

MIDWEST RELIABILITY  
ORGANIZATION

# 2020

## Annual Report



“Change is the law of life and those who look only to the past or present are certain to miss the future.”

- John F. Kennedy





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## About Us

As part of the ERO Enterprise, MRO operates as a cross border Regional Entity headquartered in Saint Paul, Minnesota. The MRO Region spans the provinces of Saskatchewan and Manitoba, and all or parts of the states of Arkansas, Illinois, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wisconsin. The region includes approximately 200 organizations that are involved in the production and delivery of electric power, including municipal utilities, cooperatives, investor-owned utilities, transmission system operators, federal power marketing agencies, Canadian Crown Corporations, and independent power producers.

MRO's primary responsibilities are to: ensure compliance with mandatory Reliability Standards by entities who own, operate, or use the North American bulk power system; conduct assessments of the grid's ability to meet electric power demand in the region; and analyze regional system events.

# Letter From President and CEO

When I stepped into the role of chief executive officer at MRO in 2018, I introduced what I see as the four keys to sustainable success for MRO: **Connection, Curiosity, Commitment, and Competency**. These attributes relate not only to MRO's success, but to the collective success of all of those charged with protecting the reliability and security of the North American bulk power system. Additionally, **collaboration** has been a theme in many areas across departments, with registered entities, and amongst our ERO Enterprise colleagues.

Connection between the important work we do and our mission and values motivates and inspires people. It moves us to give our best efforts, align our behavior with goals and strategic priorities, and more fully communicate so that leadership has the best information to make optimal decisions.

Curiosity is at the root of high-performing teams—there is less conflict when we are curious because we are interested in another's perspective, and we share information more readily and listen more carefully to our peers. Because we are curious, we question the status quo and fully consider alternatives, and curiosity leads us to think more deeply and rationally about problems and come up with innovative and creative solutions.

Commitment denotes an employee's enthusiasm for the company and the work they do. Employees who exhibit a strong sense of commitment are personally invested in their work and take the initiative to do what needs to be done to accomplish results and add value. They understand that success is a group effort, and that it requires everyone contributing his/her own strengths as well as seeking and giving support to address one's own or a teammate's weakness.

Competency takes intelligence, experience, and expertise and produces a successful outcome, which for us is a reliable and secure bulk power system. Competence is the foundation of all of our initiatives – whether it's building trust, identifying risk and a language to better articulate risk and residual risk, or simply becoming more effective and efficient.

Collaboration happens when we assume positive intent, keep an open mind, are aware of and respect varied viewpoints and perspectives, and listen with purpose. Collaboration enables colleagues across the ERO Enterprise to seek and share best practices, and give credit to and acknowledge others' skills, experiences, creativity, and contributions.

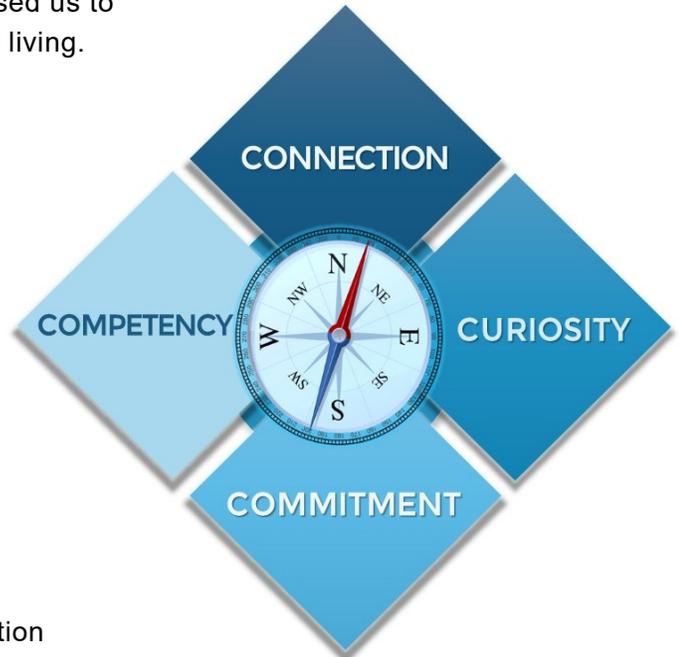
I saw these important attributes in action in 2020 as we responded to a global pandemic, civil and political unrest, and increasing risks to the reliability and security of the North American bulk power system.



*Sara Patrick, MRO President and CEO*

COVID-19 presented a number of unique challenges that caused us to abruptly shift course and adapt to a new way of working...and living. Curiosity has been a daily exercise throughout this unfamiliar and unprecedented situation. The work we did prior to 2020 to upgrade and expand our WebEx agreement, improve VPN capabilities, and test and improve our Emergency Response Plan, has served us well during this challenging time.

Racial discrimination confronted us head on with the tragic death of George Floyd in Minneapolis. The civil unrest that followed directly impacted many of our staff and the communities we live in—including our office headquarters—adding to the stress and anxiety our staff was already experiencing with the pandemic. The words diversity, equity and inclusion became verbs that required immediate action. MRO created a staff-led committee to take an introspective look at the organization and identify areas of silent discrimination or intolerance, and address the inequities that inherently exist in our systems. We remain deeply committed to this work.



Severe weather events and security threats continue to be existential threats that require our attention. In 2020, MRO published its first Regional Winter Assessment that identifies challenges and potential risks to reliability during the winter season. Cold weather preparedness has been, and will continue to be, a strong focus of our outreach activities. Last year also saw a significant shift in where and how we work, amplifying existing security risks and introducing new risks that had not existed before. A significant amount of collaboration and coordination occurred in 2020 across the entire ERO Enterprise community—NERC, Regional Entities, and industry stakeholders—on security initiatives designed to protect our individual systems and the bulk power system that we share.

Also in 2020, MRO's member-led organizational groups continued to meet virtually to identify and assess reliability and security risks to the bulk power system in our region and develop mitigation strategies. With the help of industry subject matter experts, MRO provided a significant amount of outreach to share information, best practices, and lessons learned from the challenges we all were facing. The participation of these volunteers is a significant contribution to our success - and to the reliability and security of the bulk power system in our region.

What we accomplished in 2020—the work that is highlighted throughout this report—truly demonstrates a commitment to our vision and mission. If we learned anything from this past year, it is that connections, curiosity, commitment, competency, *and collaboration*, have allowed us to thrive in the face of challenge and adversity.

Our resiliency is a reflection of the smart, talented and extraordinary people that I am privileged to work with—both at MRO and across the entire ERO ecosystem.

***Our future is bright!***



## OUR VISION

A highly reliable and secure North American bulk power system.

## OUR MISSION

To identify, prioritize and assure effective and efficient mitigation of risks to the reliability and security of the North American bulk power system by promoting Highly Effective Reliability Organizations® (HEROs).



# Supporting Our Vision and Mission

## Assessing Regional Risk

A significant amount of work occurred in the latter half of 2020 to develop MRO's [2021 Regional Risk Assessment](#) (RRA), which reflects the collaborative work of MRO staff and the industry subject matter experts from our advisory councils to identify risks to the reliable and secure operations of the bulk power system within MRO's regional footprint. Because risks and their severity can differ across the ERO regions, the 2021 RRA is focused on identifying those risks that may have a higher probability of occurrence and/or impact within the MRO footprint.

The risks were then categorized into two main groups: 1) operational and planning risks, and 2) physical and

cyber security risks. Using MRO's Risk Matrix, a tool developed in 2020 by the Reliability Advisory Council with input from the other two advisory councils and staff, each risk was ranked by impact and likelihood. The impact of the risk on the bulk power system and the probability of occurrence was assessed by evaluating each risk's history, available trends, and whether or not controls exist to mitigate the risk.

Compliance risk was also assessed in the RRA by trending the noncompliance history of higher risk requirements. When possible, the compliance risk was linked back to the operations and planning risks, as well as physical and cyber security risks, to identify any relationships between the two. The results will help focus MRO's CMEP activities in 2021 to reduce

potential residual risk, strengthen risk controls, and improve overall effectiveness and efficiency.

To the extent possible, the RRA includes recommendations on mitigating activities to help registered entities become more aware of, and reduce risk to, their individual systems. This assessment is part of an ongoing effort to ensure the region remains properly focused on monitoring and mitigating the greatest risks to reliability and security of the bulk power system, and MRO staff will continue communicating key findings and recommendations to both industry and NERC. Highlights from the 2021 RRA are provided below.

## Reliability Risk

From a total of eleven operations and planning based risks that were evaluated and ranked, five were identified as having the highest relative risk to the MRO region and are:

- Reactive Capability of Inverter Based Resources
- Bulk Power System Modelling Accuracy
- Uncertainty of Planning Reserve Margins
- Wind Plant Modelling and Ride-Through Capability During Faults
- Misoperations Due to Errors Occurring During Commissioning

It can be seen that four of these five risks are inter-related to the rapidly changing resource mix of the bulk power system. Certain ancillary services such as dynamic frequency response, short circuit response, and dynamic reactive capability for voltage stability, are essential and necessary characteristics of the bulk power system. As inverter connected renewable energy resources replace synchronous dispatchable generation, there will be increasing need for large quantities of energy storage that can provide these reliability services to the bulk power system. FERC has recognized this need and issued [Order 841](#), titled “Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators,” allowing energy storage resources to participate in wholesale markets operated in the main

ISO/RTO grid services areas. Therefore, as lithium ion battery technology and other energy storage technology matures and related capital costs decline, these storage technologies will be combined with renewable resources to form hybrid resources. These storage devices will help provide the reliability services required by the BPS grid and also provide the needed flexibility for operators to manage real-time conditions such as fast ramp rates of both load and renewable resources.

## Security Risk

From a total of ten physical and cybersecurity risks that were evaluated and ranked, four were identified as having the highest risk to the MRO region as follows:

- Supply Chain
- Insider Threat
- Communication Network (Backhaul)
- Sabotage

The four highest risks to the MRO region may have varying degrees of impact from a cyber or physical standpoint. For example, most physical components used to operate the bulk power system also have a cyber component. As applicable, the relationship between the cyber or physical risk is detailed in the RRA.

