RELIABILITY FIRST

Issue 1
2021 Q1

RF

ReliabilityFirst Corporation
3 Summit Park Drive, Suite 600
Cleveland, OH 44131
Main Phone: (216) 503-0600
Website: www.rfirst.org

Follow us on:

Note from the President

Dear Stakeholders,

After a year like 2020, it can be especially helpful to take stock of what you accomplished, where you are today, and where you want to be tomorrow. For a comprehensive snapshot of RF's activities last year to carry out our mission of preserving and enhancing the reliability and security of the bulk power system, please take a look at our recently released Annual Report.

Where we are today is that RF is still successfully operating under our business continuity plan, and we are eager to get back to the office – hopefully this summer with the guidance of our Pandemic Response Team.

For continued success in 2021, there's much work to be done addressing constantly evolving threats, as well as many encouraging efforts on the horizon. The ERO Enterprise has been building up to the Align project rollout for some time, so it's gratifying that our friends at MRO and TexasRE begin piloting the tool this week. Please visit our new Align page for details about the RF rollout beginning on May 24, registration links for the necessary training and more.

We have been proud of our focus on innovation for many years at RF, and our efforts have evolved to a point where we can best serve our stakeholders by choosing a single, important topic to focus this forward-thinking work. Currently, that topic is culture because it truly influences every aspect of a business.

If you haven't given much thought to your organization's culture, I encourage you to start because it's especially important in industries like ours where compliance is critical. Healthy culture can mitigate reliability risks, as well as set an organization's guiding values and create an ethical climate. We look forward to collaborating with our entities to gain a better understanding of how culture can impact reliability, resilience and security performance.

Another thing to look forward to this year is our excellent schedule of events. Our Enforcement Updates and Trends Webinar on April 29 will review where we are seeing increases in moderate and serious risk violations, as well as some trending root causes. Additionally, we have targeted webinars and workshops planned for this summer focused on operational resilience, internal controls and networked risk assessment.

As we closed out last year with gratitude for our departing Board members, I'm pleased to give a warm welcome to our three new Directors. Jason Marshall from WVPA, Rachel Snead from Dominion Energy Virginia and Antonio Smyth from AEP bring with them valuable knowledge and expertise that will certainly benefit our footprint and the entire ERO.

Be safe and be well.

Forward Together,

Tim

Forward Together **RF** **ReliabilityFirst**

From the Board

RF is excited to welcome three new members to the Board of Directors for 2021: Rachel Snead, Jason Marshall and Antonio Smyth. Rachel and Jason are featured in this newsletter, and Antonio will be featured in an upcoming issue.

Rachel Snead is the Director, NERC Reliability Compliance & NERC Policy for Dominion Energy Virginia. She will represent the Supplier Sector on the Board until 2023.

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

I am a Virginia native and both my education and career have kept me close to home. I am a graduate of James Madison University with a Bachelor of Science and hold an MBA in Corporate Finance from Virginia Commonwealth University. I began my 15-year career in the utility industry at Dominion Energy, Inc. where I started as an intern and am currently the Director of NERC Reliability Compliance and Policy. I have held a number of positions at Dominion Energy in Environment and Sustainability, Power Delivery, Corporate Public Policy, Alternative Energy Solutions, Generation System Planning, Gas Regulation Pricing, Integrated Resource Planning, and Human Resources. Dominion Energy is a public utility holding company that owns and operates approximately 30,700 MWs of generation, 95,400 miles of electric transmission and distribution lines located across the United States.

What sparked your interest in joining the RF Board?

My team is responsible for Electric Transmission Electric Reliability Organization (ERO) compliance, as well as corporate NERC regulatory policy efforts. This includes working with not only NERC and RF, but the other Regions Dominion Energy has Registered Entities in, including WECC, SERC, and NPCC. By developing a collaborative relationship with our regulators, entities can help achieve the mission of the ERO in not only maintaining but enhancing the reliability and security of the bulk power system. The success of the ERO relies on developing and maintaining active collaboration on the dynamic reliability and security challenges and opportunities that we all face on a daily basis.

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

Since I have a unique background with positions not only in compliance but throughout the many electric and gas business areas at Dominion Energy, I hope to use my broad knowledge and experience to assist with some of the issues facing the ERO, such as the changing resource mix, gas/electric collaboration, and the evolving technology that is so critical to our industry. The fast pace of change makes it imperative that we have a broad understanding of both internal and external factors impacting the reliability and security of the grid. Flexibility and the ability to be nimble are crucial to navigating the changing landscape of the power grid.

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

I am excited about the opportunities that emerging technologies offer for our industry. New possibilities for the digital grid are appearing at a rapid pace, from new electric technologies such as energy storage and distributed energy resources to virtualization and cloud storage. The opportunities to enhance customer value, reliability, and security continue to present themselves and push the industry to places we never would have envisioned 20 years ago. Not only do emerging technologies impact how we do business, but it also is changing the consumer and their needs. Electric cars and virtual meetings are becoming more prevalent, requiring utilities to modify their thinking and the services they provide. Micro-grids, smart homes, and increased telecommuting are changing the world we live in and are forcing us to change the way we deliver our products and services, including power, to our customers.

ReliabilityFirst

Board of Directors

and Committee

Meetings will be

held virtually on

June 16-17, 2021

Click here for details

Jason Marshall is the Executive Vice President, Transmission & Regulatory Affairs for Wabash Valley Power Association (WVPA). He will represent the Small LSE Sector on the Board until 2023.

