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RELIABILITY FIRST

Note from the President

Dear Stakeholders,

This time last year, I encouraged everyone to aim for balance, which can be especially helpful during difficult times. We were focused on balancing pandemic response activities with normal, day-to-day work, as well as the evolving relationship between compliance and continuous improvement. From these ongoing efforts, I'd like to share one lesson that I believe has helped RF remain steady.

Flexibility is a key piece of finding the right balance. Despite the fact that flexibility isn't what you typically expect to hear from a regulator – I hope everyone has come to know by now that RF, and our peer Regions, are so much more than the label of "regulator." We are a partner to Entities and stakeholders, and a solid partnership of this nature requires both consistency and adaptability.

In order to find the best balance between employee health/safety and satisfaction, RF has returned to a more flexible work-from-home plan. Throughout the pandemic, we have consistently communicated plan updates to staff and solicited their input. While I cannot overstate how much I look forward to face-to-face interactions with my exceptional staff again, we are back to working from the office on a voluntary basis.

Consistency is a major factor in successful programs, so I hope you attended our Annual Reliability and Compliance Workshop last week that focused on building sustainable programs. Underscoring the importance of strengthening the relationship between compliance and continuous improvement, we integrated the presentation content. This shift, and the virtual setting, required more adaptability on our part, as well as flexibility and trust from the attendees who are used to our Annual Workshop being separated into one day for CIP and one for Operations & Planning.

Flexibility also plays a part in ensuring projects are executed to the best of our abilities, and this is truer than ever with new initiatives or during uncertain times. As you'll see in this issue's Align update, the project team had to exercise flexibility when deciding to break this final phase into two Align releases.

I must admit that I'm struggling to be flexible in my sadness over the October retirement of Ray Sefchik, our Director of Entity Engagement. For the past 10 years, Ray has been an integral member of the team who built RF into the successful organization it is today. It's difficult to imagine our team without his leadership, deep expertise, level-headedness and humor. To say that I will miss Ray is quite an understatement, and I'm sure that all of you who have worked with Ray during his tenure will miss him, as well.

Be safe and be well.

Forward Together,

Tim

Forward Together **RF** ReliabilityFirst

From the Board

The Q3 Board Meeting was held August 18, 2021. The Meeting featured keynote speaker Andrew Dodge, Director of the Office of Electric Reliability at FERC. Mr. Dodge has more than 30 years of industry and regulatory experience, including recently serving as an Electrical Engineer in the Office of Energy Infrastructure Security, and before joining the Commission he was a Chief Engineer for the Maryland Public Service Commission.

Mr. Dodge discussed recent FERC activities and the Office of Policy and Planning. His overview included the new Report on Real-time Assessments, recent technical conferences, and the joint inquiry into the 2021 Cold Weather Grid Operations.

Tim Gallagher, RF's President and CEO, provided various updates on RF and Electric Reliability Organization (ERO) activities. He noted Infrastructure Investment and Jobs Act H. R. 3684, and he provided a high-level summary of the bill while noting there is a provision to promote infrastructure that we all work on and that the ERO is included in many of those programs.

Mr. Gallagher covered the recent board elections, welcoming back Rachel Snead and Bob Mattiuz and welcoming Ken Seiler from PJM and Nelson Peeler from Duke who will make great new additions to the Board. Mr. Gallagher recapped recent staffing changes and highlighted several promotions (Brian Thiry to Entity Engagement Director, Kristen Senk to Director of Legal and Enforcement, and Tom Scanlon to Managing Enforcement Counsel). He also highlighted RF's Insider Threat Tool and Cold Weather preparedness program. Finally, he noted the Lead Independent Director and Joanna Burkey will represent the RF Board on a forum of cybersecurity experts.

RF was excited to welcome five new members to the Board of Directors this year: Rachel Snead, Jason Marshall, Antonio Smyth, Joanna Burkey and Courtney Geduldig. In this issue, we hope you enjoy getting to know our two newest Independent Directors, Courtney and Joanna, as we have asked them to share some of their experience and thoughts for the upcoming term.

Q4 ReliabilityFirst Board of Directors and Committee Meetings will be held virtually on December 1-2, 2021.

From the Board

Courtney Geduldig is currently the Head of Government and Public Affairs for Chime, a San Francisco-based FinTech startup.Her first full-term as an Independent Director will expire in 2024, and then she is eligible for three more terms.

Please tell us a little about your educational background and professional experience.

I have a law degree from the University of Baltimore and a bachelor's from the University of Maryland. After law school, I moved to Washington DC and became a regulatory retail banking attorney for the Consumer Bankers Association.

After a few years, I was asked to take a political role as the Deputy Assistant Secretary for Legislative Affairs at the U.S. Treasury Dept. In that role, I focused on domestic finance issues, terrorism and financial intelligence. I moved to the Financial Services Forum and Capitol Hill (the Senate) from there.

When I left the Hill, I researched and coauthored a book on entrepreneurism and the American economy. I spent the last nine years working for S&P Global focused on data, benchmarking, ratings, ESG and credit markets. I am now the Head of Government and Public Affairs for Chime, a San Francisco-based FinTech startup.

What sparked your interest in joining the RF Board?

The issues facing the reliability of the power grid are so intertwined with the sustainability and risk agendas for policymakers. RF is at the intersection of critical investments in our country and I thought my areas of expertise could be valuable.

How do you anticipate your past experience will contribute to serving RF?

My roles as a manager and an executive will help to drive better outcomes at RF, and my public policy experience provides me with an opportunity to offer counsel on navigating the political and policy environment.

What do you think the priorities for the industry should be in the coming years?

Cyber, sustainability and climate impact on the delivery of reliable power.

What is happening in the industry today that you are most excited about?

I am most excited about the integration of risk more holistically into strategic agendas for organizations like RF. That kind of vision will serve to allow RF to be more proactive in their interactions with their stakeholders.

What professional organizations and activities are you involved with?