Additionally, security risks have different levels of residual risk after applying the NERC CIP Standards. Some examples of reducing the residual risk after applying NERC CIP Standards may be found in the RRA. For example, the implementation of CIP-004 helps to reduce the risk of Insider threats. However, mitigations may be considered, such as more frequent and detailed background check periodicity. Similarly, the implementation of CIP-013 helps to reduce the risk of Supply Chain threats. However, more awareness of the risk profile and system connectivity that all third-party software vendors may have into the organization’s systems may further reduce risk.

## Risk Matrix

MRO’s Risk Matrix was developed in 2019 by the Reliability Advisory Council with the objective of

assessing, quantifying and prioritizing reliability risks to the regional bulk power system. In 2020, this effort expanded to the two other MRO councils (Security Advisory Council and the Compliance Monitoring Enforcement Program Advisory Council), as well as some of the other Regional Entities across the ERO Enterprise. The risk matrix was used to rank the risks identified in MRO's 2021 Regional Risk Assessment.

The intent of the matrix is to keep the ranking process simple by focusing on the consequence/impact of the risk on the bulk power system and the likelihood of occurrence. The consequence/impact could range from

negligible (1), to severe (5), while the likelihood is from very unlikely (1), to almost certain (5), and includes three main items: control, monitoring, and history. Using these inputs helps to determine where the risk is ranked on the matrix—low, medium, high or very high—which allows for an action plan to determine the method and timeliness for how a risk should be addressed.

Work will continue in 2021 to improve the matrix, with long-term plans of continuing to utilize it in the Regional Risk Assessment and possibly other assessments across the ERO Enterprise.

Reliability Risk Matrix						
Consequence/Impact (C)		Likelihood (L)				
		L1	L2	L3	L4	L5
		Very Unlikely	Unlikely	Possible	Likely	Almost Certain
C5	Severe	Medium	High	High	Very High	Very High
C4	Major	Medium	Medium	High	High	Very High
C3	Moderate	Low	Medium	High	High	High
C2	Minor	Low	Low	Medium	Medium	High
C1	Negligible	Low	Low	Low	Medium	Medium

MRO Reliability Risk Matrix – Operations and Planning Risks + Physical and Cyber Security Risks						
Consequence/Impact (C) to the BPS		Likelihood of Occurring (L)				
		L1	L2	L3	L4	L5
		Very Unlikely	Unlikely	Possible	Likely	Almost Certain
C5	Severe					
C4	Major		3	6 8		
C3	Moderate		2 10	3, 4, 9 6, 4, 7	11	
C2	Minor			1 1, 2, 9	5, 7, 8, 10	
C1	Negligible				5	

### MRO 2021 Regional Risk Assessment Results

(see page 31 for risk descriptions)

## Assessing Resources and Demand

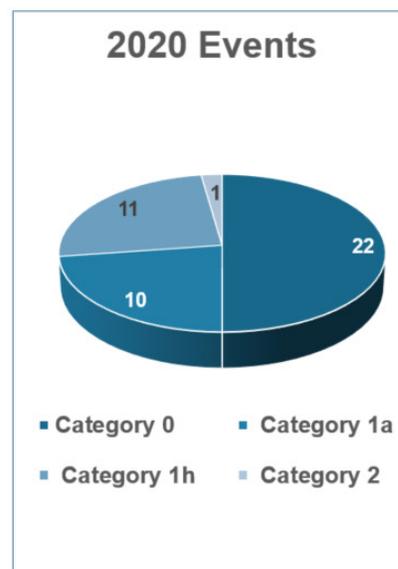
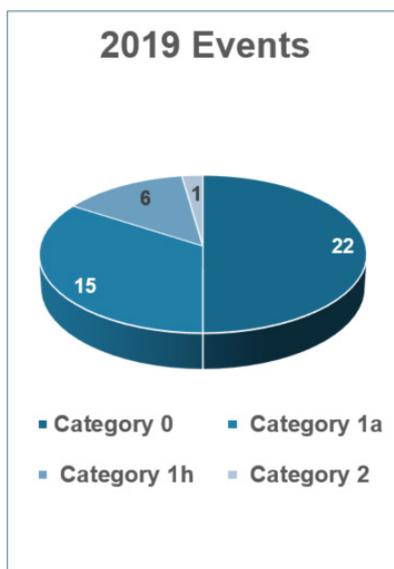
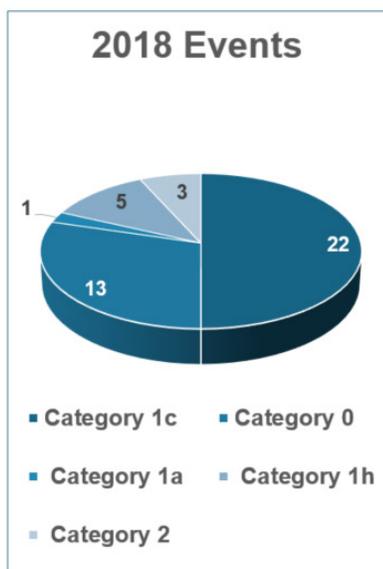
One of MRO's primary responsibilities is to assess the regional power grid's ability to meet electricity demand. One of the ways this is accomplished is through collaboration with the NERC Reliability Assessment Subcommittee to provide input to seasonal assessments published by NERC. A total of three assessments are published annually, including a Summer Reliability Assessment, a Winter Reliability Assessment, and a Long-Term Reliability Assessment. For the first time in 2020, MRO's Reliability Analysis staff developed and published an independent Regional Winter Assessment for MRO, to complement NERC's winter assessment. The [MRO 2020 Regional Winter Assessment](#) provides an outlook on the 2020-2021 Winter season in the MRO region, as well as a review of performance analysis data and significant transmission events from 2019. MRO plans to publish a Regional Summer Assessment in addition to the Regional Winter Assessment in 2021.

## Analyzing Bulk Power System Events

The ERO Enterprise vision promotes a highly reliable and secure North American bulk power system. The event analysis process established by the ERO is intended to promote a structured and consistent

approach to performing analyses of system events across North America. Events can be described as significant losses of load or generation, significant bulk power system disturbances, or other emergencies on the bulk power system. MRO's responsibility is to review and assess these events to determine what happened, why it happened, and what can be done to prevent reoccurrence. MRO's Reliability Analysis Department made significant strides in this area over the past two years, but 2020 may be the most impactful year to date. The team reviewed and closed out a total 42 events in 2020. The following charts show the number of events in the region over the past three years, with Category 0 being the least impactful and Category 2 being the most impactful. The full definitions of each category can be found in the [ERO Event Analysis Process](#).

Significantly, four [Lessons Learned](#) from event analysis in the MRO region were published in 2020. MRO works with registered entities to identify lessons learned from actual events, near misses, or noticeable trends in reliable operations. The four lessons learned published in 2020 include: Unanticipated Wind Generation Cutoffs during a Cold Weather Event, Mixing Relay Technologies in DCB Schemes, Lockout Relay Component Failure Causes Misoperation and Reportable Event, and Cold Weather Operation of SF6 Circuit Breakers. This important work will continue in 2021.





# Mitigating Risk to Reliability and Security

## Important Work of Advisory Councils and Subgroups

Despite significant challenges posed by the pandemic, MRO's organizational groups continued to meet regularly, albeit remotely. Each of these groups focused their efforts in 2020 on assessing reliability and security risks that are most applicable in the MRO region, developing mitigation strategies, and expanding outreach efforts to help registered entities become more aware of and reduce risk to their individual systems.

The following is a summary of this important work.

## CMEP Advisory Council

The Compliance Monitoring and Enforcement Program Advisory Council (CMEPAC) successfully implemented a new initiative to increase engagement and awareness of CMEP activities across MRO's regional footprint by hosting a monthly call with interested entities. The development, retirement, and application of NERC Reliability Standards, along with risk assessments, compliance monitoring, and the enforcement of applicable standards are common topics discussed on the call. Additionally, an email address ([askcmepac@mro.net](mailto:askcmepac@mro.net)) was created to field compliance-related questions and gather entity feedback on topics for future outreach.

The CMEPAC also hosted the first ever fully virtual CMEP Conference in 2020, and published six newsletter articles and five webinars. This kind of outreach is an important component of raising awareness and sharing information on compliance related topics with regional stakeholders.

The CMEPAC continues to review MRO's Self-Certification worksheets to provide registered entities with insight into the process. This helps ensure that the questions and instructions drafted by MRO staff are clear to the entities required to complete the forms. Participation from the CMEPAC has proven to be an excellent way for MRO to gain feedback from registered entities on the organization's CMEP activities.

The CMEPAC's subgroup, the NERC Standards Review Forum (NSRF), continued its important work in 2020 to review and gather industry comments on new or revised Reliability Standards under development. The NSRF provided feedback on twelve projects and continues to be a leader in the industry in providing coordinated feedback regarding reliability and security risks to improve the NERC Reliability Standards.

Three regional [Standard Applications Guides](#) (SAG) were developed by MRO Subject Matter Expert Teams in 2020: CIP-010-2: Cyber Security — Configuration Change Management and Vulnerability Assessments Requirements R1 and R2; MOD-025-2: Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability I-4 Dispersed Power Producing Resources; and PRC-00-2: Disturbance Monitoring and Reporting Requirements, Clarification of Fault Recorder (FR) Trigger Setting Requirements.

Those teams are established by the CMEPAC with input from the other two advisory councils on appropriate topics that require clarification. Some of these SAGs are further endorsed by the ERO Enterprise as North American-wide guidelines.