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

I have a B.S. in Electrical Engineering from Rose-Hulman Institute of Technology and went on to earn my M.S. in Electrical Engineering from Clemson University and an MBA from University of Indianapolis. I am also a licensed professional engineer in Indiana and North Carolina.

I began my career with Duke Power Company (now Duke Energy) in their Charlotte office working in bulk power operations for about five years. After that, I worked as a reliability coordinator for MAIN Coordination Center, which is one of the old Regional Reliability Organizations. I then spent nearly a decade in operations engineering and NERC Compliance at MISO where I participated in establishing the transmission tariff, ancillary services and energy markets. Prior to joining WVPA in 2017, I started a new NERC Compliance Service for ACES to assist members with their compliance programs. I was eventually promoted to VP gaining responsibility for all regulatory services, including following and advocating for ACES members in every major energy market in the U.S.

I have served on the NERC Member Representatives Committee (MRC) since 2011 where I served as the Chair in 2018 and Vice-Chair in 2017. I was also a member of the SERC Board of Directors from about 2011 to 2020.

What sparked your interest in joining the RF Board?

I have been interested in reliability for my entire career and have been involved as a stakeholder on many NERC committees and working groups. I remember the days when we had NERC policies and no enforceable standards. One of my first assignments as a young engineer was to lead our conversion of AGC control from the old A1/A2, B1/B2 guidelines in the NERC policies to the new Control Performance Standards. Because I have been directly involved with reliability throughout my whole career, serving on the RF Board feels like a natural extension.

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

Since I have served on the NERC MRC and SERC Board, I understand the reliability issues facing the industry and am confident I will be able to contribute to the RF Board's efforts right away. I also understand the tools that are available to RF to address these reliability challenges.

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

Cyber security is an obvious top priority, as well as one of the biggest challenges, because the threats are constantly evolving, and the playing field unfortunately is skewed in favor of the attacker. We have to successfully defend every attack, but our adversaries only need to win one attack to get a foothold. If an attack doesn't work, they try something different.

Critical infrastructure interdependencies is another priority. Recent events have only highlighted the interdependencies between natural gas and electricity.

An additional important area of focus is preparing for a transformation of the resource mix. This transformation is accelerating, and there is obvious pressure to speed it up.

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

Building transmission excites me. When I started my career, there was very little transmission being built, and I remember wondering when we would build more. That obviously has changed tremendously over the last 25 years.

Are you involved in any other activities outside of work?

I am a family man with two daughters who are nearly grown. My wife and I are trying to invest as much time with them as we can while they are still home because we will be empty nesters in the fall when the youngest heads off to college. I am an avid cyclist and try to ride as much as family and professional commitments, and the Central Indiana weather, will allow.

Continuous Improvement: Vegetation Management

By Sam Ciccone, Principal Reliability Consultant

The Journey to Security, Resiliency and Reliability

"Time spent amongst trees is never wasted time" – Katrina Mayer

It's not uncommon for your organization's bottom line to be a focal point of conversations about vegetation management. Continuous Improvement (CI) concepts can be a valuable tool in providing structured ways to improve your programs — which can also improve your bottom line.

Using the important risk area of vegetation management as an example, we will examine how utilizing the DMAIC (Define, Measure, Analyze, Improve, Control) approach to CI can set you up for success in addressing challenges and implementing improvements to your Utility Vegetation Management (UVM) program.

Previous articles have discussed the DMAIC approach, but what about the human side? Can the implementation of improvement initiatives be successful without human buy-in, especially during the Improve and Control phases of DMAIC?

This article goes one step further to explore the benefits of introducing a change management approach – like the ADKAR (Awareness, Desire, Knowledge, Ability, and Reinforcement)[1] change method – to address the human side in our quest for CI.

---

[1] ADKAR: A Model for Change in Business, Government and our Community

Vegetation Management Challenges and DMAIC

The 2003 blackout forced the industry to evaluate its operational practices. It highlighted UVM challenges, such as:

- **Costs** – UVM is one of the most expensive maintenance activities for Entities. If the funds are not there, the program suffers. UVM budgets are generally at risk during year-end initiatives and project funding reprioritization.

- **Pests** – The Emerald Ash Borer causes significant tree damage, making them structurally unsound and unsafe to remove. This requires more precautions, thus proving more costly.

- **Personnel** – It is increasingly difficult to find personnel willing to work in this field. Utilizing a contractor workforce introduces external risks and potential issues with training and quality of work.

- **Landowners** – Landowner education is critical to combat misinformation about UVM programs. Landowners often object to utilities entering their property to prune or remove vegetation.

DMAIC includes five steps that help remediate challenges and lead to improvement. How can this concept bring value to your UVM program?

Step 1

Define the issue, such as pest control. What types are there and where are they prevalent? Don't forget that "Define" includes targeted risk thresholds but also stretch goals for opportunity and profit.

Steps 2 & 3

Measure and **Analyze** the data, such as outage information, various vegetation growth rates, soil information, geographic location and mitigation cost differential.

Step 4

Prioritize and implement **Improvements** uncovered by the process; and then

Step 5

Control those improvements through sustainability, producing a cycle of CI.

Through DMAIC you have identified ways to improve the challenges, including:

- **Costs** – Implement competitive bid processes to drive down program costs, add risk ranking tools to mitigate identified hazards/risks, and continuously seek cross-departmental efficiencies.

- **Pests** – Use this as an opportunity to educate all stakeholders, including Public Utility Commissions/Public Service Commissions, about increased costs for mitigating risks associated with unplanned, unforeseen pests and the need for research and funding.

