

Meeting Agenda

Reliability Advisory Council (RAC)

Thursday, February 22, 2024
9:00 a.m. to 3:00 p.m. central

*MRO Corporate Offices, King Conference Center
St. Paul, MN & Webex*



**MIDWEST
RELIABILITY
ORGANIZATION**

380 St. Peter St, Suite 800
Saint Paul, MN 55102

651-855-1760

www.MRO.net

Public

VIDEO AND AUDIO RECORDING

Please note that Midwest Reliability Organization (MRO) may make a video and/or an audio recording of this organizational group meeting for the purposes of making this information available to board members, members, stakeholders, and the general public who are unable to attend the meeting in person.

By attending this meeting, I grant MRO:

1. Permission to video and/or audio record the meeting including me; and
2. The right to edit, use, and publish the video and/or audio recording.
3. I understand that neither I nor my employer has any right to be compensated in connection with the video and/or audio recording or the granting of this consent.

MRO ORGANIZATIONAL GROUP GUIDING PRINCIPLES

These MRO Organizational Group Guiding Principles complement charters. When the Principles are employed by members, they will support the overall purpose of the organizational groups.

Organizational Group Members should:

1. Regularly attend meetings of the group(s) on which the member serves.
2. Competently prepare for, and be an active participant in, the meetings for the group(s) on which the member serves.
3. Collaborate with other organizational group members in support of the mission, vision, and strategic initiatives of MRO.
4. Support the Highly Effective Reliability Organization (HERO™) principles.

MRO RELIABILITY ADVISORY COUNCIL MEETING AGENDA

Agenda Item	
1	<p>Call to Order and Determination of Quorum <i>Gayle Nansel, Reliability Advisory Council Chair</i></p> <ul style="list-style-type: none"> a. Determination of Quorum b. Robert’s Rules of Order
2	<p>Standards of Conduct and Antitrust Guidelines <i>Bryan Clark, Director of Reliability Analysis, MRO</i></p>
3	<p>Safety Briefing <i>Shawn Keller, Outreach Coordinator, MRO</i></p>
4	<p>Chair’s Remarks <i>Gayle Nansel, Reliability Advisory Council Chair</i></p>
5	<p>New Members’ Welcome Presentation <i>Rebecca Schneider, Reliability Analysis Administrator, MRO</i></p>
6	<p>Consent Agenda <i>Gayle Nansel, Reliability Advisory Council Chair</i></p> <ul style="list-style-type: none"> a. Approve November 9, 2023, meeting minutes b. RAC member recommendations to the OGOC for approval
7	<p>MRO Board of Directors, OGOC and General Update <i>Bryan Clark, Director of Reliability Analysis, MRO</i></p>
8	<p>Interregional Transfer Capability Study (ITCS) Update <i>Bryan Clark, Director of Reliability Analysis, MRO</i></p>
9	<p>RSTC Meeting Update <i>Jake Bernhagen, Manager of Reliability Performance, MRO</i></p>
10	<p>MRO Representatives on NERC Subgroups – Written Reports <i>Bryan Clark, Director of Reliability Analysis, MRO</i></p> <ul style="list-style-type: none"> a. NERC Electric Gas Working Group (EGWG) – <i>Jaimin Patel</i> b. NERC Inverter-Based Resource Performance Subcommittee (IRPS) – <i>Doug Bowman</i> c. NERC System Planning Impacts from DER Working Group (SPIDERWG) – <i>Wayne Guttormson</i> d. NERC System Protection and Control Working Group (SPCWG) – <i>Lynn Schroeder</i> e. NERC Energy Reliability Assessment Working Group (ERAWG) – <i>Tom Whynot</i>
Break – 10:00 a.m.	
11	<p>2024 Work Plan Update <i>Gayle Nansel, Reliability Advisory Council Chair</i></p> <ul style="list-style-type: none"> a. Review Action Items b. NERC Rep Assignments c. 2024 Reliability Conference Update <i>Dallas Rowley, Reliability Advisory Council Member</i>