Professional organizations are so important for mentoring, networking, and trading valuable counsel and advice, but also for giving back to our communities. I am on the Board of the Positive Coaching Alliance focusing on ensuring that youth sports is a positive experience for parents, coaches and kids, as well as Mosaic and Engage – both organizations focused on helping to advance women and their professional and financial futures. I am also a Founding member of CHIEF, a professional women's organization and serve as Vice Chair of the Board at the Public Affairs Council.

Are you involved in any other activities outside of work?

I have four children, which doesn't give me a lot of time for hobbies! We are big sports fans and have a son that plays high school football so we enjoy his games. I take tennis lessons with my daughter and we enjoy the beach and boating. I am an avid reader and like to travel (mostly to warm locations!).

From the Board

Joanna Burkey currently leads global cybersecurity efforts for HP, Inc. where she is responsible for the organization's cybersecurity program, including IT infrastructure, technology platforms and business units. Her first term will expire in 2025, and then she will be eligible to serve three more terms.

Please tell us a little about your educational background and professional experience.

As is the case for many of us in cybersecurity, my university degree was in computer science. I started my career as a software engineer, and just "fell in" to cybersecurity very early on when I went to work for a company developing one of the first in-line intrusion prevention systems. Unknowingly, at the time, I had found the ideal subject area in which to work – I love to learn, and there is always something new in cyber to learn.

I did not stay in software engineering, but I did stay in cyber. For the bulk of my professional life I went through a series of role changes to get exposure to all aspects of the business – product strategy, security research, sales enablement, even some time doing "security evangelism" in the field. I've also been able to spend time on both sides of the product/practitioner fence, an experience that I highly recommend to gain greater breadth and perspective. Most recently I had the unique opportunity to spend time based in Germany as the Global Head of Cyber Defense for Siemens, and this chance to live and work overseas for a

non-American multinational was once in a lifetime. I joined HP Inc. as the Global CISO in April 2020, not knowing that – at least to date – the entire job would be done from my home office! But I have an amazing team and it is incredible what smart, motivated people can get done even in trying circumstances.

What sparked your interest in joining the RF Board?

The infrastructure that powers the world around us has always impressed me. I grew up in an area where you were never far from a rail line, and I've watched with fascination over the years as Texas has become dotted with windmills. In fact, what drew me to work at Siemens was the ability to work for a company that created much of this same infrastructure. I did not originally get into cybersecurity with the security of the large-scale mechanics around us in mind, but now I find it one of the most worthy applications of cybersecurity expertise. When the opportunity to serve RF arose, it felt incredibly serendipitous because the mission of RF is a mission that I also care very much about.

How do you anticipate your past experience will contribute to serving RF?

The priorities and mission of RF really resonate with me and I am honored to have the opportunity to serve this corporation. In addition to bringing the cybersecurity expertise, as some of my peers on the board do as well, I am able to bring in a diverse perspective from a career that has not been in the utility sector.

I've had the opportunity to be close to, and even drive, large-scale change management efforts at multiple multi-national corporations and learned many things as a result that I am pleased to bring

to the table in service of RF. Being a female in technology I am also passionate about DE&I strategies and proud to see this focus at RF as well.

What is happening in the industry today that you are most excited about?

The opportunities that digital transformation bring to the utility space are really exciting. Having worked directly in the technology field for the majority of my career, I've seen first hand the myriad and unexpected ways that technology can be applied. In particular, digitalization can bring about both cost relief and greater adaptability and agility. When designed well and implemented intentionally, digital innovation can improve efficiency and manage complexity – both outcomes that are critical to reliability in the utility space.

What do you think the priorities for the industry should be in the coming years?

Continuing the theme of digital transformation mentioned above, it takes very thoughtful planning and solid strategy to "do digital" well. Too often, journeys on the path of digitalization focus too narrowly on specific tools or technologies, without looking at the entirety of the workflow or the value chain they are intended to enable. So one priority on the utility industry is to ensure that the application of digital is done right and at scale. Another priority is the continued investment in and development of grid-scale energy storage. We know that human ingenuity is up to this challenge, and I'm really excited to see where this space goes in the coming years.

Continuous Improvement: Kaizen Events

By Sam Ciccone, Principal Reliability Consultant

RF is your partner as we work together to continuously improve the Bulk Power System. While there are many facilitation methods for this journey, this article will walk through how Kaizens can be used. Kaizen is the Japanese term for continuous improvement. "In a simple definition, one can say that Kaizen activities aim to improve all functions of the business, through small steps, involving all employees. It is a collective effort that makes the process more efficient, effective, manageable, and adaptable."[1]

Planning a Kaizen Event

A Kaizen event provides structure for successful improvement. It is of the utmost importance that the event owner, also referred to in this article as a sponsor, works hand-in-hand with both the facilitator and someone who is directly involved with the system being improved. If possible, the event owner, facilitator and subject matter expert should all be different people.

There are four overarching phases of a Kaizen event. The following diagram reproduced from the Kaizen Event Fieldbook illustrates the key phases with a typical timeline for those phases:

Phase 1 Strategy	Phase 2 Pre-event Planning	Phase 3 Event Execution	Phase 4 Event Follow-through
At least annually	~ 20 days	~ 5 days	~ 20 days

The fieldbook referenced at the end of this article details each of the phases. Before getting started, it's important to know that there are times when Kaizen events are appropriate and times when they are not. The fieldbook also has a flowchart in Fig. 4-1[2] that helps determine if a Kaizen event should or should not be utilized.

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[1]Abdulmouti, Ind Eng Manage 2018, 7:2

[2]Mark R. Hamel, "Kaizen Event Fieldbook" Figure 4-1, pg. 71

Kaizen Event Examples

An experienced CI and Kaizen facilitator here at RF provided examples of good and bad events he has experienced over the years.