## Reliability Advisory Council

2020 marked the second year of existence for the Reliability Advisory Council (RAC), which

accomplished a significant amount of work considering the virtual environment caused by the COVID-19 pandemic. The RAC completed all of its stated objectives last year. One of the most noteworthy accomplishments was hosting the annual Reliability Conference virtually, which attracted over 200 attendees. The conference covered topics like reliability seams issues, battery storage, inverter based resources, and integrating Distributed Energy Resources.

The council also hosted a webinar on the CapX2050 Transmission Vision Study and contributed four newsletter articles to share lessons learned and best practices on important reliability topics. In addition to this important work, the Protective Relay Subgroup (PRS), which reports to the RAC, hosted a webinar on High Impact Misoperations. The PRS also participated in the 2020 Minnesota Power System Conference, where John Grimm (PRS Chair) along with Mike Bocovich (PRS staff liaison) gave a presentation on Analysis of Composite Protection System Misoperations.

The RAC also retired the Special Protection Systems Working Group (SPSWG), which was responsible for the review of regional Remedial Action Schemes (RAS). With the PRC-012-2 Reliability Standard effective January 1, 2021, the review of RAS is now the responsibility of the regional Planning and Reliability Coordinators. A significant amount of work was conducted by the SPSWG in 2020, and we thank them wholeheartedly for their efforts!

## Security Advisory Council

The MRO Security Advisory Council (SAC) achieved all of the objectives in its 2020 work plan, which included a significant amount of outreach to help raise awareness and share information on security risks with entities across the region. The SAC provided a security briefing to industry that included U.S. and Canadian intelligence agencies, and hosted eight webinars in 2020, each seeing higher than normal attendance from previous years. Attendees included staff from FERC, NERC, E-ISAC, MRO registered entities, and staff from other Regional Entities and

vendors. The SAC also sponsored MRO's Annual Security Conference, which was held virtually this year, with more than 20 speakers and over 430 participants. The conference included five separate virtual networking breakout sessions for speakers and attendees to interact and share information on selected security topics.

Each year, the SAC hosts a day of security training ahead of the annual security conference. The training in 2020 was held virtually and led by the Department of Homeland Security, Cybersecurity and Infrastructure Security Agency. New in 2020, the SAC also hosted a Security Risk Assessment Virtual Roundtable on physical, cyber, and operational technology security risk assessments, which provided a brief introduction and overview of security risk assessment tools and practical application.

One of the most important tasks of the SAC each year is to complete a Regional Security Risk Assessment to assess the most impactful risks to entities in the MRO region and identify related mitigation strategies. The 2020 assessment engaged physical, cyber,

and operational security subject matter experts from across the region in identifying top security risks, which informed the SAC's 2021 work plan and topics for future webinars, presentations, and roundtables. The identified risks were also included in MRO's 2021 Regional Risk Assessment.

The Security Advisory Council Threat Forum (SACTF) is a sub-group that reports to the SAC that was implemented in 2019 to share real-time information on existing and emerging security threats that could impact the regional bulk power system. The SACTF meets weekly with approximately 60 individuals attending, including individuals from registered entities, other Regional Entities, and the Electricity Information Sharing and Analysis Center.

There was a significant expansion of this group in 2020 in response to COVID-19. A second weekly call was implemented at the onset of the pandemic to share information and support discussions on pandemic planning, benchmarking, and response. Feedback from regional participants has been overwhelmingly positive for both calls.

# SECURITY AWARENESS

A person in a dark suit and tie is pointing their right index finger towards a grid of glowing blue hexagonal icons. The icons include a magnifying glass, a person silhouette, a padlock, a wrench, and a person silhouette. The background is a dark, textured blue.

## Sharing Information and Best Practices

### Outreach Events

MRO conducted all of its planned outreach events in 2020, despite the shift to hosting these events remotely by WebEx due to the pandemic. Outreach—sharing information, best practices, and lessons learned—is one of the most impactful tools MRO uses to ensure the region is properly focused on monitoring and mitigating the greatest risks to reliability and security of the bulk power system. A significant amount of thought and planning goes into developing appropriate topics, planning the best method for delivering the information, inviting the right speakers, and preparing for and conducting the event. This work is shared among MRO's advisory council members and staff.

Each year, advisory council members and staff develop a list of topics based on ERO-wide risk analyses, risks identified through MRO's Regional Risk Assessment, information from seasonal and long-term reliability

assessments, and input from regional stakeholders. Collectively, MRO staff and the advisory councils hosted 22 virtual outreach events—including webinars, workshops, conferences and training sessions—on topics related to reliability and security with over 3900 attendees. Average conference participation rates climbed to 327 attendees, doubling from 2019 levels, with our highest conference attracting 433 participants.

Future conferences and events can be found on the [calendar page](#) of MRO's website.

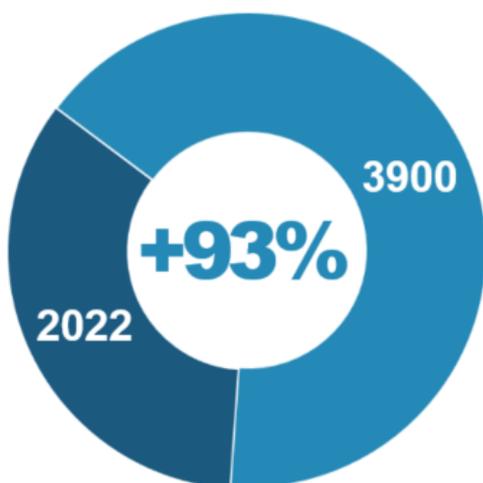
### Outreach Publications

In addition to the above outreach events, MRO published several lessons learned and best practice articles in its bimonthly newsletter publication, Midwest Reliability Matters. The newsletter has grown to more than 1,400 subscribers and continues to be a highly anticipated and well-read publication.

Archives of Midwest Reliability Matters can be found in [MRO's newsroom](#).

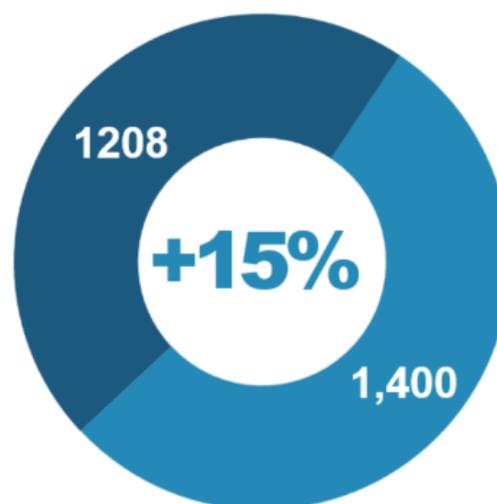
#### TOTAL EVENT ATTENDEES

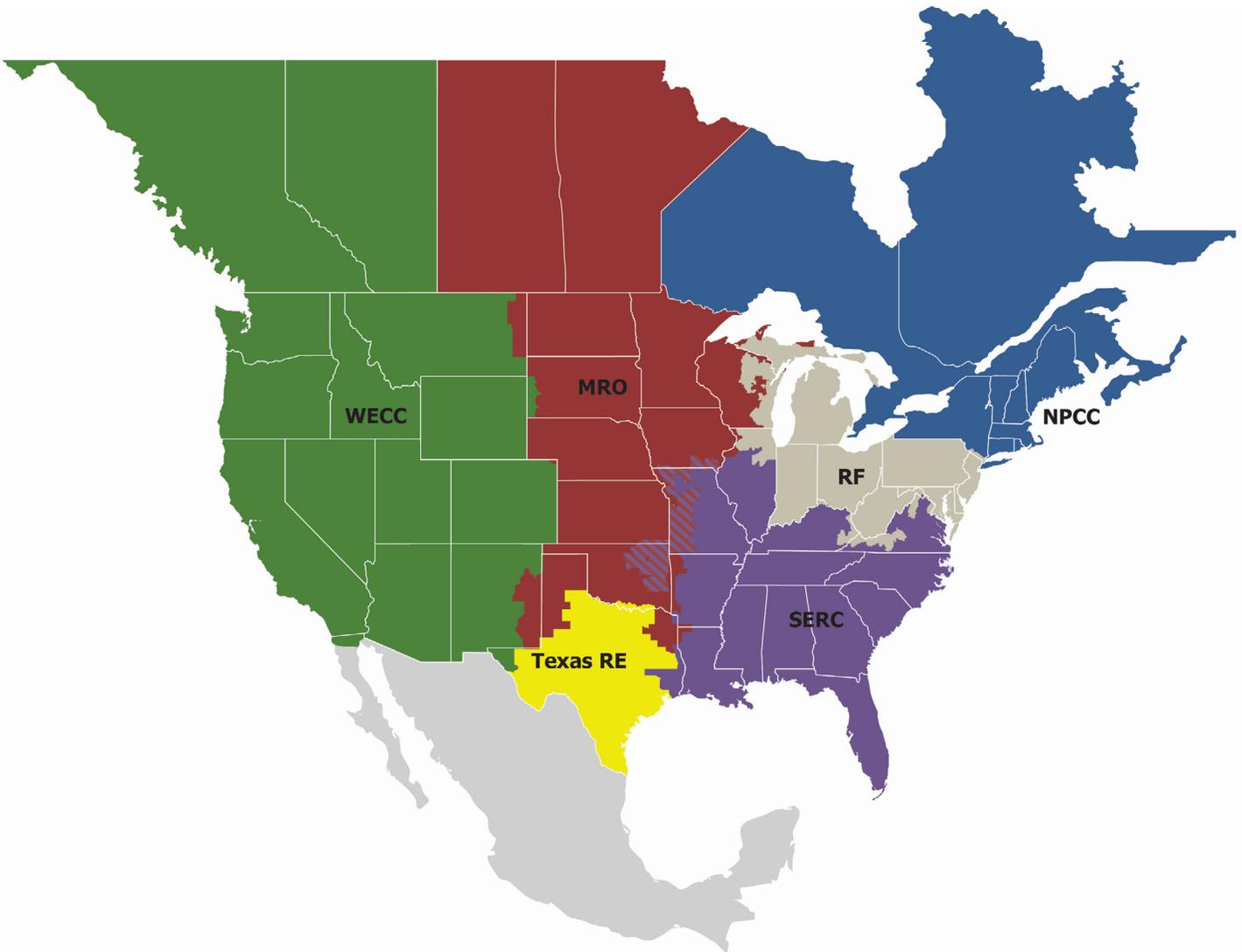
■ 2019 ■ 2020



#### TOTAL NEWS SUBSCRIBERS

■ 2019 ■ 2020





# Strengthening Relationships and Resiliency

## Cross Border Canadian Partners

MRO is one of three cross-border Regional Entities who operate across the interconnected Canadian Provinces. MRO operates in Manitoba under the legislative framework in place in the province, and in Saskatchewan under a Memorandum of Understanding with the Saskatchewan Electric Reliability Authority (SERA).

