leading the effort by creating an agenda for the week, which will focus on three themes: (1) Diversity in STEM; (2) Diversity in the Workplace; and (3) Awareness and Being Comfortable Being Uncomfortable. DEI Days will consist of videos, group engagements, and training. Participation will be optional.

Continuing to provide educational material, training classes, and open sessions for discussion allows employees to build trust, to talk about the hard things, to embrace learning, and to be open-minded. It is imperative that we are able to discuss other perspectives and personal opinions in order to better understand how to interact with those around us.

Who we are as individuals is a combination of our upbringing, our beliefs, our individuality, our differences, and the things that make us unique. The DEI committee’s goal is to form an alliance of individuals who accept, respect, and support people regardless of race, sexuality, gender, religion, disability, or age. It is our responsibility as humans to help each other feel valued. As such, the DEI committee will continue to create ways in which we celebrate our differences while learning to connect and have meaningful conversations.

MRO values a safe, inclusive, and equitable workplace and we are lucky enough to have a rich and diverse subset of employees that make MRO so successful.

*- Holly Haynes, Sr. CIP Compliance Auditor, on behalf of MRO’s Diversity, Equity and Inclusion Committee*

## INDUSTRY NEWS AND EVENTS

### LATEST NEWS:

#### **DOE Sets 2025 Community Solar Target to Power 5 Million Homes**

On October 8, 2021, the U.S. Department of Energy (DOE) announced a new National Community Solar Partnership (NCSP) target: to enable community solar systems to power the equivalent of five million households by 2025 and create \$1 billion in energy bill savings. Read the [full announcement](#).

#### **DOE Announces New \$2.5 Million Prize to Support Diversity in Innovation**

The DOE has launched the new Inclusive Energy Innovation Prize that will award up to \$2.5 million in cash prizes to groups and organizations that support entrepreneurship and innovation in communities historically underserved in climate and energy technology funding. Read the [full announcement](#).

#### **DOE Secretary Granholm Op-ed In CNN: Extreme Weather Keeps Knocking Out America's Power. Here's What We Must Do**

Secretary of Energy Jennifer M. Granholm published an op-ed in CNN highlighting how President Biden's Build Back Better Agenda will invest in a resilient, clean energy power system that will strengthen the grid and protect communities during extreme weather events. Read the [full announcement](#).

#### **FERC Staff Report Details Lessons Learned from CIP Reliability Audits**

FERC staff offers recommendations to help users, owners and operators of the bulk-power system improve their compliance with the mandatory Critical Infrastructure Protection (CIP) reliability standards and their overall cybersecurity posture. Read the [full announcement](#).

#### **Robb, Lauby and Cancel Speak at Federal Energy Regulatory Commission's 2021 Annual Reliability Technical Conference**

Jim Robb, NERC's president and CEO, Mark Lauby, NERC's senior vice president and chief engineer,

and Manny Cancel, NERC's senior vice president and CEO of NERC's Electricity Information Sharing and Analysis Center (E-ISAC) participated in the FERC 2021 Annual Reliability Technical Conference on September 30. Read the full statement [here](#).

#### **FERC, NERC Staff Review 2021 Winter Freeze, Recommend Standards Improvements**

The electric and natural gas industries need to strengthen their winterization and cold weather preparedness and coordination to prevent a recurrence of the unprecedented February 2021 power outages to millions of people during the February 2021 freeze in Texas and the Midwest. Read the [full announcement](#).

### INDUSTRY EVENTS:

#### **Registration Closes soon for NERC GridSec-Con 2021**

October 19-20, 2021 | 11 a.m. to 3:45 p.m. EST

NERC and Texas RE are co-hosting the tenth annual GridSecCon virtually on October 19-20, with training opportunities available on October 18. Register [here](#).

#### **NERC Human Performance in Electric Power - Virtual Session #3**

October 21, 2021 1:00 to 5:00 p.m. EST

Please join NERC for the Human Performance in Electric Power virtual sessions. This collaboration between the Electric Reliability Organization Enterprise, the Human Performance Community of Practice (KnowledgeVine and ResilientGrid) and their mutual partners brings together industry representatives and subject matter experts from across the country to share ideas and transfer knowledge about human performance topics/principles and their application in electric power organizations. Register [here](#).