Meeting Agenda – Reliability Advisory Council – Thursday, February 22, 2024

12	Reliability Coordinator Updates <ul style="list-style-type: none">a. MISO – <i>Andy Witmeier, Reliability Advisory Council Member</i>b. SPC – <i>Binod Shrestha, Reliability Advisory Council Member</i>c. SPP – <i>CJ Brown, Reliability Advisory Council Member</i>
13	Planning Coordinator Updates <ul style="list-style-type: none">a. SaskPower – <i>Binod Shrestha, Reliability Advisory Council Member</i>b. Manitoba Hydro – <i>Nandaka Jayasekara, Reliability Advisory Council Member</i>
Lunch – 12:00 p.m.	
14	MRO Regional Risk Assessment (RRA) <i>Mark Tiemeier, Principal Technical Advisor, MRO</i>
15	NERC Standards Review Forum (NSRF) Update <i>Gayle Nansel, Reliability Advisory Council Chair</i>
16	Protective Relay Subgroup (PRS) Update <i>Jake Bernhagen, Manager of Reliability Performance, MRO</i>
17	2024 Meeting Dates <i>Gayle Nansel, Reliability Advisory Council Chair</i>
18	RAC Member Roundtable <i>Reliability Advisory Council Members</i>
19	Other Business and Adjourn <i>Gayle Nansel, Reliability Advisory Council Chair</i>

Call to Order and Determination of Quorum

Determination of Quorum

Gayle Nansel, Reliability Advisory Council Chair

Name	Role	Company	Term
Gayle Nansel	Chair	Western Area Power Administration	12/31/25
Bryn Wilson	Vice Chair	Oklahoma Gas & Electric	12/31/26
Andy Witmeier	Member	MISO	12/31/24
Binod Shrestha	Member	Saskatchewan Power Corporation	12/31/25
CJ Brown	Member	Southwest Power Pool	12/31/24
Dallas Rowley	Member	Oklahoma Gas & Electric	12/31/25
Dick Pursley	Member	Great River Energy	12/31/25
Jason Weiers	Member	Otter Tail Power Company	12/31/24
Jeremy Severson	Member	Basin Electric Power Cooperative	12/31/24
Mark Eastwood	Member	City Utilities of Springfield, MO	12/31/26
Nandaka Jayasekara	Member	Manitoba Hydro	12/31/25
Open			12/31/26
Open			12/31/26
Open			12/31/26
Open			12/31/24

Call to Order and Determination of Quorum

Robert's Rules of Order

Gayle Nansel, Reliability Advisory Council Chair

Parliamentary Procedures. Based on Robert's Rules of Order, Newly Revised, Tenth Edition

Establishing a Quorum. In order to make efficient use of time at MRO organizational group meetings, once a quorum is established, the meeting will continue, however, no votes will be taken unless a quorum is present at the time any vote is taken.

Motions. Unless noted otherwise, all procedures require a "second" to enable discussion.

When you want to...	Procedure	Debatable	Comments
Raise an issue for discussion	Move	Yes	The main action that begins a debate.
Revise a Motion currently under discussion	Amend	Yes	Takes precedence over discussion of main motion. Motions to amend an amendment are allowed, but not any further. The amendment must be germane to the main motion, and cannot reverse the intent of the main motion.
Reconsider a Motion already resolved	Reconsider	Yes	Allowed only by member who voted on the prevailing side of the original motion. Second by anyone.
End debate	Call for the Question <i>or</i> End Debate	No	If the Chair senses that the committee is ready to vote, he may say "if there are no objections, we will now vote on the Motion." Otherwise, this motion is not debatable and subject to majority approval.
Record each member's vote on a Motion	Request a Roll Call Vote	No	Takes precedence over main motion. No debate allowed, but the members must approve by majority.
Postpone discussion until later in the meeting	Lay on the Table	Yes	Takes precedence over main motion. Used only to postpone discussion until later in the meeting.
Postpone discussion until a future date	Postpone until	Yes	Takes precedence over main motion. Debatable only regarding the date (and time) at which to bring the Motion back for further discussion.

Meeting Agenda – Reliability Advisory Council – Thursday, February 22, 2024

Remove the motion for any further consideration	Postpone indefinitely	Yes	Takes precedence over main motion. Debate can extend to the discussion of the main motion. If approved, it effectively “kills” the motion. Useful for disposing of a badly chosen motion that cannot be adopted or rejected without undesirable consequences.
Request a review of procedure	Point of order	No	Second not required. The Chair or secretary shall review the parliamentary procedure used during the discussion of the Motion.

Notes on Motions

Seconds. A Motion must have a second to ensure that at least two members wish to discuss the issue. The “second” is not required to be recorded in the minutes. Neither are motions that do not receive a second.

Announcement by the Chair. The chair should announce the Motion before debate begins. This ensures that the wording is understood by the membership. Once the Motion is announced and seconded, the Committee “owns” the motion, and must deal with it according to parliamentary procedure.