Despite travel restrictions and border closures, MRO continues to engage with our Canadian partners through virtual and other electronic means. During the initial stages of the pandemic, MRO coordinated with both provinces to provide appropriate regulatory relief related to registered entities' coronavirus response, and reschedule/postpone on-site audits where required.

In August, MRO participated in the annual Canadian regulator's virtual meeting hosted by the NERC Board

of Trustees. Attendees included representatives from many Canadian provincial and federal regulators. Much of the meeting was devoted to COVID-19 pandemic impacts in the industry and responses from NERC and the Canadian regulators.

Finally, MRO was invited to attend SERA's quarterly virtual meeting in October. The discussions focused on the impact of the COVID-19 pandemic on NERC standards and compliance activities.

These relationships with the Canadian provinces are important to the success of MRO. We have seen increased engagement and participation from our Canadian registered entities and are proud to have active participation from these entities on our advisory councils and our board.

## State and Local Regulatory Agencies

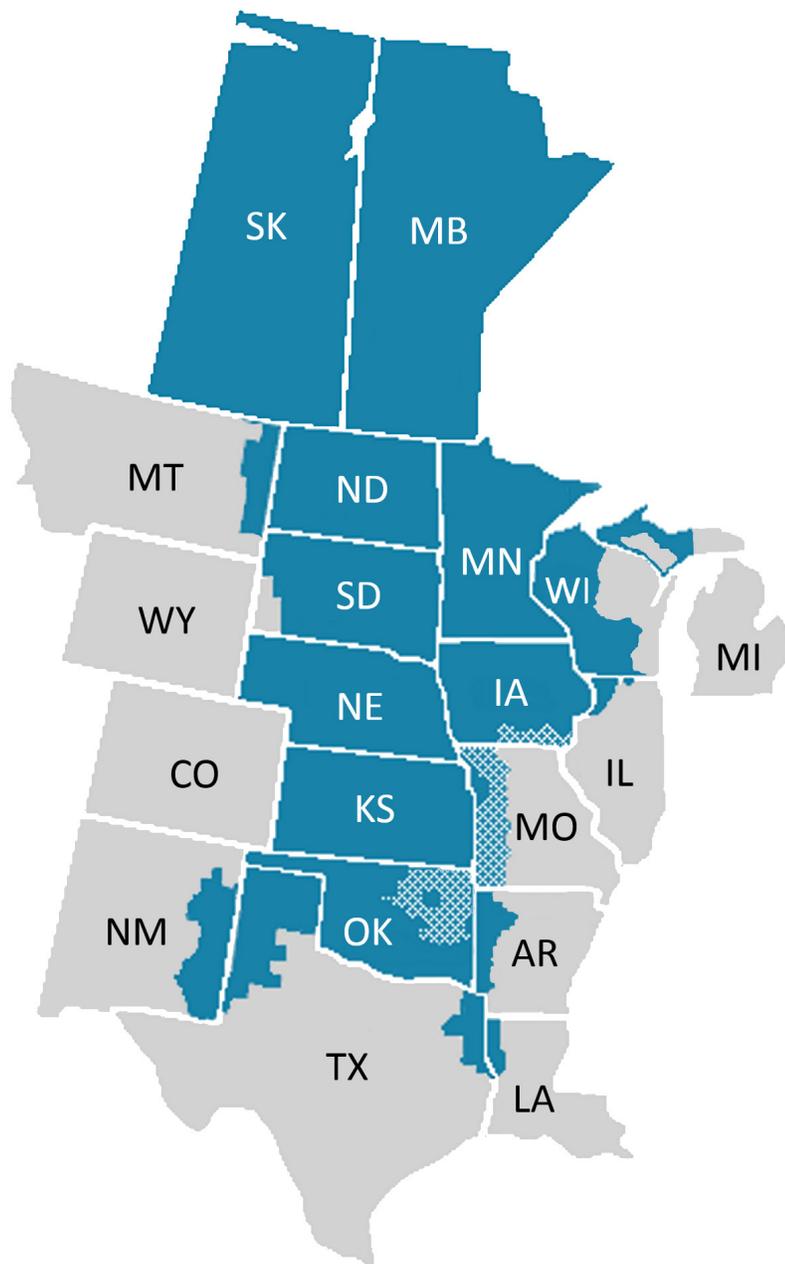
In 2020, MRO's External Affairs department focused on building relationships with state regulators. This effort supports the new ERO Enterprise outreach initiative to increase awareness and share information with state regulatory agencies to inform these individuals of publically available reliability and security information, and to enhance visibility into ERO Enterprise work.

MRO External Affairs and Reliability Analysis staff began meeting with state regulators within the MRO footprint after the release of NERC's Long-Term Reliability Assessment (LTRA) to provide details on how electricity is undergoing significant change that is unprecedented in both its transformational nature and rapid pace. These meetings were coordinated with bordering Regional Entities (ReliabilityFirst, SERC Reliability Corporation, and Western Electricity Coordinating Council) within the states where our regional borders intersect.

Looking ahead, MRO External Affairs will maintain these relationships through periodic outreach on

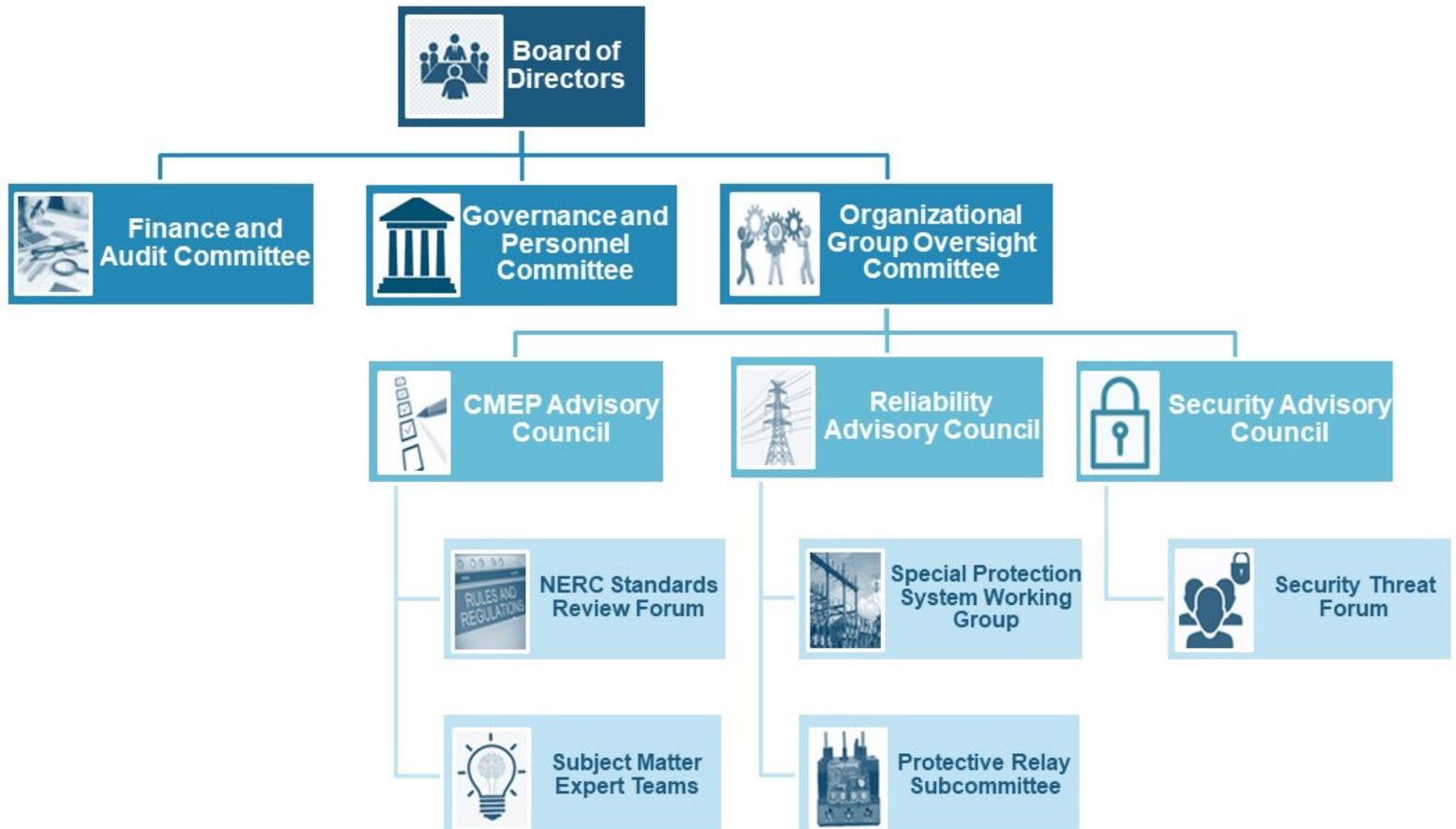
important assessments and reports, with the goal of becoming a trusted resource for information regarding bulk power system reliability and security.

Questions on this outreach effort should be directed to Tasha Ward, Senior Counsel and Director of External Affairs at [tasha.ward@mro.net](mailto:tasha.ward@mro.net).