- **Personnel** – Tap into vocational schools to recruit new talent, and champion training and certificate programs in the UVM field.

- **Landowners** – Educate landowners about the issues prior to vegetation maintenance. This develops a rapport and common ground, allowing the Entity to proactively remove unhealthy and unsafe vegetation.

The DMAIC/ADKAR Connection – Implementing Improvement Initiatives from a Human Standpoint

Once improvements are identified, how do you implement the changes during the Improve and Control steps? Could it be useful to employ a change management concept, such as ADKAR, to address the human side of change?

According to Ric McCormick, special guest author for the Change Management Learning Center, there is a link between DMAIC and ADKAR.[2] He ties DMAIC's Define step to ADKAR's Awareness step, Measure and Analyze to Desire, Improvement to Knowledge and Ability, and Control to Reinforcement. Let's examine how addressing UVM challenges through the lens of the ADKAR approach can assist in successfully implementing improvements.

---

[2] How Change Management Fits with Six Sigma Success

- **Awareness** – All stakeholders must have clear awareness of the issues. For example, most remember the 2003 blackout, but it was a long time ago.

- **Desire** – Even though stakeholders are aware of the issues, the desire to contribute to the changes includes the question "What's in it for me?" Are there added incentives, such as bonuses for meeting specific KPIs, increased safety, and protecting your company's reputation by avoiding a blackout? How can landowners be incentivized?

- **Knowledge** – This involves training and awareness on new UVM practices, as well as encouraging stakeholder involvement in the process from the start.

- **Ability** – Now that the knowledge is ingrained, is the ability there? Has the Entity provided tools for safer and more effective maintenance? Are some personnel not able to implement the improvements due to issues like force of habit? Again, ADKAR delves into human change, so even issues going on in their personal lives can be a factor.

- **Reinforcement** – Like the Control stage of DMAIC, ADKAR's last step is Reinforcing the change. Leadership must be aware of

variations in acceptance of the new processes. When this happens, reinforcement is paramount. This includes providing ownership of the process all the way down to the folks in the field, as well as providing additional incentives that might include company recognition.

Reduce Costs through Vegetation Management Improvement

UVM CI also should improve your bottom line through improved processes. There are innovative ways to reduce costs or even discover opportunities. ADKAR may even drive culture change that does not currently use the Define stage in DMAIC for both risk and reward. Here are a few interesting examples on how UVM can reduce costs:

Right-of-way (ROW) Opportunities

Exploring opportunities to transform ROW's from traditional maintenance programs (e.g., mowing, herbicide) to establishing allelopathic vegetation (i.e., vegetation that affects the development and growth of neighboring plants through the release of chemicals into the environment) is one opportunity to experience long-term positive maintenance cost return on investment. As Robert Richens, former president of the Utility Arborist Association, says, "the ROW corridor can be transformed into environmentally sustainable habitat."

He goes on to say that "Utility ROW corridors provide utilities with a huge opportunity to aid pollinators and other species on an unprecedented scale across every state and province in North America in a highly visible way, often in partnership with other stakeholders such as government agencies and nonprofits."[3]

Using a Risk Based Approach

An Entity can use risk ranking tools that include data, such as tree species, soil information, wind direction, etc., to prioritize the removal of identified hazard trees. Tom Martin, E Source's Vice President of Product, Data Science Division,

estimates that, "utilities that take a risk-based approach to vegetation management typically see a 10% to 20% reduction in operating costs, with no negative effects on safety or reliability. [This] approach will help you dramatically reduce the amount you spend on expensive data-collection methods, and some utilities are even able to fully fund their data-science-based optimizations with the money they save by reducing the number of expensive LiDAR scans."[4]

Conclusion

This article touched on UVM challenges, the CI concept DMAIC, and the change management concept ADKAR. DMAIC helps identify improvements, while ADKAR can drive successful implementation of the improvements from a human side, both with internal and external stakeholders. Significant improvements can only be realized and sustained with solid change management that is appropriate for your situation. Identified improvements can also improve your bottom line.

For more information on CI and Change Management, I encourage you to read more about these concepts, as there is a plethora of information out there. To learn more about how RF can assist you in your CI journey, please contact our Entity Engagement department.

---

[3] A Green ROW Can Save Both Money and the Planet
[4] Cut costs and improve grid reliability with data-driven vegetation management

Get Control of Yourself: Sometimes You Need a Nudge

By Denise Hunter, Principal Technical Auditor

A paradigm shift is a major change in how something is performed or accomplished. In fall 2014, RF announced that a paradigm shift was coming regarding the transition from a compliance-based oversight process to one that is risk based. Numerous presentations and "Get Control of Yourself" newsletter articles followed—either addressing what a risk-based approach looks like and entails or providing guidance on activities that should occur within a risk-based environment.

RF introduced internal control conversations during engagements in 2018. Initially these conversations consisted of simply discussing controls we saw and inquiring about others. The process matured to assessing design. Following the 2020 RF Internal Controls Workshop, we determined that many organizations had embraced the concept and it was time to fully implement the program, thus including discussions around risk identification and control effectiveness. The next month, COVID-19 rolled in. We postponed taking that next step, but we continued conversations and plans to initiate the full program review later. During this time, we focused on determining likely pain points for any Entity just getting started in the process. We identified that simply knowing how and where to begin is often a hurdle.