Voting

Voting Method	When Used	How Recorded in Minutes
Vote by Voice	The standard practice.	The minutes show Approved or Not Approved (or Failed).
Vote by Show of Hands (tally)	To record the number of votes on each side when an issue has engendered substantial debate or appears to be divisive. Also used when a Voice Vote is inconclusive. (The Chair should ask for a Vote by Show of Hands when requested by a member).	The minutes show both vote totals, and then Approved or Not Approved (or Failed).
Vote by Roll Call	To record each member’s vote. Each member is called upon by the Secretary, and the member indicates either “Yes,” “No,” or “Present” if abstaining.	The minutes will include the list of members, how each voted or abstained, and the vote totals. Those members for which a “Yes,” “No,” or “Present” is not shown are considered absent for the vote.

Notes on Voting.

Abstentions. When a member abstains, he/she is not voting on the Motion, and his/her abstention is not counted in determining the results of the vote. The Chair should not ask for a tally of those who abstained.

Meeting Agenda – Reliability Advisory Council – Thursday, February 22, 2024

Determining the results. A simple majority of the votes cast is required to approve an organizational group recommendations or decision.

“Unanimous Approval.” Can only be determined by a Roll Call vote because the other methods do not determine whether every member attending the meeting was actually present when the vote was taken, or whether there were abstentions.

Electronic Votes – For an e-mail vote to pass, the requirement is a simple majority of the votes cast during the time-period of the vote as established by the Committee Chair.

Majorities. Per Robert’s Rules, as well as MRO Policy and Procedure 3, a simple majority (one more than half) is required to pass motions.

Standards of Conduct and Antitrust Guidelines

Bryan Clark, Director of Reliability Analysis, MRO

Standards of Conduct Reminder:

Standards of Conduct prohibit MRO staff, committee, subcommittee, and task force members from sharing non-public transmission sensitive information with anyone who is either an affiliate merchant or could be a conduit of information to an affiliate merchant.

Antitrust Reminder:

Participants in Midwest Reliability Organization meeting activities must refrain from the following when acting in their capacity as participants in Midwest Reliability Organization activities (i.e. meetings, conference calls, and informal discussions):

- Discussions involving pricing information; and
- Discussions of a participant's marketing strategies; and
- Discussions regarding how customers and geographical areas are to be divided among competitors; and
- Discussions concerning the exclusion of competitors from markets; and
- Discussions concerning boycotting or group refusals to deal with competitors, vendors, or suppliers.

Safety Briefing

Shawn Keller, Outreach Coordinator, MRO

Action

Information

Report

Shawn Keller will lead this agenda item.

Chair's Remarks

Gayle Nansel, Reliability Advisory Council Chair

Action

Information

Report

Chair Nansel will give an oral report during the meeting.

New Members' Welcome Presentation
Rebecca Schneider, Reliability Analysis Administrator, MRO

Action

Information

Report

Rebecca Schneider will lead this agenda item.



MIDWEST
RELIABILITY
ORGANIZATION

Midwest Reliability Organization

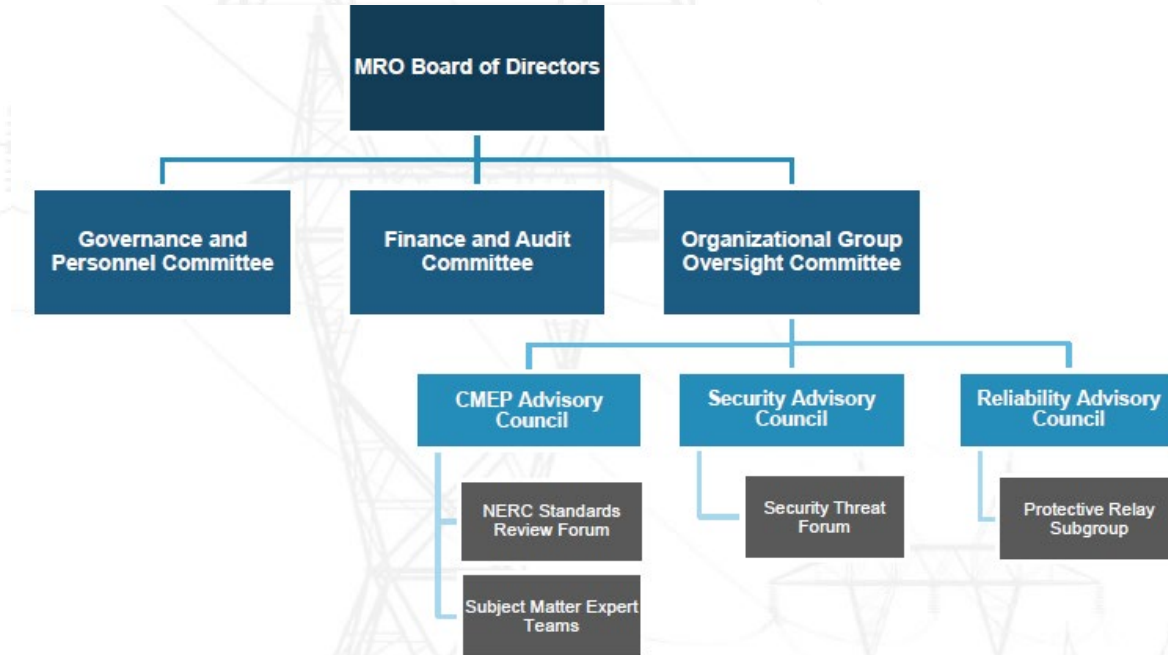
New Member Welcome Presentation

CLARITY

ASSURANCE

RESULTS

Advisory Council Structure



Organizational Group Oversight Committee (OGOC)