**MRO Regional Footprint**

# Recognizing HEROs



# HERO

HIGHLY EFFECTIVE RELIABILITY ORGANIZATION

# MRO's Organizational Group Members

## CMEP Advisory Council

Carl Stelly (Chair), Southwest Power Pool  
 Terri Pyle (Vice Chair), Oklahoma Gas and Electric  
 Andy Crooks, Saskatchewan Power Corp.  
 Eric Ruskamp, Lincoln Electric System  
 Fred Meyer, The Empire District Electric Company  
 Josh Roper, Evergy  
 Joseph DePoorter, Madison Gas & Electric  
 Mahmood Safi, Omaha Public Power District  
 Mark Buchholz, Western Area Power Administration  
 Matt Caves, Western Farmers Electric Cooperative  
 Mike Smith, Manitoba Hydro  
 Olivia Russell, NextEra Energy  
 Paul Mehlhaff, Sunflower Electric Power Cooperative  
 Sharon Koller, American Transmission Co.  
 Thad Ness, Xcel Energy  
 Tracey Stewart, Southwestern Power Administration

## Reliability Advisory Council

Ron Gunderson (Chair), Nebraska Public Power District  
 John Stephens (Vice Chair), City Utilities of Springfield  
 Allen Klassen, Evergy  
 Antoine Lucas, Southwest Power Pool  
 Binod Shrestha, Saskatchewan Power Corp.  
 CJ Brown, Southwest Power Pool  
 Dallas Rowley, Oklahoma Gas and Electric  
 Dean Schiro, Xcel Energy  
 Dick Pursley, Great River Energy  
 Durgesh Manjure, MISO  
 Dwayne Stradford, American Electric Power  
 Gayle Nansel, Western Area Power Administration  
 Jason Weiers, Otter Tail Power Company  
 Nandaka Jayasekara, Manitoba Hydro  
 Nick Giffin, American Transmission Co.

## Security Advisory Council

Jason Nations (Chair), Oklahoma Gas and Electric  
 John Breckenridge (Vice Chair), Evergy  
 Chris Carlson, Grand River Dam Authority  
 Clayton Whitacre, Great River Energy

Damon Ounsworth, Saskatchewan Power Corp.  
 Jamey Sample, Xcel Energy  
 Jared Moses, American Electric Power  
 Jodi Jensen, Western Area Power Administration  
 Joe Petaski, Manitoba Hydro  
 Joe Polen, MISO  
 Justin Haar, Minnkota Power Cooperative  
 Sam Ellis, Southwest Power Pool  
 Tim Anderson, Dairyland Power Cooperative  
 Tony Eddleman, Nebraska Public Power District  
 Waren LaPlante, Allete

## SAC Threat Forum

Brett Lawler (Chair), Xcel Energy  
 Jodi Jensen (Vice Chair), Western Area Power Administration  
 David Johnson, Oklahoma Gas and Electric  
 Lance Rudolph, Alliant Energy  
 Paul Neman, MISO

## Protective Relay Subgroup

John Grimm (Chair), Xcel Energy  
 Robert Soper (Vice Chair), Western Area Power Administration  
 Alex Bosgoed, Saskatchewan Power Corp.  
 Casey Malskeit, Omaha Public Power District  
 Cody Remboldt, Montana-Dakota Utilities  
 David Wheeler, Southwestern Public Services Co.  
 Dennis Lu, Manitoba Hydro  
 Derrick Schlangen, Great River Energy  
 Derek Vonada, Sunflower Electric Power Coop  
 Forrest Brock, Western Farmers Electric Cooperative  
 Gary Stodter, MidAmerican Energy  
 Greg Hill, Nebraska Public Power District  
 Greg Sessler, American Transmission Co  
 Jeff Beasley, Grand River Dam Authority  
 Ryan Einer, Oklahoma Gas and Electric  
 Ryan Godwin, American Electric Power  
 Scott Paramore, Kansas City Board of Public Utilities  
 Terry Fett, Central Iowa Power Cooperative  
 Wayne Miller, ITC Holdings

## Special Protection System Working Group

Andrew Berg, Missouri River Energy Services  
 David Kempf, Great River Energy

Ding Lin, Manitoba Hydro  
 Gabriel Kainz, Otter Tail Power Company  
 John Grimm, Xcel Energy  
 Tyler Giles, MISO  
 Wayne Guttormson, Saskatchewan Power Corp.

## NERC Standard Review Forum

Joe DePoorter (Chair), Madison Gas and Electric  
 Larry Heckert (Vice Chair), Alliant Energy  
 Andy Crooks, Saskatchewan Power Corp.  
 Bobbi Welch, MISO  
 Bryan Sherrow, Kansas City Board of Public Utility  
 David Heins, Omaha Public Power District  
 Douglas Webb, Evergy  
 Fred Meyer, Algonquin Power Co.  
 James Williams, Southwest Power Pool  
 Jamie Monette, Minnesota Power/ALLETE  
 Jamison Cawley, Nebraska Public Power District  
 Jeremy Voll, Basin Electric Power Cooperative  
 Jodi Jensen, Western Area Power Administration  
 John Chang, Manitoba Hydro  
 Michael Brytowski, Great River Energy  
 Sing Tay, Oklahoma Gas and Electric  
 Terry Harbour, MidAmerican Energy  
 Troy Brumfield, American transmission Co.

## MRO NERC Representatives

Amanda Schiro, ATC (SAMS) Armin  
 Boschmann, Manitoba Hydro (CIPC)  
 Damon Ounsworth, Saskatchewan Power (CIPC)  
 David Brauch, MISO, NERC Inverter Based Resource Performance Task Force (IRPTF)  
 Dick Pursley, Great River Energy (OC)  
 Jaimin Patel, Saskatchewan Power (EGWG)  
 John Breckenridge, Evergy (CIPC)  
 Lynn Hecker, MISO (PC)  
 Marc Child, Great River Energy (CIPC)  
 Mark Gutzmann, Xcel Energy (SPCS)  
 Mary James Young, MISO (CCC)  
 Paul Crist, Lincoln Electric System (CIPC)  
 Silvia Parada Mitchell, NextEra Energy (MRC)  
 Steve Sanders, WAPA (RTOS)  
 Sunny Raheem, Great River Energy (SPIDERWG)



## Annual HERO Award

MRO has a long history of relying on the expertise and dedication of the many members and stakeholder volunteers that support MRO's mission "to identify, prioritize and assure effective and efficient mitigation of risks to the reliability and security of the North American bulk power system by promoting **Highly Effective Reliability Organizations**® (HEROs)." In 2020, MRO implemented a [Volunteer Recognition Program](#) to acknowledge these volunteers for their hard work and contributions to the success of MRO.

Part of the Volunteer Recognition Program includes an annual HERO Award. This prestigious award provides MRO the opportunity to recognize individuals annually for their exemplary initiative and commitment to advancing the concept and principles of HEROs throughout the MRO region

and in support of MRO's vision and mission. The qualifications for HERO Award nominees follow the principles of [high reliability organizations](#).

In July 2020, MRO solicited nominations from industry for this inaugural HERO Award and several candidates were submitted. The board's Organizational Group Oversight Committee (OGOC) reviewed the nominees and their qualifications and after much discussion, selected two individuals to receive this award.

**Dallas Rowley**, from Oklahoma Gas and Electric, was a very active member of the Reliability Advisory Council in 2020, serving as emcee for the annual Reliability Conference and leading the council's effort to develop MRO's Reliability Risk Matrix. The Risk Matrix provides a consistent



***Dallas Rowley***  
*Director of System Operations,*  
*Oklahoma Gas and Electric*



***Joe DePoorter***  
*Director of NERC Compliance and*  
*Generation Operations, Madison Gas*  
*and Electric*

framework for identifying and prioritizing risks to reliability and security, and was used to develop MRO's 2021 Regional Risk Assessment. The tool has been shared with others across the ERO Enterprise.

**Joe DePoorter**, from Madison Gas and Electric, currently chairs the MRO NERC Standards Review Forum (NSRF), which is recognized as a model across North America and by NERC and FERC, for effectively and efficiently obtaining industry input in the development of Reliability Standards. DePoorter was also the first chair of MRO's CMEP Advisory Council, and has been a consistent and vocal supporter of MRO initiatives related to risk-based compliance monitoring and enforcement, including regular presentations at MRO and ERO events and has authored several articles in MRO's newsletter.

OGOC Chair Lloyd Linke from Western Area Power Administration said, "Both Dallas and Joe were selected from a pool of very qualified candidates for their significant contributions to assuring

a highly reliable and secure North American bulk power system. Dallas Rowley was instrumental in developing a solution to an immediate and very challenging problem facing MRO and the ERO Enterprise regarding the prioritization of risk, and Joe DePoorter has been a long-term advocate of HRO principles and the MRO organization. His long-standing support has translated to sustainable improvements in reliability of the bulk power system in MRO's region and across North America."

Linke also noted that the OGOC struggled with selecting a single finalist, as both Rowley and DePoorter exemplify the attributes and qualifications of MRO's HERO Award. The committee ultimately determined that the contributions of both Joe and Dallas merit receipt of this important award.

HERO Award recipients will be highlighted on the [HERO page](#) of MRO's website.



registered entity testing, MRO's regional adoption workshop, a joint Align and SEL webinar with ReliabilityFirst, and User Acceptance Testing for both Align and the SEL.

In addition to preparation for Align Release 1 to go-live in 2021 Q1, collaboration also began on future Align releases scheduled to be implemented by the end of 2021. MRO [announced](#) registered entity training for 2021, with each training session including the same content for both Align and the SEL, and both sessions will be recorded and posted to MRO's website for those not able to attend. The training sessions will provide an overview and information on the upcoming changes from webCDMS to Align.

For questions regarding training on Align or the SEL please contact [align@mro.net](mailto:align@mro.net). For general Align and SEL questions please contact [askalign@nerc.net](mailto:askalign@nerc.net) or [align@mro.net](mailto:align@mro.net).