If you're familiar with any of RF's internal controls guidance or materials, you know how important it is to ensure that the cost of an internal control should never exceed the benefit. In order to determine where to focus your resources, you must first determine where your risk lies. Before we go on, it is essential to understand that the risk I am talking about is your overall risk to the grid, not only your compliance risk. A fully functioning internal control program is a system of systems. Therefore, in order to gain the full strength and benefit, you must mitigate all your organization's risk.

Where and Why Should You Start?

Considering that we've all been assigned to ensure the reliability, security and resilience of the grid, we felt it prudent to start there—and the one constant we know applies to all of us is the ERO Compliance Monitoring and Enforcement Program Implementation Plan (CMEP IP) and the ERO Risk Elements.

The CMEP IP defines the risk elements as "…ERO-Enterprise-wide risks to the reliability of the BPS and mitigating factors that may reduce or eliminate the impacts from a given reliability risk."[1] This idea has been included in presentations, assist visits, one-on-one conversations, during engagements, and basically everywhere the opportunity arose.

During all these efforts and opportunities, we realized that with change, sometimes you need a nudge…thus the introduction of the Risk and Control Entity Profile Questionnaire (EPQ) question.

Now that you have the background, I'm guessing your next question is "What's in it for me?" There are numerous benefits, but to gain an understanding of the importance, I will provide an example. Our industry has an aging workforce, and with that a wealth of information that soon will be walking out the door for

Nudge

Make an active decision

Richard H. Thaler

---

[1] 2021 ERO Enterprise Compliance Monitoring and Enforcement Program Implementation Plan, pg 7 Process for Risk Elements and Associated Areas of Focus

the last time. We all discuss the need to capture that "tribal knowledge" but often can't figure out how. If you ask those amazing longtime employees what they know, they often reply that they don't do anything special. They may tell you they just keep the grid up and just know what to do when the moment presents itself.

Without focusing the questions or risks, the concept of identifying what needs to happen is beyond human capability. We need a more focused process. Internal controls are that process. Involve those experienced individuals as you design and document your controls. Oftentimes a control applies to event-driven activities (i.e., investigating an event), and it can be difficult to identify the information to capture. For those types of controls, it's impossible to capture everything. But those amazing employees can identify the "trouble areas," or areas to start the investigation, because they know their portion of the grid like it's part of their family.

You can capture that and provide the control documentation with a place to start or areas to consider. By tapping into this knowledge during the design phase, you will develop controls that are consistent and sustainable, which creates an environment where someone with little industry knowledge has the tools needed to quickly become a functioning asset.

What We've Heard from You

I'd like to address two related questions we've heard from Entities: what if the control questions are beyond the maturity of my program, and what is RF going to do with this information?

The EPQ questions regarding internal controls were written that way by design. We knew there was a very good possibility that some of the questions would be beyond the maturity of some Entities' programs. We decided to include them for two reasons. First, if an Entity's program already included that information, it would give them the opportunity to inform RF, and even if they weren't prepared to submit any evidence to that fact, we could have meaningful conversations with them during any engagements.

Second, if an Entity's program wasn't at that maturity level, we hoped the questions would help "feed the design." The drop-down list of options was intended to provide a few ideas as to what the control activity should include.

Finally, what will RF do with this information? RF uses this information in a number of ways. One is that the Risk Analysis and Mitigation (RAM) department is working toward incorporating this information into the Compliance Oversight Plan (COP). A number of factors are included in that process, and this information is one area.

Additionally, our conversations regarding internal controls are focused on this information, such as design, consistency, and monitoring activities. Therefore, we wanted to give you some guidance on what your controls should consider.

A strong internal control program will help your organization identify gaps and gain efficiencies. How you design your program is the key to your success.

I hope I've answered your questions regarding the Risk and Control EPQ question. RF created an [EPQ FAQ](EPQ%20FAQ) for your reference, but please email any additional questions to entityprofile@rfirst.org

Until next time, be kind to each other and get control of yourself!

The Seam

By Midcontinent Independent System Operator (MISO)

MISO'S Response to the Reliability Imperative

Our nation's electric system is changing at an unprecedented pace, driven by changing economics, climate concerns, technology innovation and customer preferences. The generation fleet is transitioning away from traditional thermal-based generating units toward renewable sources, such as wind and solar, and toward more storage and distributed energy resources (DERs). This will create challenges for the entire Midcontinent Independent System Operator (MISO) region. Utilities, states and MISO all have roles to play to address these challenges. MISO calls this shared responsibility the "Reliability Imperative."

For system operators like MISO this creates both challenges and opportunities. However, our mission has not changed – to efficiently ensure the reliability of the bulk electric system. To ensure continued achievement of this mission even as the landscape changes dramatically, MISO recently published a report on our response to the "Reliability Imperative." This report discusses the challenges facing the region and potential solutions.

What is the Reliability Imperative?

The rapid change occurring as our states and members transition their fleets will impact all of MISO's primary functions – planning, markets and reliable operations. The broad range of coordinated and related efforts we are pursuing to ensure the system remains reliable as the region's generation and transmission resources continue to evolve make up MISO's response to the Reliability Imperative. The work we are doing under the umbrella of the Reliability Imperative seeks to

mitigate the challenges and also leverage the opportunities that are presented by the changes transforming our region. This work also supports the states and asset owners in our region as they invest in the kinds of energy infrastructure that best suit their business needs and policy objectives.