- **The OGOC:**

- Establishes and oversees MRO organizational groups and policies applicable to organizational groups
- Ensures organizational groups are effective and efficient and do not duplicate the work of others
- Designates individuals to represent MRO on NERC organizational groups
- The Organizational Group Oversight Committee Charter is posted on [MRO's public website](#)



OGOC 2024 Roster

Member	Sector	Company
Ben Porath	COOP	Dairyland Power Cooperative
Darcy Neigum	<IOU	Montana-Dakota Utilities
Daryl Maxwell, Vice Chair	CU	Manitoba Hydro
Dehn Stevens	IOU ≥ 3000	MidAmerican Energy Company
Eric Miller	TSO	MISO
Eric Schmitt	Ind.	Independent Director
Iqbal Dhani	CU	Saskatchewan Power Corporation
Jeanne Tisinger	Ind.	Independent Director
JoAnn Thompson, Chair	<IOU	Otter Tail Power Company
Maurice Moss	MU	Kansas City Board of Public Utilities



Guiding Principles for Council Members

- **These MRO Organizational Group Guiding Principles complement charters. When the Principles are employed by members, they will support the overall purpose of the organizational groups.**
- **Organizational Group Members should:**
 1. Regularly attend meetings of the group(s) on which the member serves.
 2. Competently prepare for, and be an active participant in, the meetings for the group(s) on which the member serves.
 3. Collaborate with other organizational group members in support of the mission, vision, and strategic initiatives of MRO.
 4. Support the Highly Effective Reliability Organization (HERO™) principles.



Types of Diversity

Inherent Diversity

- Race
- Ethnicity
- Age
- National origin
- Sexual orientation
- Cultural identity
- Assigned sex
- Gender identity

Acquired Diversity

- Expertise (e.g., engineering, operations, security)
- Experience (e.g., executive, technical)
- Geography (e.g., US, Canada, north, south)
- Company (e.g., no more than two members from the same company per group)



The Value of Diverse Teams

- **More focused on facts**
 - More likely to constantly reexamine facts and remain objective
 - Can lead to improved and more accurate group thinking
- **Facts are processed more carefully**
 - Considering the perspective of an outsider can result in improved decision-making and results
- **More innovative**
 - Diversity boosts intellectual potential
 - Conformity discourages innovative thinking

SOURCE: <https://hbr.org/2016/11/why-diverse-teams-are-smarter>



MRO Reliability Advisory Council

The MRO Reliability Advisory Council is an MRO Organizational Group that provides advice and counsel to MRO's Board of Directors (board), the board's Organizational Group Oversight Committee, staff, members and registered entities on topics such as transmission adequacy and availability, resource adequacy, integration of renewables, essential reliability services, event analysis, system protection, and reliability assessments. The MRO Reliability Advisory Council increases outreach and awareness in these key areas.

<https://www.mro.net/organizational-groups/reliability-advisory-council/>



RAC Council Membership

- **MRO's Council consists of 15 members:**
 - Pursuant to [Policy and Procedure 3: Establishment, Responsibilities, and Procedures of Organizational Groups and MRO Sponsored Representative on NERC Organizational Groups](#), membership on councils is based on experience and expertise.
 - No more than two members of the MRO RAC may be an employee of a single entity or affiliated entities.
 - At least three sectors will be represented on the MRO RAC. To the extent practicable, membership will reflect geographic diversity and balanced sector representation.
 - Individuals with expertise and experience in the areas of transmission planning, resource planning, power systems engineering, system operations, as well as control and protection systems serve on the MRO RAC.