## CMEP Alignment

### ERO Enterprise COVID-19 Response

Due to the COVID-19 pandemic, the ERO Enterprise issued reporting guidance for issues of non-compliance reported related to the pandemic. Initially, MRO utilized the HEROs email as a communication tool for any COVID-19 potential non-compliance performed in response to the coronavirus outbreak, including periodic requirements. However, that process changed after NERC provided expanded guidance for the reporting of potential noncompliance related to COVID-19.

Regulatory discretion was expanded to include any potential noncompliance between March 1, 2020, and June 30, 2021, where COVID-19 contributes materially or completely to the root cause.

Recognizing the fluidity of this emergency, the ERO Enterprise continues to reassess the timeline of the expansion as needed. Because COVID-19-related noncompliance is eligible for regulatory discretion, the established processes for self-logging/self-reporting noncompliance are not necessary for these issues.

This additional level of monitoring, provided by MRO, assists registered entities in prioritizing compliance activities during the pandemic. For more guidance on this process, please refer to the information provided in MRO's [Hot Topic](#) on the matter.

### Compliance Oversight Plans

MRO's process for developing Compliance Oversight Plans (COPs) requires input from the Reliability Analysis, RAM, Registration, Compliance, and Enforcement Departments at MRO. The resulting COP documents MRO's holistic assessment of the registered entity's inherent risk and the performance considerations that assess the entity's management of its risk. The resulting COP guides MRO's monitoring activities for that individual entity. The results of the initial 23 COPs issued in 2020 indicate the process is successfully providing focus for MRO monitoring activities, focus for the registered entity's continuous improvement, and target intervals for MRO's scheduling of monitoring activities. MRO continues to innovate the COP process, and is also analyzing COPs across multiple organizations to identify trends and develop outreach opportunities.

### Coordinated Oversight

A number of entities in North America have facilities spread over a large geographic footprint leading them to be registered in more than one region. These Multi-Region Registered Entities (MRREs) can opt into Coordinated Oversight, allowing them to primarily interface with just one Regional Entity, called the Lead Regional Entity (LRE). Other Regional Entities that would have otherwise individually conducted oversight of the MRRE are called Affected Regional Entities (ARE). Entities who participate in the Coordinated Oversight Program reduce their administrative burden by having one the LRE be the single point of contact for activities such as Self-Reports, Compliance Audits, Self-Certifications, Periodic Data Submittals, IRAs, and Compliance Oversight Plans. MRO was the LRE for 18 MRRE Groups (which includes 55 registered entities), and was the ARE in 21 MRRE Groups (which includes 26 MRO registered entities) in 2020.

The Coordinated Oversight Program requires a significant amount of collaboration across the ERO Enterprise in order to make compliance monitoring and enforcement more efficient for the MRREs, yet still be effective in addressing risk. However, it offers a significant benefit to the participating registered entities. For more information on coordinated oversight, see [NERC's FAQ sheet](#) on the subject.

## Summary of 2020 Operational Activities

- Richard Burt, Senior Vice President and COO

Wow, what a year! There are at least a couple ways that short, simple sentence can be interpreted. You may have anticipated that I would proceed with conveying the relief I am experiencing now that 2020 is behind us, with hopes of a better 2021. While that may be true for certain facets of our lives, I instead want to communicate how impressed I am at what 2020 provided for MRO, thanks to our staff, our registered entities and organizational group volunteers, and our peers across the ERO Enterprise. This past year was truly remarkable with regards to progress made to improve the reliability and security of the bulk power system across North America.

2020 was the third year of MRO's new organizational group structure that was put in place as part of MRO's footprint expansion in 2018. As staff liaison for the MRO Board's Organizational Group Oversight Committee (OGOC), to which each of MRO's organization groups report, I have the opportunity to regularly interface with each of MRO's Advisory Councils and our industry volunteers. I've been able to witness how cohesive those groups have become, the focused work they're doing related to MRO's strategic priorities, and the impressive work products that have resulted. As Lloyd Linke, MRO Board Member and 2020 chair of the OGOC stated at MRO's annual meeting in December, following a day-long risk-based discussion between the OGOC and the leadership of MRO's Advisory Councils, "I think we've discovered that our decision to change from committees to

advisory councils was the right decision." The important work and accomplishments of these groups is highlighted throughout this report.

Our organizational groups drive a considerable amount of MRO's outreach. In terms of the number of events and participation, 2020 was MRO's most successful year for outreach. I was excited to witness our first ever outreach initiatives that were collaboratively implemented by multiple MRO organizational groups. The Security Advisory Council (SAC) and Compliance Monitoring and Enforcement Program Advisory Council (CMEPAC) collaborated to conduct a series of educational webinars on supply chain risks, recognizing the important technical aspects of this emerging issue as well as the challenges entities are facing with the upcoming implementation of CIP-013. Both the CMEPAC and SAC also provided input into the MRO Reliability Risk Matrix, an idea that originated with the Reliability Advisory Council (RAC), and has gained a lot of momentum as being a possible ERO-wide framework for the prioritization of risks. You will find more information on the efforts of MRO's organizational groups, outreach, and the Reliability Risk Matrix within this report.

Progress made on key CMEP projects in 2020 including Align, COREs, Secure Evidence Locker (SEL) and Compliance Oversight Plans (COPs) were a major focus for staff. You can find more information on each of these ongoing projects within this report. Most notably, MRO is one of two regions that piloted



the rollout of the new software systems that will bring greater consistency across the ERO Enterprise, added transparency with industry, and new levels of security to the way MRO performs its CMEP functions.

To better align technical resources with work associated to MRO's program areas, on January 1, 2021, MRO underwent a reorganization of a few key program areas. Responsibilities for Standards have transitioned to MRO's Risk Assessment and Mitigation (RAM) team, including support of MRO's NERC Standards Review Forum (NSRF). MRO's Reliability Assessment and Performance Analysis (RAPA) functions combined with Registration and Certification to form a new Reliability Analysis department. This reorganization prepares us well to continue focusing on risk in the work we do.

Reliability Analysis accomplished a number of "firsts" in 2020. MRO developed its first independent Reliability Assessment, the 2020 Regional Winter Assessment. MRO plans to develop both summer and winter reliability assessments for the region going forward and you will find more details on these efforts within this report. With a recognition that most of the MRO region is coincident with the footprints of MISO and SPP, Reliability Analysis collaborated with those two Regional Transmission Organizations to develop training for MRO staff to ensure awareness of markets and their interrelationship with reliability, outage coordination, generation queues, and reliability initiatives. Additionally, through partnership with NERC,

MRO produced four Lessons Learned through the ERO Event Analysis Process, the most in MRO's history, and a valuable tool for entities to learn from the events that have taken place on their peers' systems.

Also in 2020, both NERC and FERC approved a five-year renewal of the Regional Delegation Agreements (RDA) the Regional Entities have with NERC. The RDA is the foundation of the work MRO does to protect the reliability and security of the bulk power system in our region, and this renewal reflects the confidence that NERC and FERC have in our ability to execute our delegated responsibilities. The revised RDA incorporates concepts related to independence, which is critically important given the need to balance the work we do with stakeholders and our role as a regulatory body. A significant amount of collaboration across the ERO Enterprise went into revising the RDAs, and this collegial and open process is a testament of the ERO Enterprise Transformation efforts and demonstrates what we can achieve by working closely together toward a mutually agreeable outcome.

Thanks to the HEROic efforts of our members, registered entities, organizational groups, and staff, 2020 was a very productive year. These accomplishments provide us momentum as we head into 2021 with a continued focus on reliability and security of North America's most critical infrastructure, the power system. **Wow, what a year!**



## Strategic Plan and Metrics

### Strategic Plan Results

Each year, MRO establishes corporate metrics in support of our [three-year strategic plan](#). While the process remained the same in 2020 as in prior years, the COVID-19 pandemic presented a bit of a wrinkle. At the time of the board's approval of the metrics during its first quarter meeting, staff noted that the 2020 metrics were developed prior to the COVID-19 pandemic and that certain metrics may be impacted by the pandemic as the year progressed. Given the uncertainties surrounding the pandemic, the Governance and Personnel Committee was asked to review metric progress at each quarterly meeting in 2020 and recommend revisions to any metrics impacted by the pandemic for the board's consideration.

Despite 2020 being a year full of uncertainty and challenges brought on by the global pandemic, coupled with MRO's decision to transition to a full-remote work environment in March, only one metric was revised. And through the dedication and commitment of our staff, organizational group volunteers, and other stakeholder partners, we made tremendous progress in achieving the target and stretch goals that we had set out at the beginning of the year.

The 2020 metrics were focused on MRO's six strategic

goals of:

1. Improving risk-responsive Reliability Standards;
2. Expanding risk-informed implementation of CMEP and Registration programs;
3. Reducing known reliability risks;
4. Identifying and assessing emerging reliability risks;
5. Identification and reduction of cyber and physical security risks; and
6. Improving ERO Enterprise effectiveness and efficiency.

MRO met all 26 of its target metrics associated with these strategic goals in 2020 by completing projects such as: shortening processing time for minimal risk noncompliances, completing a regional reliability assessment, implementing a stakeholder recognition program, and supporting the development of the Align tool and Secure Evidence Locker. And, of the 20 stretch goals, 15 were accomplished including greater amounts of outreach through MRO's Advisory Councils, developing Compliance Oversight Plans utilizing the new ERO process, and implementing a corporate security metrics dashboard for MRO's IT environment.

Development of 2021 metrics, which will continue to support and strengthen the six goals identified above, is currently underway. In the fall of 2021, we will develop a new strategic plan that looks forward 3 years to ensure our future remains bright!





# Financial Results

## Finance and Accounting

Each year, the MRO Finance and Administration team prepares an annual business plan and budget for the following calendar year. The budget considers the ERO Enterprise Long-Term Strategy, key objectives and metrics, along with MRO's Strategic Plan. The annual budgeting process is a coordinated effort with NERC and the Regional Entities, with each entity developing its own business plan and budget. The budgets are subject to review and comment by industry stakeholders before approval by the Regional Entity boards, the NERC Board of Trustees, and finally FERC.