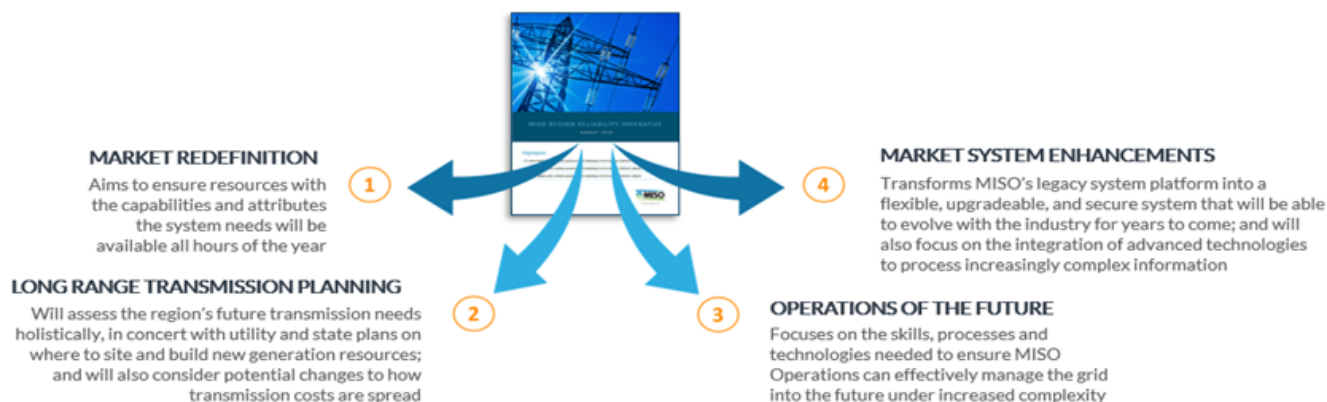**Why do we call it a Reliability Imperative?**

We call it an imperative for three main reasons:

1. The work we're doing is not optional—to maintain reliability of the system, we must anticipate and adapt to the unprecedented change we and our members face.
2. This work can't be put off for months or years—much of this work has long lead times, so we need to take action now.
3. MISO is positioned to lead the way —as the nation's geographically largest and most diverse system operator, we are working with our members, state regulatory agencies, utility executives, and other stakeholders in our region to identify problems and find solutions.

We must evolve our markets, operations and system planning to support investment and retirement decisions that the states and utilities in our region are making today, while maintaining system-wide reliability and efficient operations going forward. The energy transition is happening fast, and MISO is planning for what's ahead.

MISO is working closely with stakeholders to identify, design, and implement the Reliability Imperative. By doing so, we can continue to operate the system reliably and efficiently while also supporting the differing utility business models and state energy policies in our region. As we learn more and continue to respond to the changes, we will be updating the "living" report to document and share our findings and recommendations.

MISO's Reliability Imperative "living" report can be found here.

MARKET REDEFINITION
Aims to ensure resources with the capabilities and attributes the system needs will be available all hours of the year

LONG RANGE TRANSMISSION PLANNING
Will assess the region's future transmission needs holistically, in concert with utility and state plans on where to site and build new generation resources; and will also consider potential changes to how transmission costs are spread

MARKET SYSTEM ENHANCEMENTS
Transforms MISO's legacy system platform into a flexible, upgradeable, and secure system that will be able to evolve with the industry for years to come; and will also focus on the integration of advanced technologies to process increasingly complex information

OPERATIONS OF THE FUTURE
Focuses on the skills, processes and technologies needed to ensure MISO Operations can effectively manage the grid into the future under increased complexity

The Lighthouse

By Lew Folkerth, Principal Reliability Consultant

Using Advanced IT Technologies in an OT Environment Part 1 - Principles

The Difference between Information Technology (IT) and Operational Technology (OT)

For the purposes of this discussion, I'll say that IT is the set of computing resources that deals with information, finances, inventory management, human resources, business processes – almost anything to do with a business and how it is managed falls into this category. One of the main concerns within an IT environment is cost of ownership, which drives return on investment.

In contrast, OT is the set of computing resources and devices that monitor and control equipment. Sensors might monitor temperature, voltage, current, pressure, fluid levels or other parameters. Actuators can be used to control equipment from afar, without human presence. In the area of the NERC Reliability Standards, OT encompasses all Cyber Assets subject to the CIP Standards. The primary concerns of OT are reliability, resilience and security.

Lew's Principles for Adopting IT Technologies in an OT Environment

This is the first in a series of articles where I will discuss adopting technologies developed for IT environments into your OT environment.

I'll start by suggesting some core principles to apply to the analysis of IT technologies that are new to an OT environment.

1. Clearly identify the IT technology to be implemented

In order to effectively assess a

Cooper Harbor, MI – Photo: L Folkerth

technology for implementation in an OT environment, you must clearly understand the technology you will be implementing. Each technology has its own vocabulary, core concepts and principles. You need to review vendor claims and determine the parts of the technology that will be useful. Your entity must have a subject matter expert (SME) who understands the technology and can apply that knowledge to your environment.

As an example, let's say you plan to implement cloud computing in your Control Center. Rather than making such a broad statement, it might be better to say that you will implement a private cloud infrastructure to be contained wholly within the Electronic Security Perimeter. A private cloud is a type of cloud computing that does not carry all of the risks of a public cloud implementation. By using the more specific language, you have better defined the expectations of management and compliance staff.

2. Objectively assess the benefits

Any new IT technology will have obvious benefits in the IT environment, or you wouldn't be considering it for the OT environment. But take a close look at the technology from an OT perspective. Will the new technology improve reliability? Resilience? Security? If so, try to quantify your expectations. If not, why are you adding complexity for no operational benefit?