MRO RAC 2024 Roster

Member	Term End	Company
Andy Witmeier	12/31/24	MISO
Binod Shrestha	12/31/25	Saskatchewan Power Corporation
Bryn Wilson, Vice Chair	12/31/26	Oklahoma Gas & Electric
C.J. Brown	12/31/24	Southwest Power Pool
Dallas Rowley	12/31/25	Oklahoma Gas & Electric
Dick Pursley	12/31/25	Great River Energy
Gayle Nansel, Chair	12/31/25	Western Area Power Administration
Jason Weiers	12/31/24	Otter Tail Power Company
Jeremy Severson	12/31/24	Basin Electric Power Cooperative
Mark Eastwood	12/31/26	City Utilities of Springfield, MO
Nandaka Jayasekara	12/31/25	Manitoba Hydro
Open	12/31/26	
Open	12/31/26	
Open	12/31/26	
Open	12/31/24	



RAC Key Responsibilities

- Recommend the establishment of subgroups to support the Reliability Advisory Council work plan as appropriate. Oversee and provide direction to any subgroups.
- Support the preparation of special assessments and seasonal readiness plans by regional Reliability Coordinators and as may be directed by NERC or the MRO Board of Directors from time to time.
- Review and assess the overall reliability of the MRO region and interregional bulk electric system for long-term planning horizons based on reports from regional Planning Coordinators as may be directed by NERC or the MRO Board of Directors from time to time.
- Support the development of the annual MRO Regional Risk Assessment by identifying risks, trends, and mitigating activities.



RAC Key Responsibilities

- Review significant BES events (generally, Category 2 or higher) which occurred in the MRO Region and the resulting reports and approve larger scale event reports (Category 3 and higher) to assure the appropriate analysis is performed and that any lessons learned are identified and shared with the industry.
- Provide input and guidance on system protection and control matters, including Reliability Standards development and misoperation reviews.
- Support the applicable NERC program areas.
- The Reliability Advisory Council Charter can be found [here](#).



Meetings

- The MRO RAC will meet quarterly or as necessary, in person or via conference call and/or web meeting.
- All MRO council chairs and vice chairs will meet with the OGOC the day before the fourth quarter regularly scheduled board meeting to review the council's accomplishments during the past year and to develop work plans for the following year.
- Meetings of the RAC are open to public attendance; however, the meeting may be called into closed session by the chair or vice chair. Additional meeting requirements related to agendas and minutes, voting and proxy, and rules of conduct are outlined in [MRO Policy and Procedure 3: Establishment, Responsibilities, and Procedures of Organizational Groups and MRO Representation on NERC Organizational Groups.](#)
- Meeting costs incurred by RAC members are reimbursable by MRO according to [MRO Policy and Procedure 2: Expense Reimbursement.](#)



Meeting/Event Dates

Upcoming RAC Meeting Dates

Meeting/Event	Date
Quarter 1	February 22, 2024
Reliability Conference	May 15, 2024
Quarter 2	May 16, 2024
Quarter 3	August 8, 2024
Quarter 4	October 3, 2024 Joint council meeting Oct. 2



Guidelines for Meetings

- **Meeting Agendas:**

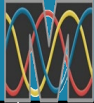
- Short agenda posted one month prior to meeting
- Agenda Packet posted one week prior to meeting

- **Meeting Minutes:**

- Support Staff/Liaison will review up to two weeks after meeting takes place
- Council will review for one week
- Council will vote to approve