Funding of the NERC and Regional Entity budgets is primarily provided through assessments to load-

serving entities—those owners, operators, and users of the bulk power system responsible for delivering electricity to retail customers—based on how much net energy they need to meet their users' energy requirements. NERC collects funds from these load-serving entities and allocates the funds to the Regional Entities.

## 2020 Business Plan and Budget

MRO's 2020 approved budget was 9.8 percent higher than the 2019 budget due to increased responsibilities commensurate with its expanded geographic territory and the addition of nearly 100 registered entities from the former SPP Regional Entity, which was dissolved

in 2018. Associated assessments also increased by 9.8 percent in 2020 over the prior year.

## 2020 Financial Results

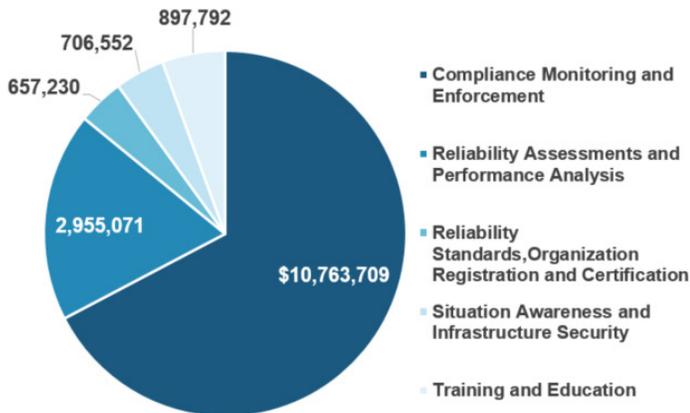
MRO's unaudited results are 9.1 percent under the approved 2020 budget. The underage was primarily driven by business impacts associated with the COVID-19 pandemic, which resulted in significantly lower than expected travel and meeting costs, along with lower operating expenses. With board approval, underages in these budget areas were partially offset by an unbudgeted expansion and remodel project of MRO's office in St. Paul. The new space allows for social distancing, with each staff member having a

dedicated space, improved traffic flows throughout the office, and increased meeting space to accommodate more and socially distanced internal meetings.

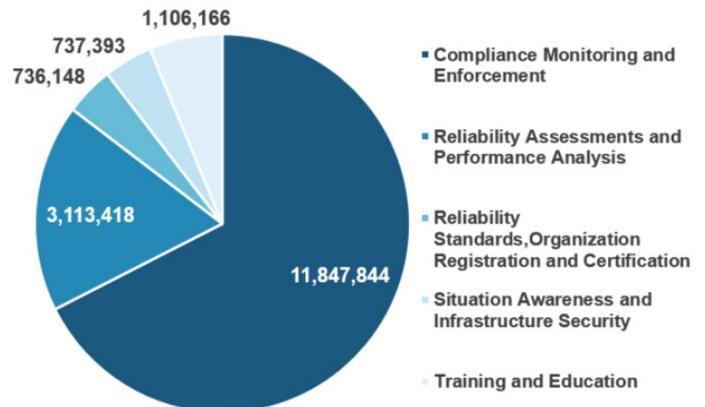
## 2021 Outlook

The 2021 budget is 5 percent more than the 2020 approved budget, and accommodates an increase in operations and FTEs, along with expanded registered entity outreach and engagement. Considering the state of the economy within the pandemic environment, the 2021 statutory assessments were held at 2020 levels, and MRO will utilize its assessment stabilization reserves to manage the variance between budgeted expenses and assessments.

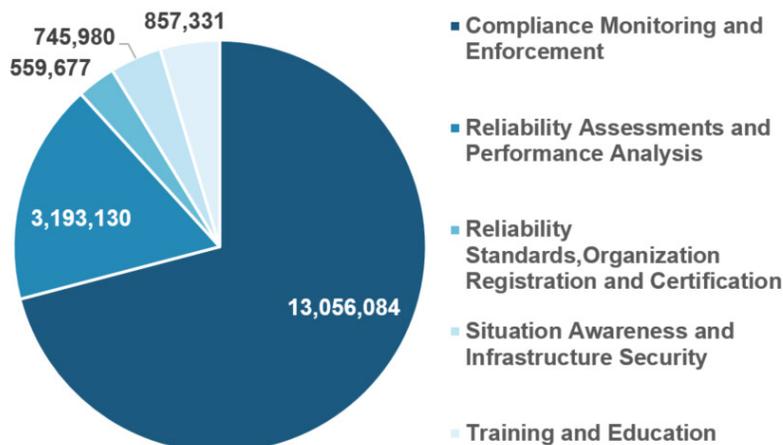
2019 BUDGET



2020 BUDGET



2021 BUDGET





*Sara Patrick*  
President and CEO



*Richard Burt*  
Senior Vice President and Chief  
Operating Officer



*Lam Chung*  
Vice President for Strategy,  
Innovation and Finance



*Lisa Zell*  
Vice President General Counsel  
and Corporate Secretary

# The People That Make It Happen

## MRO Leadership Team

At MRO, we foster a culture that ties directly to our keys to sustainable success. One where people are **connected** to the work they do and the people they work with, both at MRO and across the ERO Enterprise. A culture where **curiosity** is encouraged and people feel empowered to examine the status quo and ask tough questions. A culture that starts with the WHY and where a **commitment** to our vision of a highly reliable and secure North American bulk power system is led by example. A culture that values technical **competency**. One where decisions are not made solely on the basis of power and authority, but that defers to the intelligence, experience and expertise of our boots on the ground.

MRO continued to hire exceptional talent in 2020, successfully onboarding eight new employees in a virtual environment. The year also saw changes to our executive team with the retirement of Miggie Cramblit and the addition of Lisa Zell as Vice President, General Counsel and Corporate Secretary. MRO was extremely fortunate to have someone with Zell's experience in corporate governance and external affairs join the organization and she has been an extremely valuable member of MRO's leadership team.

## Ensuring Diversity, Equity and Inclusion

MRO's core principles empower our employees to own and embody the spirit of inclusion; however, the local and national social unrest of 2020 sparked a more concerted focus and conversation related to equality, diversity, and inclusion within MRO. The events and conversations provided an opportunity for MRO to be more visible and intentional in diversity and inclusion initiatives. Recognizing this opportunity, a dedicated and employee-led committee was formed in the third quarter of the year to focus on diversity and inclusion within the organization.

The committee identified the value of providing inclusion awareness training to all staff as a first step in the introduction of these initiatives to the extended MRO team. This training provided insight and allowed all participants to recognize how unconscious bias can create a roadblock to our culture. The training further emphasized how inclusiveness can create an environment where all employees feel welcomed, respected, and safe.

As important members of this organization, we need to recognize that the commitment to diversity and inclusion requires individual reflection and may

include difficult discussions with each other. We need to embrace the curiosity and new perspective that such discussions may cause, while continuing to approach our inclusiveness initiatives as a team that recognizes the places where we all can do better. It is through this lens that the Diversity and Inclusion Committee will continue to evaluate our policies, practices, and initiatives to ensure that diversity and inclusion are embraced and reflected in our discussions, decisions, and actions. The ultimate goal is for us to become more successful as a team of individuals by embracing the different backgrounds, strengths, ideas, experiences, and interests that are the true strengths of MRO.

## ERO Enterprise Community

The ERO Enterprise (collectively NERC and the six Regional Entities) has been on a path of transformation over the past two years to improve the way we work together to meet our shared vision, mission and principles. This effort began with the recognition that the future has not happened yet and is for us to define. Although we are together in this complex eco system, we each have distinctive roles in achieving our common objectives. Our success lies in our ability to share information, knowledge, and resources across ERO Enterprise, and actively support each other in the work we do.

Relationships amongst and between ERO Enterprise staff are better now than ever before. MRO's CEO Sara Patrick serves alongside NERC president and CEO Jim Robb as co-chair of the ERO Executive Committee (ERO EC), which is comprised of NERC's senior leadership team and the CEOs from our six Regional Entities. This group was focused in 2020 on WHY we exist—a highly reliable and secure North American bulk power system—and HOW and WHAT is necessary to evolve and execute our programs effectively and efficiently across the entire enterprise.

In 2020, the ERO EC took positive steps to build upon these principles through the expansion of the transformation across the entire enterprise, placing the WHY at the forefront of decision making at all levels.

Together, the ERO Enterprise shares a common set of Core Principles:

### Accountability

- Maintain the public trust in fulfilling responsibilities and use our funding wisely.
- Act in a timely manner on the basis of facts to address issues related to events, emerging reliability risks, the needs of stakeholders, and the public interest.

### Independence

- Be impartial, objective, fair, and intellectually honest.
- Ensure governance practices that provide both regulatory independence and inclusion of stakeholder expertise to address reliability and security matters.

### Inclusiveness and Transparency

- Create opportunities for stakeholder engagement.
- Consider and balance the diverse interests of all stakeholders, including costs imposed to the consumer.
- Leverage industry expertise and avoid unnecessary duplication.

### Innovation

- Assess emerging risks and adapt to change.
- Encourage new ideas and prioritize efforts that contribute to improving productivity and reliable operations.

### Excellence

- Strive for operational excellence by being rigorous, accurate, and exacting.
- Promote the active participation of the best technical experts.
- Make informed decisions regarding efficient use and allocation of resources.