The Good – A large project at a company involved reducing cost due to over spending by millions of dollars. Once the Kaizen facilitator helped the team delve into the situation, it came down to one software development process. It involved all stakeholders who worked to solve the problem at hand and implemented a plan that saved the company millions.

The Bad – During a Value Stream Mapping (VSM)[3] event, the facilitator encountered a sponsor who had already made up their mind on the outcome based on their vision. In these types of situations, the sponsor may be an executive or senior leader, and others in the room typically do not push back because they feel somewhat bullied into the predefined outcome.

The sponsor took control of the event and seemed to "put on a show" in order to say they involved everyone in the decision (but they really did not). The sponsor took total control and disagreed with reports without offering an explanation. Golden Rule: If decision makers already have a decided upon solution, don't have a Kaizen!

Power Industry Kaizen

In the electric utility industry, improvements may result from various "forms" of Kaizen events. However, the infrastructure is typically hierarchal, versus a more modern, self-organized manufacturing assembly line. "In environments where the product is difficult to see, the workforce is often disconnected from both internal and external customers, measurement has not been the norm, and significant waste exists."[4]

Power companies implement improvements in office or offsite meetings. These are usually productive meetings for change, but when you consider labor unions and non-union members, it's challenging to get the right people in the room. The more diverse the stakeholders, the better the event. The "old school" mentality is to have the workers do it, which may not be diverse enough if you are trying to blend new, external ideas and innovation. Most modern problems are complex system problems.

Performing VSM in our industry can be very useful as a tool for Kaizen events, but you should use caution when "leaning out", or trimming down, a process that has critical steps for success. Like Kaizen events, there are cases where VSM may not work well in the power industry; for example, when human life is at stake. Lean Kaizen reduces waste in a process, but if not used correctly, it can reduce safety and resilience. For example, it may trim out critical Human Performance steps.

Critique of Kaizen Events

Prior to Kaizen events in corporate settings, there was usually an office or offsite meeting to discuss ways to improve on a specific problem where a leader would "make the hard call" for the team. It was a carryover of top-down organizational management. In the spirit of Kaizen, it is critical that personnel directly involved with the work takes place are included (i.e., going to the GEMBA)[5].

However in some cases this is not practical, so although "going to GEMBA" is a recommended best practice, it should be used with caution and when situations may cause safety concerns. You should try to involve the workers' direct supervisors or others with first-hand knowledge of the tasks and challenges.

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[3]Value stream mapping is a flowchart method to illustrate, analyze and improve the steps required to deliver a product or service. Source:https://www.lucidchart.com/pages/value-stream-mapping

[4]Martin, Osterling (2007): "The Kaizen Event Planner"

[5]According to Masaaki Imai, GEMBA is defined as "the place where things happen", "GEMBA Kaizen", Pg. 13

Continuous Improvement: Kaizen Events

Another critique of Kaizen events is in the scoping of the engagement with the sponsor, especially if the sponsor makes it too constrained. The challenge is to reduce or remove the constraints (e.g., money, time, resources, etc.) as much as possible when setting up the event. If there are constraints, such as the team is given one hour to figure out a complicated issue, there's a good chance that the sponsor already has an idea of what they want the end goal to look like, violating the golden rule of Kaizen.

In Closing

Kaizen events are effective when used properly, taking into consideration all the applicable factors and ensuring all stakeholders are involved in the event to come up with a solution to the problem.

RF has a wealth of knowledge and experience on performing Kaizen events, including trained and certified facilitators who can help drive improvements RF with the challenges you may be facing. We encourage our Entities to utilize this free service.

Lastly, the following are some Kaizen Event references to look into:

- Abdulmouti H, Benefits of Kaizen to Business Excellence: Evidence from a Case Study, 2018
- Mark R. Hammel "Kaizen Event Fieldbook," 2010
- Masaaki Imai, "GEMBA Kaizen, A commonsense approach to a continuous improvement strategy," 2nd edition, 2012
- Liker and Franz, "The Toyota Way to Continuous Improvement," 2011
- Pagell, Dibrell, Veltri, and Maxwell, "Is an Efficacious Operation a Safe Operation: The Role of Operational Practices in Worker Safety Outcomes," IEEE TEMS, August 2014

Special thanks to Kaizen event and CI facilitator Carl Dister, Manager, Innovation & Continuous Improvement at RF for contributing to this article. If you have any questions or interest in our Kaizen and Facilitation services, please contact Entity Engagement.

The Lighthouse

By Lew Folkerth, Principal Reliability Consultant

Compliance Is Not Security

During my career in CIP compliance I have heard the phrase "compliance is not security" many times and in many contexts. If it's used as a simple statement of fact then I agree with it. Compliance and security are two different, but complementary, domains of effort.

However, when "compliance is not security" is used to imply that compliance has no value or is a waste of resources, then I strongly disagree. The phrase has been used to assert that "we can do it better without standards" or "our compliance violation had no impact on security." I have never seen a case where these claims were true.

Compliance should be a governance function applied to an entity's security processes. Without governance, such as internal controls or compliance monitoring processes, you have no assurance that security processes are being consistently applied. As many data breaches show, leaving even a seemingly small security hole can have major consequences.

I've also encountered concerns that workshops and other presentations advocate going beyond the minimum requirements of the CIP Standards.

In this recurring column, I explore various questions and concerns related to the NERC Critical Infrastructure Protection (CIP) Standards. I share my views and opinions with you, which are not binding. Rather, this information is intended to provoke discussion within your entity. It may also help you and your entity as you strive to improve your compliance posture and work toward continuous improvement in the reliability, security, resiliency and sustainability of your CIP compliance programs. There are times that I also may discuss areas of the Standards that other entities may be struggling with and share my ideas to overcome their known issues. As with lighthouses, I can't steer your ship for you, but perhaps I can help shed light on the sometimes stormy waters of CIP compliance.