Work Plan



MRO RAC 2024 Work Plan

Co	Work Item	Source	Activity	Timing	Responsible Party	Item Audience	Item Type	Status	Notes
1	Conduct outreach and awareness	RAC Charter/MRO Strategic Priority 3	Conduct a minimum of 2 webinars/outreach in 2024 to increase reliability and decrease risk to the reliable and secure operations of the bulk power system. Annual Reliability Conference, webinars- lessons learned, newsletter articles, Standard Application Guides	Periodically	RAC Members	OGOC	Work Plan	Open	The 2024 Reliability Conference is scheduled for May 15, 2024 in St. Paul, MN at the MRO office. A subgroup of RAC members will be formed to develop topics and speakers. The council will also be holding their annual Cold Weather Preparedness Workshop in Q4 and a Long Term Reliability Assessment Webinar in January of 2024.
2	Provide Reliability Standard Reviews	RAC Charter/MRO Strategic Priority 3	Regular interface with other councils(CMEPAC and SAC) as it relates to standard development or standard application guidance. Look for opportunities to provide input from an Operational and Planning perspective.	Periodically	RAC Members	OGOC	Work Plan	Open	The RAC will continue to attend NSRF meetings periodically in 2024 with an assigned member as well as look at opportunities to provide guidance for standards relevant to operations and planning. In Q4 of 2024 MRO is planning to host a joint collaboration meeting similar to the previous year where the RAC, CMEPAC and SAC are able to meet together.
3	Review significant events or disturbances on the BES	RAC Charter/MRO Strategic Priority 3	Review of significant BES events and any resulting reports within the MRO Region and outside the region as relevant.	Periodically	RAC Members	OGOC	Work Plan	Open	The RAC will review any significant events or disturbances with a focus on the MRO region from a specific entity at quarterly meetings as necessary.
4	Development of the MRO Regional Risk Assessment	RAC Charter/MRO Strategic Priority 3	Support the development of the annual MRO Regional Risk Assessment by identifying risks, trends and mitigating activities. Use the Risk Matrix tool to assess, quantify, and prioritize reliability risks. This also includes continuous improvement efforts regarding the Reliability Risk Matrix tool.	Qtr 4	RAC Members	OGOC	Work Plan	Open	MRO Staff and MRO RAC Members will discuss and prioritize potential regional risks annually to support the development of the MRO RRA. The RAC will also provide two resources to support MRO staff in ranking risks for the 2025 RRA utilizing the Reliability Risk Matrix.
5	Support Regional representation on NERC organizational groups	RAC Charter	Review NERC Representative reports and provide guidance and feedback to the representatives. The RAC will continue to evaluate the need to follow specific NERC groups with representatives as the RSTC makes changes to the working group structure.	Periodically	RAC Members	OGOC	Work Plan	Open	MRO Staff and MRO RAC Members will look into any new working groups formed as well as existing working groups to determine the need to follow them. In 2024 the RAC will revisit the small teams initiative that was established to focus on each of the 5 NERC groups and help with engagement of the NERC Representative to potentially create more outreach ideas.
6	Review the summary of misoperations across the MRO Region (prepared by MRO staff)	PRS Charter	The Protective Relay Subgroup will review misoperations across the region to ensure that misoperations are effectively identified and mitigated.	Periodically	PRS Members	OGOC	Work Plan	Open	The PRS will look into potential lessons learned and targeted outreach for any misoperations. The group will also focus on regional misoperations during the quarterly meetings in a closed session where members perform an in-depth analysis in small breakout groups.
7	Support the Inter-Regional Transfer Capability Study(ITCS)	RAC Charter	Inter-Regional Transfer Capability Support, Outreach, Review as needed.	Periodically	MRO Staff	OGOC	Work Plan	Open	This study is a directive from the Fiscal Responsibility Act of 2023 and must be filed with FERC by December 2, 2024. The RAC should receive quarterly updates on this initiative and look for opportunities to provide input to the study as subject matter experts of the MRO region.

The items above this row are seeking/have been granted OGOC approval. The items below this row are example ideas on how the advisory council could implement any approved work plan items.



MRO Protective Relay Subgroup

The purpose of the MRO Protective Relay Subgroup (PRS) is to identify, review and discuss system protection and control issues relevant to the reliability of the bulk electric system and to develop and implement regional procedures for applicable NERC PRC standards. The PRS reports to the Reliability Advisory Council (RAC).

<https://www.mro.net/organizational-groups/reliability-advisory-council/protective-relay-subgroup/>



Protective Relay Subgroup Membership

MRO's PRS consists of 19 members:

- Pursuant to [Policy and Procedure 3: Establishment, Responsibilities, and Procedures of Organizational Groups and MRO Sponsored Representative on NERC Organizational Groups](#), membership of organizational groups shall be determined based upon experience, expertise and geographic diversity and to the extent practicable, shall include a balanced representation of the sectors.
- The specific experience and needs of the PRS are determined by the members.
- No more than one member of the PRS may be from the same company.



MRO PRS 2024 Roster

Member	Term End	Company
Adam Daters	12/31/24	ITC Holdings
Alex Bosgoed	12/31/25	Saskatchewan Power Corporation
Casey Malskeit	12/31/25	Omaha Public Power District
Cody Remboldt	12/31/24	Montana-Dakota Utilities
David Weir	12/31/25	Western Area Power Administration
Dennis Lu, Chair	12/31/26	Manitoba Hydro
Dylan Underwood	12/31/26	Southwestern Power Administration
Glenn Bryson	12/31/24	American Electric Power
Greg Hill	12/31/25	Nebraska Public Power District
Jeff Beasley	12/31/25	Grand River Dam Authority
Josh Erdman	12/31/24	Xcel Energy
Lynn Schroeder	12/31/25	Sunflower Electric Power Corporation
Nathan Gulczynski	12/31/26	American Transmission Company
Rochelle Trefry	12/31/25	MidAmerican Energy Company
Ryan Bissett	12/31/26	Central Iowa Power Cooperative
Ryan Einer, Vice Chair	12/31/26	OG&E Energy Corp
Sarah Marshall	12/31/24	Alliant Energy
Scott Paramore	12/31/24	Kansas City Board of Public Utilities
Tyler Porter	12/31/26	Great River Energy