Be careful of vendor claims of benefits and performance. Remember that these vendors are generally selling into the IT market where reliability concerns are not as important. A 30-minute server outage in the IT environment is not usually a major concern, but a 30-minute SCADA outage is a reportable event. Once you've identified and quantified the potential benefits, make sure those benefits can be realistically achieved.

You might identify cost savings and reliability improvements from a private cloud implementation, for instance. Your staff will need full training on this technology prior to implementation. Also, don't neglect the ongoing skills maintenance needed to keep your staff fully effective in maintaining the new technology. Be sure to consider any actions needed to retain your now more-qualified staff. Factor these and other costs into the cost/benefit analysis. Providing the necessary training may erode the cost benefits, but if you don't train your staff, you will forfeit reliability benefits.

3. Objectively assess the risks

Any new technology will likely present new or heightened risks to your OT operations. You will need to identify and assess those risks and determine how to address them. Be sure you're assessing risks in the OT context – reliability, resilience and security. You should also include compliance risk in terms of the enforceable language of the NERC Reliability Standards and any other applicable standards. If the technology could increase the likelihood of a compliance violation, that should be factored into the decision. Also include in your assessment any side effects of implementing the technology, such as generating unit downtime.

In our private cloud example, be sure to contain the private cloud within an Electronic Security Perimeter if the cloud will be hosting high or medium impact BES Cyber Systems. If you are using or considering advanced technologies, such as a private cloud, you should be actively involved with the development efforts for the CIP Standards. See the NERC Reliability Standards under Development webpage for more information.

4. Perform a risk/benefit analysis in addition to a cost/benefit analysis

Most businesses require a cost/benefit analysis in order to make a procurement. In an OT environment you should also perform a risk/benefit analysis. In other words, do the benefits of the new technology justify the additional risk? Add the cost of mitigating the identified risks to the cost/benefit analysis. Make sure you include the cost of new and ongoing training and credential acquisition and maintenance for your staff. Factor retention of staff into both the risk/benefit and the cost/benefit analyses.

Review the risk/benefit analysis to ensure that the new technology improves the reliability, resilience and/or the security of the operation without impairing its compliance posture.

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.

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.

Regulatory Affairs

New FERC Chairman and Commissioners

On January 21, 2021, President Biden appointed Richard Glick as the new Chairman of the Federal Energy Regulatory Commission (FERC). Chairman Glick joined FERC as a Commissioner in November 2017 after serving as general counsel for the Democrats on the Senate Energy and Natural Resources Committee. Prior to that, he was vice president of government affairs for Iberdrola. He also served as a senior policy advisor to U.S. Energy Secretary Bill Richardson, as well as legislative director and chief counsel to U.S. Senator Dale Bumpers of Arkansas.

Additionally, there are two new Commissioners at FERC: Mark Christie and Allison Clements. Commissioner Christie was sworn in on January 4, 2021, and Commissioner Clements was sworn in on December 8, 2020.
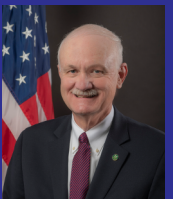
Commissioner Christie previously served on the Virginia State Corporation Commission for nearly 17 years, most recently as chairman. He is a former president of the Organization of PJM States, Inc. (OPSI), which is comprised of the state regulators representing the 13 states and the District of Columbia in the PJM region. He also is a former president of the Mid-Atlantic Conference of Regulatory Utilities Commissioners (MACRUC).

Commissioner Clements previously founded Goodgrid, LLC, an energy policy consulting firm. She has served as the director of the energy markets program at the Energy Foundation and as corporate counsel and director of the Sustainable FERC Project at the Natural Resources Defense Council. She also has worked in private legal practice on energy regulatory matters.

FERC and NERC to Conduct Inquiry into Texas Cold Weather Event

FERC and NERC announced they will conduct a joint inquiry into bulk power system operations during the extreme cold weather event that occurred in the Midwest, Texas and other south-central states in February 2021. During the event, millions of customers lost electricity.

FERC and NERC will work with other federal agencies, states, the Regional Entities and utilities to identify issues that occurred during the event (including root causes) and solutions for addressing those issues.

FERC Announces Technical Conference to Discuss Electrification and the Grid of the Future

On April 29, 2021, FERC will hold a technical conference to discuss electrification and the grid of the future. The conference will focus on the shift from non-electric to electric sources of energy at the point of final consumption (e.g., fuel vehicles, heat and cool homes and businesses, provide process heat at industrial facilities). FERC seeks to initiate a dialogue between Commissioners and stakeholders on how to prepare for an increasingly electrified future. This virtual event is open to the public, and FERC will post additional information on its calendar of events.

FERC Announces New Proceeding and Technical Conference to Discuss Climate Change and Electric System Reliability

On June 1-2, 2021, FERC will hold a technical conference on the threats to reliability posed by climate change and extreme weather events.

The conference will address concerns that the increase in frequency and severity of extreme weather events may lead to an increase in the frequency and severity of weather related events on the electric system. There will also be discussion on the specific challenges posed to reliability on a regional basis. For example, in certain regions of the country, reliability challenges associated with wildfires may be most pressing, while in others, it may be cold weather related issues and weather-driven fuel supply interruptions.

FERC will issue a supplemental notice seeking comments prior to the technical conference. Following comment submissions, FERC will issue an additional supplemental notice with further details. This virtual event is open to the public, and FERC will post additional information on its calendar of events.