New Presque Isle Light, MI – Photo: L Folkerth

My response to the concern that we are promoting reliability past the level of basic compliance is, "That's our job." In fact, reliability is not just our job, it's our mission and our passion. The ERO Enterprise's (NERC and the six Regional Entities) primary purpose is maintaining and enhancing the reliability, resilience and security of the Bulk Electric System (BES).

The NERC Reliability Standards establish a level of performance expected for Registered Entities of all sizes and types. This is a level of performance that can be considered a baseline or the lowest acceptable level of performance. They are not intended to keep up with the rapidly changing world of cyber security. As a simple example, CIP-007-6 R5 Part 5.5 requires a minimum password length of eight characters. However, the art and science of password cracking has changed the risk in this area so that recent guidance from the Center for Internet Security suggests a minimum password length of 14 characters.

This means that in any webinar or workshop where password length is discussed, the ERO Enterprise will note that the minimum required password

length is eight characters but that we recommend using at least 14 characters where feasible.

As an entity responsible for some aspect of the BES, you must constantly adapt to the changing threat environment. For example, the recent shutdown of a major pipeline on the east coast likely resulted from a compromise of one of the pipeline company's billing systems. In response to this occurrence, has your entity reviewed its information systems that are not subject to the CIP Standards?

The CIP Standards are applicable to those systems with real-time (within 15 minutes) impact on the BES. But have you identified all the systems that can cause an operational disruption in a timeframe longer than 15 minutes?

At a generating plant, fuel handling systems seldom have a 15-minute impact on operations. But what if those systems are compromised and as a result are disabled or damaged? How long will the plant stay operational? If these systems suffer physical damage as a result of cyber compromise, how long will it take to repair the systems, and at what cost?

The role of the ERO Enterprise is to enhance reliability, resilience and security. Monitoring compliance with the NERC Reliability Standards is one tool we use to perform that role, but not the only tool. RF has multiple offerings listed on our website to assist you in improving your reliability, resilience, security, and compliance. The various Regions are cooperating on outreach activities and opening outreach such as webinars, workshops and training to all entities across the NERC footprint.

I encourage you to get involved by attending the webinars and workshops of interest to you. You can become actively involved by participating in the RF Critical Infrastructure Protection Committee.Technical Talk with RF is a monthly virtual meeting that brings together experts to discuss various topics of interest, and also provides announcements of other outreach and training events across the ERO.

If you are being audited, take the opportunity to talk to your auditors about what they are seeing and solicit their recommendations and advice as they have the advantage of seeing multiple programs and internal controls. While we have many tools at RF, all the departments share the same mission in helping our entities continuously improve so that you can be both secure **and** compliant.

Requests for Assistance

If you are an entity registered within the RF Region and believe you need assistance in sorting your way through this or any compliance related issue, remember RF has the Assist Visit program. Submit an Assist Visit Request via the RF website here.   Back issues of The Lighthouse, expanded articles and supporting documents are available in the RF CIP Knowledge Center.

Feedback

Please provide any feedback you may have on these articles. Suggestions for topics are always welcome and appreciated.

Lew Folkerth, Principal Reliability Consultant, can be reached here.

Battery Energy Storage Systems

Battery Energy Storage Systems (BESS) store electrical energy and are designed to inject Real Power into an electric system when needed, as well as act as a load during battery recharging. BESS can be used in a wide range of applications, from residential to large-scale commercial applications at the Bulk Electric System (BES) level. Advancements in battery and inverter technology have resulted in increasing use of BESS. RF expects that the use of BESS will accelerate in coming years.

NERC issued a Compliance Monitoring and Enforcement Program (CMEP) Practice Guide: Application of the Bulk Electric System Definition to Battery Energy Storage Systems and Hybrid Resources. Since Practice Guides address how ERO Enterprise CMEP staff execute compliance monitoring and enforcement activities, all applicable users, owners, and operators of the BES should be aware of, and familiar with, applicable Practice Guides.

The Practice Guide makes clear that because BESS resources (and hybrid resources) have the ability to produce active power (when the batteries are discharging), they operate as a generating resource. Owners and operators of a generating resource within the scope of the BES Definition must register as a Generator Owner (GO) and Generator Operator (GOP), respectively.

The Practice Guide contains examples of single line diagrams of various BESS and hybrid configurations, and it provides conclusions as to which Elements are included in the BES. Elements and Facilities that are included in the BES are subject to compliance with applicable NERC Reliability Standards.

All owners and operators of BESS that are included in the BES should review the NERC Practice Guide. If the owner/operator meets the threshold for registration as a GO/GOP, they must follow the registration process to be placed on the NERC Compliance Registry. Existing GOs/GOPs should update their existing RF GO/GOP asset verification forms to include applicable BESS as a generating resource and provide them to RF Registration Staff.

Registered Entities that have BESS should review all applicable NERC Reliability Standards and their compliance responsibilities regarding the BESS to such applicable NERC Reliability Standards.

Questions about the NERC BES Definition or Registration of BESS resources can be directed to RF Registration Staff. Questions regarding applicability of NERC Reliability Standards or Compliance obligations associated with BESS resources can be directed to Entity Engagement via the Assist Visit program.

Information about Registration and Certification is available here.

Information about the Assist Visit program is available here.

Regulatory Affairs

FERC Establishes Joint Federal-State Task Force on Electric Transmission, Sets First Meeting for November

In June 2021, FERC established a Joint Federal-State Task Force on Electric Transmission (Task Force) that will explore transmission related issues and collaborate on policy in this area. The Task Force is made up of the FERC Commissioners and 10 state public utility commissioner representatives from across the country.

The Task Force will hold its first meeting on November 10, 2021, in conjunction with the annual meeting of the National Association of Regulatory Utility Commissioners (NARUC). The Task Force meetings will be public, and all interested parties may submit proposed agenda topics and comments for discussion prior to the meetings in FERC Docket No. AD21-15.