PRS Key Responsibilities

- Develop, maintain, and implement regional procedures as needed that address the requirements of NERC PRC standards.
- Annually review the MRO summary of Misoperations to identify Lessons Learned and communicate these lessons with MRO membership.
- Trend the Event Analysis reports submitted to MRO for the purpose of identifying misoperations that are causing, or increasing the severity of, these events. Through the PRS, work with the Entities involved with these events to assure that the misoperations are effectively identified and mitigated. Assure that any protection-related Lessons Learned of value to the industry are prepared and submitted to NERC Event Analysis staff.
- Prepare as necessary additional reports/whitepapers that identify methods that can reduce the likelihood or severity of system events or misoperations that can lead to system events.
- Provide technical input related to system protection and control to MRO.
- The Protective Relay Subgroup Charter can be found [here](#).



Meetings

- The MRO PRS will meet quarterly or as necessary, in person or via conference call and/or web meeting.
- Meetings of the PRS are open to public attendance; however, the meeting may be called into closed session by the chair or vice chair. Additional meeting requirements related to agendas and minutes, voting and proxy, and rules of conduct are outlined in MRO Policy and [Procedure 3: Establishment, Responsibilities, and Procedures of Organizational Groups and MRO Representation on NERC Organizational Groups](#)
- Meeting costs incurred by PRS members are reimbursable by MRO according to [MRO Policy and Procedure 2: Expense Reimbursement](#)



Meeting Dates

Upcoming PRS Meeting Dates

Meeting/Event	Date
Quarter 1	March 12, 2024
Quarter 2	June 11, 2024
Quarter 3	September 10, 2024
Quarter 4	December 10, 2024



Important Links

RAC mailing list: mrorac@mro.net Please be sure to whitelist

PRS mailing list: mroprs@mro.net Please be sure to whitelist

RAC Public Site: <https://www.mro.net/organizational-groups/reliability-advisory-council/>

PRS Public Site: <https://www.mro.net/organizational-groups/reliability-advisory-council/protective-relay-subgroup/>

Expense Reimbursement: [MRO Policy and Procedure 2: Expense Reimbursement](#)

Member Responsibilities: [MRO Policy and Procedure 3: Establishment, Responsibilities](#)

Confidentiality Policy: [MRO Policy and Procedure 5: Confidentiality Policy](#)



MRO Contact Information

MRO Website: mro.net

380 St. Peter Street, Suite 800

Saint Paul, MN 55102

Phone: 651-855-1760 (main)

MRO Support Staff

Rebecca Schneider

Reliability Analysis Administrator

Phone: 651-855-1740

Rebecca.schneider@mro.net

MRO RAC Support Staff

Bryan Clark

Director of Reliability Analysis

Phone: 651-256-5171

Bryan.clark@mro.net

MRO PRS Support Staff

Jake Bernhagen

Manager of Reliability Performance

Phone: 651-256-5177

Jake.bernhagen@mro.net

MRO PRS Support Staff

Sarah Wernette

Sr. Systems Protection Engineer

Phone: 651-251-5387

Sarah.wernette@mro.net



Consent Agenda

Gayle Nansel, Reliability Advisory Council Chair

Action

Approve the consent agenda, which includes Q4 2023 Meeting Minutes and RAC member recommendations for OGOC approval.

Report

Meeting Minutes

The consent agenda includes draft minutes from the open and closed meetings held on November 9, 2023. The open minutes as written start on the next page.

RAC Member Recommendations

The consent agenda also includes four new member recommendations pending approval by the Organizational Group Oversight Committee (OGOC).



Draft Minutes of the Reliability Advisory Council Meeting

St. Paul, MN, and Webex

Thursday, November 9, 2023, 9:30 a.m. to 3:24 p.m. Central

Notice for this meeting was electronically posted to the MRO [website](#) on October 12, 2023. A final agenda, including advanced reading materials, was also posted on November 7, 2023.

1. Call to Order and Determination of Quorum

The Reliability Advisory Council (RAC) Chair, Dick Pursley called the meeting to order at 9:30 a.m. Pursley welcomed everyone, and introductions were made. Reliability Analysis Administrator, Rebecca Schneider, advised the chair that a quorum of the RAC was present. A complete list of attendees is included as [Exhibit A](#).

2. Standards of Conduct and Antitrust Guidelines

Pursuant to Policy and Procedure 4, Bryan Clark, MRO Director of Reliability Analysis, highlighted MRO's Standards of Conduct and Antitrust Guidelines.