#### **NERC Webinar on Distributed Energy Resource Modeling Capabilities in Simulation Tools**

October 28, 2021 | 2:00 to 4:00 p.m. EST

The NERC System Planning Impacts from Distrib-

uted Energy Resources Working Group (SPIDER-WG) is holding an informational webinar to share capabilities and best practices related to modeling distributed energy resources (DERs) in powerflow and dynamic simulations performed by Transmission Planners and Planning Coordinators. This webinar is being held to help ensure industry is aware of DER modeling and study capabilities available to grid planners. The NERC SPIDERWG is working on a white paper highlighting DER modeling capabilities that all software tools should have to allow sufficient flexibility to represent DERs in planning assessments. Register [here](#).

### **2021 EPRI-NERC-NATF Planning and Modeling Webinar**

**November 3-4, 2021 | 1:00 to 4:00 Eastern | Webex**

Join NERC, the North American Transmission Forum (NATF), the Electric Power Research Institute (EPRI), and many industry experts to discuss current topics related to power system planning, modeling, and system analysis. Register [here](#).

### **Electricity Information Sharing and Analysis Center GridEx VI**

**November 16-17, 2021**

GridEx, a distributed play grid exercise, allows participants to engage remotely, and simulates a cyber and physical attack on the North American electricity grid and other critical infrastructure. Read [more](#).

### **FERC and ERO Enterprise Webinar on Real-Time Assessments**

**December 8, 2021 | 1:00 to 3:00 p.m. EST**

FERC and the ERO Enterprise released a joint report on Real-time Assessments (RTAs) in July of 2021. The report followed a joint activity with volunteer registered entities to discuss existing practices for conducting RTAs. Register [here](#).

## **REGIONAL AND MRO EVENTS:**

### **MRO Cold Weather Preparedness Workshop**

**October 21, 2021 | 8 a.m. to Noon | Webex**

The purpose of this webinar is to educate and inform participants on the latest activity on a variety of cold weather preparedness topics from a national, regional, state, and utility perspective. Register [here](#).

### **WECC Reliability and Security Workshop**

**October 26, 2021 | 9:30 to 5:00 Pacific | Whova**

WECC's Fall Reliability & Security Workshop will be held October 26, 2021 in the Whova platform, allowing stakeholders to participate, interact with subject matter experts, and build industry connections while attending the event. Register [here](#).

### **WECC Grid Fundamentals Class**

**November 2-3, 2021 | Whova**

This two-part webinar will provide a holistic training on electric grid operations, how electricity is generated, transmitted, and distributed. Participants will also review policy, environmental issues, and current events. Register [here](#).

### **MRO Q4 SAC Meeting**

**November 3, 2021 | 9:30 to 3:00 Central | Webex**

This is an open meeting of the Security Advisory Council (SAC). Agenda materials and registration information is available on MRO's [website calendar](#).

### **MRO Q4 RAC Meeting**

**November 9, 2021 | 8:30 to 3:00 Central | Webex**

This is an open meeting of MRO's Reliability Advisory Council (RAC). Agenda materials and registration information is [here](#).

### **MRO Q4 CMEPAC Meeting**

**November 10, 2021 | 8:00 to 3:00 Central | Webex**

This is an open meeting of MRO's CMEP Advisory Council (CMEPAC). Agenda materials and registration information is [here](#).

### **MRO Annual Member and Board of Directors Meeting**

**December 2, 2021 | 1:00 to 3:30 Central | Webex**

The Annual Member and Board of Directors meeting is scheduled take place by Webex on December 2. More information will be available soon on MRO's website [here](#).

*In addition to the above events, MRO's NERC Standards Review Forum and Security Advisory Council Threat Forum continue to meet weekly. To see more MRO meetings and events, visit our [website calendar](#).*



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