FERC and NERC Release Joint Report on Solar Winds and Related Supply Chain Compromise

In July, FERC and NERC's Electricity Information and Analysis Sharing Center (E-ISAC) issued a report on the cyber event related to the Solar Winds Orion platform and related Microsoft 365/Azure Cloud compromise. The report discusses the event and recommends specific cyber mitigation activities to help protect the Bulk Power System from the risks posed by the event. In the report, FERC and the E-ISAC recommend numerous industry actions, including:

- Consider a systemic risk-based approach for protecting the most critical of the critical assets.
- Implement the National Institute of Standards and Technology (NIST) Cybersecurity Framework and baseline critical access and administrative privileges.
- Consider participating in the Cyber Mutual Assistance Program with peer utilities to ensure a collective response during cyber events.
- Exercise cyber and physical security response plans with third-party vendors, partners, and government.
- Review and update cyber plans, as necessary, to include Lessons Learned from these supply chain attacks.
- Consider conducting security assessments or penetration tests to ensure security baseline.
- Increase timeliness of voluntary reporting to the E-ISAC and CISA, as well as mandatory CIP-008-6 reports.

President Biden Nominates Willie Phillips to Fill Seat Left by Neil Chatterjee

Former Commissioner Neil Chatterjee left FERC at the end of August, and President Biden recently announced that he intends to nominate Willie Phillips to fill that vacant seat. Mr. Phillips has nearly 20 years of legal experience in the electric industry and currently serves as the Chairman of the Public Service Commission of the District of Columbia. Previously, he served as Assistant General Counsel for NERC and has worked in private practice advising clients on regulatory and policy matters.

Mr. Phillips is also active in NARUC, where he serves on the Board of Directors, as Chair of the Select Committee on Regulatory and Industry Diversity. He is also President of the Mid-Atlantic Conference of Regulatory Utility Commissioners (MACRUC).

President Biden's nomination announcement states "He has an extensive background in the areas of public utility regulation, bulk power system reliability, and corporate governance. As Chairman of the Public Service Commission of the District of Columbia, Willie was a thoughtful and innovative leader in modernizing the energy grid, implementing the District's aggressive clean energy and climate goals, and in protecting the District's customers."

Standards Update

This recurring column provides our Registered Entities with relevant and recent updates to the Reliability Standards and Requirements.

General NERC Standards News

NERC and EPRI Join Forces to Address Intersection of Reliability and Sustainability

On July 22, 2021, NERC and the Electric Power Research Institute (EPRI) announced an agreement between the parties to collaborate around addressing reliability and resilience challenges facing the grid in the transition toward lowering carbon emissions. This agreement is not the first between NERC and EPRI, as the parties have collaborated previously around grid innovation. NERC and EPRI will meet regularly to develop key projects, activities and industry forums.

NERC Releases 2021 State of Reliability Report

In August 2021, NERC released the 2021 State of Reliability Report, which is a detailed assessment of 2020 Bulk Power System Performance. This report details relevant 2020 events, grid performance data, and other reliability indicators. Additionally, the report reviews relevant reliability challenges and issues in order to provide policy guidance.

Notable NERC Filings

In June-August, NERC filed the following with FERC:

- On August 18, 2021, NERC submitted a petition for approval of revisions to the NERC Rules of Procedure (ROP) regarding Reliability Standards. Specifically, revisions to Section 300 Reliability Standards Development, Appendix 3B, and Appendix 3D.
- On June 30, 2021, NERC submitted a report to FERC titled "CIP-003-8 Electronic Access Controls Study." The report was completed as directed by FERC Order No. 843.

Notable FERC Orders

On August 24, 2021, FERC issued an order approving the "Cold Weather Reliability Standards." The approved standards include: EOP-011-2 (Emergency Preparedness and Operations), IRO-010-4 (Reliability Coordinator Data Specification and Collection), and TOP-003-5 (Operational Reliability Data).

Standards Update

New Standards Projects

New Standards projects are described on the NERC Standards website, along with links to all drafts, voting results, and similar materials. Please take note that some Enforcement Dates relate to specific requirements and sub-requirements of the Standard and are detailed below. Recent additions include the following:

Project	Action	Start/End Date
Project 2020-03 - Supply Chain Low Impact Revisions	Initial Ballot and Non-Binding Poll	10/01/21 - 10/11/21
Recent and Upcoming Standards Enforcement Dates		
July 1, 2021	TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events (Requirements 12 and 13)	
January 1, 2022	TPL-007-4 - Transmission System Planned Performance for Geomagnetic Disturbance Events (Requirements 6, 6.1-6.4, 10, 10.1-10.4); PRC-012-2 - Remedial Action Schemes (Requirement R9)	
July 1, 2022	PRC-002-2 – Disturbance Monitoring and Reporting Requirements (100% compliance for Requirements 2-4, 6-11)	
October 1, 2022	PRC-024-3 – Frequency and Voltage Protection Settings for Generation Resources; CIP-005-7 – Cyber Security – Electronic Security Perimeter(s); CIP-010-4 –Cyber Security – Configuration Change Management and Vulnerability Assessments; CIP-013-2 – Cyber Security – Supply Chain Risk Management	
January 1, 2023	TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events (Requirements R3, R4, 4.1, 4.1.1-4.1.2, 4.2, 4.3, 4.3.1, R8, 8.1, 8.1.1-8.1.2, 8.2, 8.3, and 8.3.1)	
January 1, 2024	TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events (Requirements R7, 7.1, 7.2, 7.3, 7.3.1-7.3.2, 7.4, 7.4.1-7.4.3, 7.5, 7.5.1, R11, 11.1, 11.2, 11.3, 11.3.1-11.3.2, 11.4, 11.4.1-11.4.3, 11.5, and 11.5.1	

These effective dates can be found here.