The technical conference and open comment period are part of a new proceeding by FERC in Docket No. AD21-13-000 to examine the threats posed by climate change and extreme weather events. FERC will examine how grid operators prepare for and respond to extreme weather events, including droughts, extreme cold, wildfires, hurricanes and prolonged heat waves.

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, ERO Further Extend Expanded Self-Logging and On-Site Activity Deferment

On January 6, 2021, the ERO released guidance that it is further extending expanded self-logging and on-site activity deferment until the end of Q2 2021. For additional guidance on the expanded self-logging process, please see our prior announcement. The expanded self-logging process was created to lighten the administrative burden of Entities for noncompliances posing only a minimal or moderate risk and resulting from impacts related to COVID-19.

Numerous Operations & Planning Standards Become Effective as of December 1, 2020

Fourteen Operations & Planning Standards in the FAC, INT, IRO, MOD, NUC, PER, PRC and TOP are now effective. Below are links to the new Standards:

1. FAC-002-3-Facility Interconnection Studies
2. INT-006-5-Evaluation of Interchange Transactions
3. INT-009-3-Implementation of Interchange
4. IRO-002-7-Reliability Coordination-Monitoring and Analysis
5. IRO-010-3-Reliability Coordinator Data Specification and Collection
6. MOD-031-3-Demand and Energy Data
7. MOD-033-2-Steady-State and Dynamic System Model Validation
8. NUC-001-4-Nuclear Plant Interface Coordination
9. PER-006-1-Specific Training for Personnel
10. PRC-004-6-Protection System Misoperation Identification and Correction
11. PRC-006-5-Automatic Underfrequency Load Shedding
12. PRC-027-1-Coordination of Protection Systems for Performance During Faults
13. TOP-001-5-Transmission Operations
14. TOP-003-4-Operational Reliability Data

Notable NERC Filings

In November-December, NERC filed the following with FERC:

- On February 2, 2021, NERC submitted a notice of withdrawal for proposed reliability standard CIP-002-6.
- On February 19, 2021, NERC submitted a petition for approval of FAC-008-5.

Notable FERC Orders

FERC issued an order on multiple compliance filings related to the NERC 2019 Five-Year Performance Assessment

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. Recent additions include the following projects:

Project	Action	Start/End Date
Proposed Revisions to Section 1003 of the NERC Rules of Procedure	Comment Period	2/5/2021-3/22/2021
Draft Reliability Guideline: Area Control Error Diversity Interchange Process - Version 3	Comment Period	2/2/2021-3/26/2021
Recent and Upcoming Standards Enforcement Dates		
April 1, 2021	See Above	
July 1, 2021	TPL-007-4 – Transmission System Planned Performance for Geomagnetic Disturbance Events (Requirements 11 and 12)	
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-012-2 – 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	
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, 8.3, 8.4, and 8.4.1)	
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, and 7.5.1.)	

These effective dates can be found [here](#).

Thank You

RF would like to recognize Jeff Gindling for his valuable service as Chair of the Transmission Performance Subcommittee since 2019.

Thank you for your leadership and dedication!

RF Publishes 2020 Annual Report

2020 was certainly an unprecedented and challenging year, and the Annual Report describes RF's activities during this unique time. Remaining focused on RF's central mission of preserving and enhancing the reliability and security of the bulk power system was key in pivoting activities from in-person to virtual.

In addition to our perennial efforts around risk identification and mitigation, including prioritizing risks in our footprint and working with Entities to ensure mitigation, continuous improvement was a common thread throughout much of our work last year.

The Report also highlights targeted outreach efforts and events; RF's Innovation Awards and Retreat; technical stakeholder groups and new Community of Practice peer groups; and provides trends and metrics on the latest risks and compliance challenges facing the industry.

Newsletter Update Reminder

As RF works to serve our Entities and stakeholders more effectively, utilizing a broader variety of communication channels is key. In order to successfully incorporate more dynamic modes of information sharing (e.g., online training modules, increased social media activity, targeted webinars, etc.), **this bi-monthly RF newsletter has moved to a quarterly cadence starting in 2021**.

As always, we appreciate your readership and encourage dialogue to make these newsletters as valuable a resource as possible. Please email Megan Baucco, Communications Manager, with any feedback or suggestions.

Click to read the report

RF
Forward Together · ReliabilityFirst
ANNUAL REPORT
2020

Watt's Up at RF

New RF Align Page and Upcoming Training

With the rollout of Align Release 1 (R1) beginning this week, it's more important than ever to stay informed about details regarding the necessary registration requirements and trainings. To ensure you have the most up-to-date information in order to contribute to the successful rollout of the Align tool, please visit the new RF Align page.

The R1 rollout will be staggered, with Registered Entities in the MRO and Texas RE Regions piloting the tool and ERO Secure Evidence Locker (SEL) starting on March 31. The remaining Regions, including RF, will rollout R1 starting on May 24.

In addition to the Registered Entity Align and ERO SEL Training schedule and registration links included here, the RF Align page features information about the functionality that will be introduced with each Release,

the ERO SEL and much more.

RF is excited to offer our stakeholders an overview and basic training on the new Align and ERO SEL systems. We are offering five options for schedule flexibility, and each session is a three-hour WebEx meeting.

Primary and Alternate Compliance Contacts should select one session to attend, as each session will include identical content and information.

Please Note:

RF is limiting each session to 50 Registered Entities to make these sessions manageable and have necessary time for Q&A. If your first choice of a session is full, please choose one of the other options. RF also is considering adding future training sessions based on need and requests from the industry.