### Integrity

- Maintain the highest levels of ethical conduct.
- Maintain respectful relationships.
- Protect the security of confidential information

# 2020 MRO Members

Acciona Wind Energy USA	Great River Energy	Odell Wind Farm
AE Power Services LLC	Green Country Energy	Oklahoma Gas and Electric
AES Shady Point LLC	Hastings Utilities	Oklahoma Municipal Power Authority
ALLETE, Inc. d/b/a Minnesota Power	Heartland Consumers Power District	Omaha Public Power District
Alliant Energy	Hutchinson Utilities Commission	Otter Tail Power Company
American Electric Power	Iberdrola Renewables (aka. PPM Energy, Inc)	Pattern Operators LP
American Transmission Company	Iowa Association of Municipal Utilities	Proven Compliance Solutions
Ames Municipal Electric System	Iowa Industrial Energy Group	Ramakrishna Gokaraju, University of Saskatchewan
Arkansas Electric Cooperative Corporation (AECC)	ITC Great Plains, LLC	Rochester Public Utilities
Badger Power Marketing Authority of Wisconsin	ITC Midwest LLC	Saskatchewan Power Corporation
Basin Electric Power Cooperative	Kansas City Board of Public Utilities	Sheridan Electric Cooperative, Inc.
Board of Water, Electric, & Communications of the City Muscatine Iowa d/b/a Muscatine Power & Water	Kansas Electric Power Cooperative, Inc.	Southern Minnesota Municipal Power Agency
Capital Power Corporation	Lincoln Electric System	Southern Power Company
Caprock Wind, LLC	Madison Gas and Electric Company	Southwest Power Pool
Cedar Falls Utilities	Manitoba Hydro	Southwestern Power Administration
Central Iowa Power Cooperative	Marshfield Utilities	Southwestern Public Service Company
Central Power Electric Cooperative, Inc.	McKenzie Electric Cooperative	Sunflower Electric Power Corporation
City of Independence Power & Light	MidAmerican Energy Company	Tenaska Power Services Co.
City Utilities of Springfield, Missouri	Midcontinent Independent System Operator, Inc.	The Empire District Electric Company
Coffeyville Municipal Light & Power	Midwest Energy Inc	The Energy Authority
Corn Belt Power Cooperative	Minnesota Chamber of Commerce	Upper Missouri Power Cooperative
Dairyland Power Cooperative	Minnkota Power Cooperative, Inc.	Upper Peninsula Power Co.
Dogwood Power Management, LLC	Missouri Basin Municipal Power Agency d/b/a Missouri River Energy Services	Utility Services, Inc.
Dominion Energy Marketing, Inc.	Montana-Dakota Utilities Company	Western Area Power Administration
East River Electric Power Cooperative, Inc.	Moorhead Public Service	Western Farmers Electric Cooperative
Eergy, Inc.	Mountrail-Williams Electric Cooperative	Willmar Municipal Utilities
Flat Ridge 2 Wind Energy LLC	Nebraska Public Power District	Wisconsin Industrial Energy Group
Flat Ridge Wind Energy LLC	New Ulm Public Utilities	Wisconsin Rapids Water Works and Lighting Commission
Glencoe Light and Power	NextEra Energy Resources, LLC	WPPI Energy
Golden Spread Electric Cooperative, Inc.	Northern States Power Company d/b/a Xcel Energy	
Grand River Dam Authority	Northwestern Energy	



# The Work of the MRO Board

## Staying Connected in a Virtual Environment

While the pandemic and other disruptions of 2020 certainly created new challenges, the MRO Board of Directors continued its important oversight work, staying connected through virtual meetings throughout the year. The board regularly reviewed the organization's efforts to respond to the impactful events of last year, including the global pandemic, economic and social issues, and reliability and security concerns, all while conducting normal business and tracking progress against stated 2020 objectives.

MRO Board membership is comprised of very diverse backgrounds and competencies – providing the innovative thinking and complex problem-solving skills necessary to build upon the keys to MRO's sustainable success. The board and staff said goodbye to, and will surely miss, the dedicated leadership and committed service of the following board members in 2021:

- Joe McGovern, Alliant Energy (Investor Owned Utility Sector)
- Paul Roehr, American Transmission Company (Transmission System Operator Sector)
- Sidney Jackson, Rochester Public Utilities (Municipal Sector)

In 2021, we welcomed Charles Marshall, ITC Holdings Corporation, from the Transmission System Operator Sector, and Scott Nickels, from the Municipal Utility Sector.

Tom Kent was elected board chair and Brad Cox will serve as vice chair again in 2021.

# 2020 MRO Board of Directors



**Thomas Kent, Chair**  
Nebraska Public Power  
District  
Cooperative Sector



**Brad Cox, Vice Chair**  
Tenaska Power Services  
Generator Power Mrktr.  
Sector



**Darcy Neigum**  
Montana-Dakota Utilities  
Investor Owned Sector



**Dehn Stevens**  
MidAmerican Energy  
Investor Owned Sector



**Dr. Dana Born**  
Independent Director



**Dr. Paul Barber**  
Independent Director



**Gordon Pietsch**  
Great River Energy  
Cooperative Sector



**Iqbal Dhami**  
Saskatchewan Power  
Canadian Sector



**James "JP" Brummond**  
Alliant Energy  
Investor Owned Sector



**Jeanne Tisinger**  
Independent Director



**Jennifer Flandermeyer**  
Regional Director



**JoAnn Thomson**  
Otter Tail Power Co.  
Investor Owned Sector



**Joe McGovern**  
Former Allian Energy  
Investor Owned Sector



**Keri Glitch**  
MISO  
Transmission System  
Operator Sector



**Lloyd Linke**  
Western Area Power Assc.  
Federal Power Sector



**Michael Desselle**  
Southwest Power Pool  
Transmission System  
Operator Sector



**Michael Lamb**  
Xcel Energy  
Investor Owned Sector



**Paul Crist**  
Lincoln Electric System  
Municipal Utility Sector



**Paul Roehr**  
American Transmission Co.  
Transmission System  
Operator Sector



**Sidney Jackson**  
Rochester Public Utilities  
Municipal Sector



**Silvia Parada Mitchell**  
NextEra Energy  
Generator Power Mrktr.  
Sector



**Stuart Lowry**  
Regional Director



**Thomas Graham**  
Independent Director



**Tony Clark**  
Manitoba Hydro  
Canadian Sector

## Letter From The Board Chair

MRO and the ERO Enterprise share a critically important mission with industry “to identify, prioritize, and assure effective and efficient mitigation of risks to the reliability and security of the North American bulk power system.” For several years, MRO has reinforced its mission by promoting Highly Effective Reliability Organizations® (HEROs). The concept of HEROs is based on the theory and principles of High Reliability Organizations, as introduced in a series of books on managing the unexpected by Drs. Karl E. Weick and Kathleen M. Sutcliffe. Weick and Sutcliffe examine ways that people and organizations organize for high performance settings where the potential for error is overwhelming.

This past year, I read the most recent edition of [Managing the Unexpected: Sustained Performance in a Complex World](#) (Weick & Sutcliff, 2015). In it, the authors highlight the following five principles that underlie HRO performance and the capacity to anticipate, respond, and contain the unexpected.

1. Preoccupation with failure
2. Reluctance to simplify interpretations
3. Sensitivity to operations
4. Commitment to resilience
5. Deference to expertise

As I reflect on 2020, I am reminded that the principles of High Reliability Organizations are more important now than ever before. It would be an understatement to refer to the events of this past year as simply “unexpected.” We all lived the same challenges, experiences, and unprecedented disruption. Weick and Sutcliff point out that it takes more than the five principles to be successful. “It takes an infrastructure that supports sensemaking, continuous organizing, and adaptive managing,” which they refer to as mindful organizing. Mindful organizing allows High Reliability Organizations to perform remarkably well, day after day, under incredibly complex circumstances. The work we collectively did in 2020 to address risk and protect the reliability and security of the power grid, despite many unexpected circumstances, is a great example of mindful organizing.

I also believe that a culture that values diverse experience, diverse opinions, and diverse backgrounds is required of High Reliability Organizations. The diversity of thought, unique experiences, varied knowledge and backgrounds that we all bring to the table, are what makes us a better whole. We cannot be highly reliable without creating an environment where all feel welcomed, and where all have a safe place to contribute to the best of their ability and the betterment of their organization.

As chair of the MRO Board, I am incredibly proud of what the organization accomplished in 2020 and the work that is highlighted in this report. I commend Sara Patrick and her team for being flexible and adapting to a number of unknown and quickly evolving situations, for practicing the principles of High Reliability Organizations, for making diversity and inclusion priorities, and for maintaining a steadfast focus on our collective vision of a highly reliable and secure North American bulk power system.

While I am grateful that we have technology to keep us connected while we are apart, I look forward to a time when we are all back together again, sharing the different experiences from 2020 that will allow us to continue to strengthen our resilience in the months and years ahead.



*Thomas Kent, Board Chair  
President and CEO  
Nebraska Public Power District*

2019

2021

2022

# The Path Forward

Like many of our colleagues, the impactful events of 2020 have us questioning the assumptions we made pre-pandemic during the development of our strategic plan and business plan and budget. As we look at developing these important documents for 2022 and beyond, envisioning what the new normal will look like seems an impossibility.

At last year's June board meeting, we learned to leave "new normal" behind as we work toward what Caitlin Durkovich, Senior Director of Resilience and Response at the National Security Council, formerly of Toffler Associates shared as the "novel normal," or the period in which we finally experience lasting change. Lasting change in the novel normal will likely depend upon the duration and depth of the pandemic effects and response, increased awareness of personal and societal vulnerabilities, and the prolonged impact of new behaviors from physical distancing, including the deployment of new technologies to support a more virtualized life. Lasting change must reflect a more inclusive culture, one that recognizes and addresses the inequities that inherently exist in our systems, and not only appreciates, but celebrates, our diversity.

Unlike Ben Franklin, who said "the only thing promised in life is death and taxes," I believe the one certainty we have in life is that change will happen. If 2020 has taught us anything, it's that we need to embrace change, seek the silver linings, remain flexible (keep an open mind), be willing to adapt, and finally, pursue the opportunities that change inevitably presents.

It is in this context that I am hopeful and optimistic, and look forward to the many changes that 2021 will certainly bring.

***Our future is bright!***

*-Sara Patrick, President and CEO*



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