Watt's Up at RF
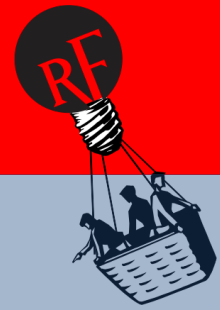
Align Update

Release 2

The recent focus of the RF and ERO Align Project team is the successful rollout of Release 2 (R2), which includes Technical Feasibility Exception (TFE), Periodic Data Submittal (PDS) and Self Certification functionality. Registered Entity training for TFEs was completed on July 14 and 20, and Registered Entities have begun to enter their existing TFEs into Align and associated documentation to the ERO Secure Evidence Locker (SEL). Completion of this work is expected by September 30.

RF will begin using the PDS functionality by October 1 with the Q3 Quarterly Vegetation Management Outage Reporting data submittal. Self-Certification functionality is also expected to begin use on October 1 with a CIP Low Impact Self-Certification for CIP-002 and CIP-003. RF Compliance Monitoring administrators will be providing information to our stakeholders about these compliance monitoring engagements in the near future. Related to the use of PDS and Self Certifications, please keep an eye out for new information about Registered Entity training events that will take place in mid to late September.

Release 3 and 4

Due to the complex nature of including audit, spot check, scheduling, IRA, COP and other functionality into Release 3 (R3), the project team, with the backing of the Steering Committee and NERC Board, has decided to break this project phase into two Align releases. R3, currently in development and beginning User Acceptance Testing in September, will include Compliance Audit/Spot Check and Audit Scheduling functionality. R3 is expected to Go-Live in late Q4 2021. Release 4, a new project phase, will include Inherent Risk Assessment, Internal Controls Evaluation and Compliance Oversight Plan functionality. This release will start development later in 2021 with a targeted Go-Live date of Q3 2022.

Resources

In addition to the new RF Align page, the NERC Align Project page and FAQ document also contain helpful information including a new Data Handling in Align and the SEL Guidance document. Self-service training resources provided for Registered Entity staff, including training videos and user guides, are available on the NERC Training Site.

As always, stakeholders are welcome to send comments or questions to AskAlign@nerc.net.

IMPORTANT INFORMATION

Align was opened to R2 functionality for TFEs starting July 19, 2021. Any Registered Entities with active TFEs should have already started entering (migrating) their active TFE data into Align and Secure Evidence Locker.

The deadline for the Registered Entities to complete their TFE data migration into Align is September 30, 2021.

If you have any questions pertaining to TFEs or require assistance with this effort, please contact Bob Yates, Principal Technical Auditor (CIP), or Scott Pelfrey, Principal Technical Auditor (CIP).

Watt's Up at RF

RF Protection System and Human Performance Workshops

RF would like to thank all the speakers and attendees who participated in our 7th Annual Protection System Workshop on August 11 and 4th Annual Human Performance (HP) Workshop on August 12. The events had more than 175 and 155 people in attendance, respectively, and this was the second year the events were held virtually with the usual full-day, in-person format converted to a half-day webinar. We hope everyone took away a few new tidbits to help with their everyday work!

Both of these workshops were organized and coordinated by the Engineering &

System Performance (ESP) department. Although virtual, the events provide an opportunity for Registered Entity personnel to interact with their counterparts by asking questions, learn new techniques and procedures, and share their real life experiences. If you have questions, need more information, have topic suggestions or would like to present at future workshops, please contact John Idzior, Thomas Teafatiller, or Johnny Gest.

All workshop materials and presentations are posted on the Workshop Materials & Webinars page of the RF website.

Protection System

The focus for the Protection System discussions this year was on activities around commissioning, like change management, validation of data, and integration of new technologies.

RF's Bill Crossland began the workshop by reviewing the latest Misoperation trends across RF and the NERC footprint. Michael Fleck (ITC) discussed the implementation of PRC-027 and a tool they are using to store information and aid in audits and internal controls reporting. Jim Kubrak (RF) presented some techniques used for the validation of Facility Ratings during commissioning and some common gaps to avoid. Eric Rosenberger and Horst Lehmann (PPL) gave an overview of their company's implementation of and technology being used for Dynamic Line Ratings. David Hislop (PJM) discussed the benefits and challenges of incorporating Dynamic Line Ratings in PJM operations, and Bill Crossland closed out the workshop with an overview of a joint FERC/NERC technical paper on commissioning of protection systems.

We appreciate the frank attendee feedback and are pleased that most attendees found the material useful and stated they would use it in their daily work. Each year we try to make this workshop even better than the previous, and your feedback goes a long way to help improve the experience.

Human Performance

The focus for this year's HP event was the use of a variety of approaches to reduce human error in dynamic environments.

RF's Johnny Gest opened the workshop by reviewing facility outage statistics which are caused by human error. Tanya Hickey presented the mental health strategy that Ontario Power Generation implemented in 2014 with a goal to improve employee health, engagement and productivity. This is multi-step process has produced significant cost savings, decreased absences and continues to grow and mature. Todd Brumfield (KnowledgeVine) provided an overview of the Edison Electric Institute (EEI) Serious Injury and Fatality (SIF) precursors. KnowledgeVine has developed a scorecard used to collectively identify the potential for a SIF before work begins. Sam Chanoski debuted the latest cybersecurity research from Idaho National Laboratory called Cybersecurity for the Operation Technology Environment (CyOTE). Its purpose is to develop a threat identification capability for energy sector asset owners and operators to independently identify indicators of attack within their operational technology networks. Dr. Michael Legatt (ResilientGrid) reviewed network modeling activities from a HP perspective. He shared several stories across multiple entities around HP issues noted in network modeling. Dave Sowers (KnowledgeVine) closed out the workshop with a presentation on remote working and how HP is affected when the humans are not around.

We were very pleased with all the positive comments from the attendee satisfaction survey, along with suggestions for future topics and outreach efforts. Each year we try to improve these workshops and the feedback received goes a long way to helping us in that process. A special thanks goes out to all those involved for their hard work in making these events a success.