Registered Entity Align and ERO SEL Training

Date	Time	Registration Link
Tuesday, April 20	9:00 am - Noon	**Register Here**
Wednesday, April 28	1:00 pm - 4:00 pm	**Register Here**
Tuesday, May 4	9:00 am - Noon	**Register Here**
Wednesday, May 12	9:00 am - Noon	**Register Here**
Tuesday, May 18	1:00 pm - 4:00 pm	**Register Here**
*WebEx information will be sent closer to the event. All times are Eastern Standard Time		

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.

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!

Upcoming Calls

• April 19   • May 17   • June 21

April Tentative Agenda Topics

- Align Update from Ray Sefchik, RF Director of Entity Engagement
- Certification Review Triggers from RF and NERC staff
- RTO Update – Assessing and Integrating Distributed Energy Resources (DER) from MISO and PJM

Recent Presentations

In case you missed the January, February or March calls, or would like to reference the slides, the materials presented are posted on the RF website.

- RF Operational Analysis and Awareness Team: Events Analysis and Situational Awareness 2020 Recap (January)

- Attachment C Update (January)

- Internal Controls (February) – documents, examples and templates listed under "Internal Control Flashcards & Cheat Sheet" tab

- Virtualization Updates to NERC Cyber-security Standards (vCIP) March)

Calendar of Events

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

Date	RF Upcoming Events - All 2021 Events will be conducted virtually
April 19	Technical Talk with RF
April 20	Registered Entity Align and ERO SEL Training
April 28	Registered Entity Align and ERO SEL Training
April 29	Enforcement Updates and Trends
May 4	Registered Entity Align and ERO SEL Training
May 12	Registered Entity Align and ERO SEL Training
May 17	Technical Talk with RF
May 18	Registered Entity Align and ERO SEL Training
June 8	Operational Resilence Webinar
June 16	Board of Directors and Committee Meetings
June 17	Board of Directors and Committee Meetings
June 21	Technical Talk with RF

Industry Events

Date	Industry Upcoming Events
April 29	FERC Technical Conference to Discuss Electrification and the Grid of the Future
June 1-2	FERC Technical Conference to Discuss Climate Change, Extreme Weather, & Electric System Reliability
May 12-13	NERC Board of Trustees Meetings
April 21	PJM Members Committee Meeting
May 26	PJM Markets and Reliability Committee Meeting
June 3	MISO Reliability Subcommittee Meeting
June 17	MISO Board of Directors Meeting

ReliabilityFirst Members

AEP ENERGY PARTNERS
AES NORTH AMERICA GENERATION
ALLEGHENY ELECTRIC COOPERATIVE, INC
AMERICAN ELECTRIC POWER SERVICE CORP
AMERICAN TRANSMISSION CO, LLC
APPALACHIAN POWER COMPANY
BUCKEYE POWER INC
CALPINE ENERGY SERVICES, LP
CITY OF VINELAND, NJ
CLOVERLAND ELECTRIC COOPERATIVE
CMS ENTERPRISES COMPANY
CONSUMERS ENERGY COMPANY
DARBY ENERGY, LLP
DATACAPABLE, INC
THE DAYTON POWER & LIGHT CO
DOMINION ENERGY, INC
DTE ELECTRIC
DUKE ENERGY SHARED SERVICES INC
DUQUESNE LIGHT COMPANY
DYNEGY, INC
EDISON MISSION MARKETING AND TRADING, INC.
EXELON CORPORATION
FIRSTENERGY SERVICES COMPANY
HAZELTON GENERATION LLC
HOOSIER ENERGY RURAL ELECTRIC COOPERATIVE, INC
ILLINOIS CITIZENS UTILITY BOARD
ILLINOIS MUNICIPAL ELECTRIC AGENCY
INDIANA MUNICIPAL POWER AGENCY
INDIANAPOLIS POWER & LIGHT COMPANY
INTERNATIONAL TRANSMISSION COMPANY

LANSING BOARD OF WATER AND LIGHT
LINDEN VFT, LLC
MICHIGAN ELECTRIC TRANSMISSION CO, LLC
MICHIGAN PUBLIC POWER AGENCY
MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC
MORGAN STANLEY CAPITAL GROUP, INC
NEPTUNE REGIONAL TRANSMISSION SYSTEM, LLC
NEXTERA ENERGY RESOURCES, LLC
NORTHERN INDIANA PUBLIC SERVICE COMPANY
OFFICE OF PEOPLE'S COUNSEL, DISTRICT OF COLUMBIA
OHIO POWER COMPANY
OHIO VALLEY ELECTRIC CORPORATION
OLD DOMINION ELECTRIC COOPERATIVE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE
PJM INTERCONNECTION, LLC
PPL ELECTRIC UTILITIES CORPORATION
PROVEN COMPLIANCE SOLUTIONS, INC
PUBLIC SERVICE ENTERPRISE GROUP, INC
ROCKLAND ELECTRIC COMPANY
SOUTHERN MARYLAND ELECTRIC COOPERATIVE, INC
TALEN ENERGY
TENASKA, INC
TENNESSEE VALLEY AUTHORITY
UTILITY SERVICES, INC
VECTREN ENERGY DELIVERY OF INDIANA, INC
WABASH VALLEY POWER ASSOCIATION, INC
WISCONSIN ELECTRIC POWER COMPANY
WOLVERINE POWER SUPPLY COOPERATIVE, INC

Forward Together

RF

ReliabilityFirst