Internal Controls Webinar Recap

Culture certainly isn't a new topic in corporate America, but exploring the relationship between culture and an Internal Control Program is an ERO first. Being the first at anything can be a bit nerve wrecking, so we're thrilled to report that our August 25th Internal Controls Webinar focused on culture was a hit!

The event was attended by nearly 300 people and addressed how and why the tone at the top, tone at the middle, and the acceptance throughout an organization is crucial for culture and internal controls to positively influence each other. This included discussing how a strong culture can drive the appropriate mitigation of risk, as well as reliability, resilience and security.

The event was spearheaded by former RF compliance auditor Denise Hunter, who moved into a new role as Director of Corporate Risk Management, Corporate Compliance & Ethics at NERC a few months prior to the webinar.

Rob Eckenrod, RF VP of Entity Engagement, kicked off the event with a discussion on the overall importance of culture and the broad impact it can have. Rob was followed by Karnail Singh from DTE sharing details of their NERC CIP Key Internal Controls Program and then Brian Riordan from FirstEnergy discussing their NERC Compliance Structure.

Before Denise closed out the webinar with a presentation addressing how much culture truly does matter when building and maintaining an Internal Control Program, the audience was treated to a panel discussion with an esteemed group of executives from the RF footprint.

Lisa Barton, Executive VP and Chief Operating Officer at AEP, Steve Herrin, Director of Information Protection & Security and Chief Information Security Officer at DTE, Bob Mattiuz, VP of Compliance & Regulated Services and Chief FERC Compliance Officer at FirstEnergy, and Jennifer Sterling, VP of NERC Compliance & Security at Exelon, shared their candid thoughts about all things related to culture. The conversation touched on who within an organization is responsible for culture, how and why to encourage and empower employees, the relationship between compliance and culture, and how to reinforce culture.

Thank you to all the fantastic presenters and panelists, and the presentation slides are available on the RF website. Please email Megan Baucco, Communications Manager, with any feedback about the event.

Lisa Barton   Rob Eckenrod   Steve Herrin   Denise Hunter

Bob Mattiuz   Brian Riordan   Karnail Singh   Jennifer Sterling

Watt's Up at RF

Fall Workshop Recap

How do we inspire industry to build sustainable programs to enhance reliability, resilience and security? Eight hours over two afternoons with 14 presentations from 27 speakers/panelists and hundreds of highly engaged audience members all adds up to an incredibly successful virtual event. RF's Annual Reliability and Compliance Workshop focused on Building Sustainable Programs took place Sept. 22 and 23 via WebEx, and we cannot thank all the contributors and attendees enough!

Aside from the virtual setting – that we hope will be back to in-person next year – we made another major change this year: integrating the CIP and Operations & Planning (O&P) content. In previous years, this workshop was always divided into one day for CIP presentations and a separate day for O&P, but we purposely moved in a new direction that reflects the shift from a strictly compliance-based approach to a risk-based approach. To drive home the point that it can be nearly impossible for everyone to work together if information is kept separate, the agenda featured joint presentations that gave both the CIP and O&P perspectives together.

Possibly the most memorable presentations were our two keynotes: Joanna Burkey, Chief Information Security Officer at HP, Inc., on Day 1 and Mark Hoog, President of Vector Academy, on Day 2. Joanna motivated the audience to advocate for the importance of their work by asking them, "So what?" When the ERO shines a light on risks and trends impacting reliability and security, we need to partner with industry to quantify the risk and identify mitigation strategies.

Mark's personal story and inspiring message of conscious leadership is anchored by his 30+ years as a United Airlines captain where he laid the foundation for later teaching companies in high-risk fields about safety and human error risks. With audience feedback like "first time I have wept at a workshop like this" and "words cannot express how powerful your presentation was – I'm so grateful for the opportunity to experience it," it's safe to say Mark left a lasting impression.
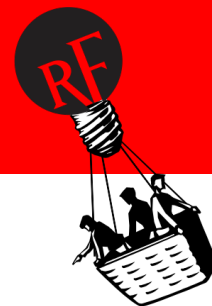
With presenters representing all areas of the ERO and RF footprint, the entire event was a wonderful example of industry collaboration. Setting the stage for the sustainable programs theme, Scott Nied from NPCC highlighted the ERO Enterprise Golden Circle and purpose, and RF Compliance Monitoring Managers, Zack Brinkman (CIP) and Jim Kubrak (O&P), elaborated on the benefits of sustainable programs. Jennifer Burke and Matt Guarneri from Exelon shared details of their recent EMS upgrade, and Kyle Down from PSEG and Jim Ruddell from PJM explained the importance of technical controls in building sustainable mitigation plans during a panel discussion with RF's Mike Hattery. Day 1 also included joint CIP and O&P presentations on CIP-012 featuring Lew Folkerth and Mike Hughes from RF, Tom Foster from PJM, and Brian Kiefer and Brian Scalf from MISO; plus a behind-the-scenes look at the Engagement Scoping Process with Ryan Mah and Curtis Crum from RF.

Day 2 kicked off with RF General Counsel and VP, Niki Schaefer, explaining her vision for RF's CMEP team including her three pillars of sustainability: being risk-based, credible, and building relationships. The pertinent topic of Facility Ratings was addressed by sharing perspectives from both the ERO and from industry – SERC's Joel Rogers reviewed ERO expectations and Lessons Learned, and Duquesne Light Co.'s Joe Pilch shared details of their Internal Controls Program. This was followed by an informative CIP-013 panel discussion on building a sustainable Supply Chain Program with Lee Felter from MRO, Jordan Kethley from Texas RE, Holly Peterson from WECC, and moderated by RF's Scott Pelfrey. The workshop closed out with an overview of CIP-014-2 R1 Risk Assessments from NERC's Jamie Calderon, and then an introduction to RF's innovative Community Appraisal Project from Brian Hallett.

The Day 1 presentations and Day 2 presentations linked here can also be found under the Reliability Workshops tab on the Workshop Materials & Webinars page of our website. Also, we want to hear your thoughts about the event! Please reach out to Megan Baucco, Communications Manager, with any feedback.

RELIABILITY FIRST
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2021 Reliability and Compliance Workshop

September 22-23, 2021

Forward Together RF ReliabilityFirst

Ray Sefchik Retires from RF

The entire RF team would like extend our warmest wishes for a long, healthy and happy retirement to Ray Sefchik! Ray is retiring as the Director of Entity Engagement, responsible for the engagement and outreach activities focused on RF Entities and stakeholders, and he has been an integral member of the RF management team for 10 years.

Ray joined RF in 2011 as the manager of the CIP Compliance Monitoring team. Prior to that role, he managed Risk Analysis and Mitigation, Entity Development and Events Analysis, Situational Awareness (EASA).

Among his many valuable contributions to the development of RF's teams and services, Ray helped originate the RF EASA program, which promotes a structured, collaborative approach to identifying root and contributing causes of BES events and disturbances, as well as any lessons learned. Also, his work to further educate Entities on the complexities around all things relating to CIP, especially when the ERO transitioned from CIP V3 to V5, will have a lasting impact on the industry overall.

In addition to his positions of increasing responsibility during his RF tenure, Ray played an essential role in planning and launching the Align Project. Formerly known as the CMEP Technology Project, Align is a culmination of strategic efforts that began in 2014 with the goal of improving and standardizing processes across the ERO Enterprise.

Ray previously worked at the Midwest Reliability Organization (MRO) as the Manager of CIP Compliance. Before RF and MRO, he was employed by FirstEnergy Corp., in Akron, OH, as a Senior Security Analyst for five years and was responsible for Enterprise and Business Unit, specific cyber security architecture, governance, and compliance activities.

Prior to his work in the Electric Utility Industry, Ray was employed by Lockheed Martin IT and other federal government contractors for 14 years in support of NASA Agency IT initiatives.

Additionally, Ray has 34 years of experience in Information Technology Operations, Systems Integration specializing in security, networking and telecommunications. He holds a CISA, CISM, and CISSP Auditing and Information Security Certifications and is an active member of the ISACA, (ISC)2 and InfraGard organizations.

You will be greatly missed, Ray!

Watt's Up at RF

Technical Talk with RF

RF offers a regularly scheduled monthly call to provide Entities and stakeholders with a forum for addressing topics and questions relevant to reliability, resilience and security. These calls are held on the third Monday of each month from 2:00 to 3:30 p.m. EST.

New Date: The October 11 call is one week earlier than our regular schedule to accommodate GridSecCon.

In addition to compliance-related content, these calls cover other risk areas, such as cyber security, misoperations, situational awareness and much more. Please invite your Operations, Planning, Cyber, Design, IT, and/or Maintenance personnel, if you see an agenda topic they would be interested in!

October 11 Agenda Topics

Align Update

Tony Jablonski – Manager, Risk Analysis and Mitigation (RAM)

- This update is especially relevant for Primary Compliance Contacts (PCC) and their alternates who are responsible for using Align and the Secure Evidence Lockers.

Self-Certifications for Operations and Planning (O&P) Standards

Beth Rettig – RF Senior Technical Auditor, O&P Compliance Monitoring

Mike Hughes – RF Principal Technical Auditor, O&P Compliance Monitoring

- The O&P Compliance Monitoring Team will discuss how they implement self-certifications into their engagement schedule for next year as part of our risk-based approach to compliance monitoring.
- This presentation is especially relevant for PCCs and their alternates who are responsible for working with the SMEs to assess compliance with the Standards.

Field Walk-downs for Facility Ratings (FAC-008) and Vegetation Management (FAC-003)

Beth Rettig, Mike Hughes and Curtis Crum – RF Principal Technical Auditor, O&P Compliance Monitoring

- When it is safe to go on-site, field walk-downs will be incorporated into the O&P audits to enhance learning, transparency, and build relationships with those performing the work. This is an opportunity for Entities to show off their programs, provide demonstrations, and provide reasonable assurance that procedures are being implemented.
- This presentation is especially relevant for both compliance personnel and SMEs who are responsible for facility ratings and vegetation management.

Recent Presentations

In case you missed the July, August or September calls, or would like to reference the slides, the materials presented are posted on the RF website.

- PRC-027-1 Overview (July)
- ERO Enterprise CMEP Practice Guide – Network Monitoring Sensors, Centralized Collectors, and Information Sharing (July)
- Security Integration and Technology Enablement Subcommittee (SITES) (August)
- FERC and ERO Enterprise Joint Report on Real-time Assessments (RTAs) (August)
- Florida Power and Light (FPL) Emergency Preparedness and Response (September)
- Vegetation Management Update (September)
- Align presentations from July, August and September under "Align Updates" tab at bottom of page

Calendar of Events

The complete calendar of RF Upcoming Events is located on our website here.

Date	RF Upcoming Events - All 2021 Events will be conducted virtually
October 11	Technical Talk with RF
November 15	Technical Talk with RF
December 1	Board of Directors and Committee Meetings
December 2	Annual Meeting of Members and Board of Directors Meeting

Industry Events

Date	Industry Upcoming Events
October 3	NERC Human Performance in Electric Power - Virtual Session #3
October 12	FERC Technical Conference Regarding Energy and Ancillary Services Markets
October 18	PJM MC Information Webinar
October 19	MISO Informational Forum
October 20	PJM Markets & Reliability Committee
October 21	FERC Monthly Open Meeting
October 28	MISO Reliability Subcommittee Meeting
November 3-4	NERC Board of Trustees Meeting
November 15	PJM MC Information Webinar
November 15	FERC Technical Conference on Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection
November 17	PJM Markets & Reliability Committee
November 18	FERC Monthly Open Meeting
December 2	NERC Human Performance in Electric Power - Virtual Session #4
December 7-9	MISO Board of Directors and Committee Meetings
December 16	FERC Monthly Open Meeting

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