3. Chair's Remarks

Chair Pursley highlighted several NERC activities including the Winter Storm Elliott Final Report, the NERC Interregional Transfer Capability Study (ITCS), and the ERO Reliability Risk Priorities Report. The Winter Storm Elliott report offered 11 recommendations in four categories for cold weather improvements to: Generator Cold Weather Reliability; Natural Gas Infrastructure Reliability; Gas-Electric Coordination; Electric Grid Operations. Chair Pursley noted the significance of energy policy being added as a new risk to the Reliability Issues Steering Committee (RISC) Report this year. Lastly, Chair Pursley reminded the members that the RAC has four open seats on the roster for 2024. Pursley also recognized the outgoing members for their contributions to the RAC.

4. Consent Agenda

The RAC reviewed the consent agenda, which included draft minutes from the August 10, 2023, meeting. Also included were the nominee recommendations for the RAC, Protective Relay Subgroup (PRS), and MRO Representatives on the NERC Inverter-Based Resource Performance Subcommittee (IRPS), which will be submitted to the OGOC for approval. A member requested more information on the PRS nominees, which was provided verbally by the meeting secretary.

Upon a motion duly made and seconded, the RAC approved the consent agenda in its entirety.

5. MRO Board of Directors, OGOC and General Update

Clark provided a recap of the third quarter Organizational Group Oversight Committee (OGOC) meeting on September 13, 2023, during which the members held a continuation of the discussion regarding Energy Reliability Planning. The conversation centered around solutions and mitigating actions being taken by NERC, MRO, and the registered entities. Clark highlighted a discussion around energy policy and the engagement of environmental agencies and state regulators in terms of educational opportunities. Clark also mentioned more discussion is needed around cyber-informed transmission planning. Next, Clark deferred to Chair Pursley and Gayle Nansel for additional



comments. Pursley commented on NERC's role in the policy discussion and the need for market reforms for resource adequacy at the state level.

Clark highlighted two changes to MRO's Policy and Procedure 3, including the addition of diversity language and the removal of NERC Rep term limits. The next OGOC meeting will take place on December 13, 2023, and one volunteer from the RAC is needed as the Vice Chair is unable to attend.

6. ERO Reliability Risk Priorities Report

Clark reviewed the 2023 ERO Reliability Risk Priorities Report approved by the Reliability Issues Steering Committee (RISC) on July 24, 2023. The report includes five ERO Risk Profiles including the newly added Energy Policy profile. Clark highlighted the report's common themes, including collaboration, security threats, and grid transformation. He shared the key points of the Energy Policy risk and defined energy sufficiency. Next, Clark shared the key points of Grid Transformation. He concluded by noting that the report offers actionable mitigating activities, and most recommendations identify a responsible group or organization. Discussion ensued.

7. Reliability and Security Technical Committee Meeting Update

Reliability Advisory Council and RSTC member, John Stephens, provided a recap of the Reliability and Security Technical Committee (RSTC) meeting on September 20-21, 2023. Meeting highlights included endorsements of a SPIDERWG Standard Authorization Request (SAR) for modifications to EOP-004, the approval of three Reliability Guidelines, the approval of three white papers, the review of the 2023 Risk Priorities Report, and the review of an IBR event report in Southwest Utah. Stephens shared an infographic of the 2023-2024 Winter Reliability Assessment. Stephens noted NERC's initiative requiring certain entities (Generator Owners/Generator Operators) to register Inverter-Based Resources (IBRs). The next meeting is scheduled for December 6-7, 2023. Discussion ensued.

8. MRO Representatives on NERC Subgroups

NERC Electric Gas Working Group (EGWG) – Jaimin Patel

Patel provided a written report located in the agenda packet. Discussion ensued.

NERC Inverter Based Resource Performance Subcommittee (IRPS) – Open

This seat is currently open, and no written report was provided.

NERC System Planning Impacts from DER Working Group (SPIDERWG) – Wayne Guttormson

Guttormson provided a written report located in the agenda packet. Discussion ensued.

NERC System Protection and Control Working Group (SPCWG) – Lynn Schroeder

Schroeder provided a written report located in the agenda packet. Discussion ensued.

NERC Energy Reliability Assessment Working Group (ERAWG) – Tom Whynot

Whynot provided a written report located in the agenda packet. Discussion ensued.

To accommodate scheduling conflicts, Chair Pursley moved the Reliability Coordinator Updates (Agenda Item 10a.-c.) ahead on the agenda. These minutes reflect the order in which the reports were provided.



9. Reliability Coordinator Updates

Southwest Power Pool (SPP)

Neil Robertson, Lead Functional Coordinator, SPP, provided a summary of the weather outlook for the upcoming winter season. Overall temperatures are projected to be normal in SPP's central and southern regions and warmer than normal in the northern region. The subtropical jet stream is favoring a potential increase for freezing rain and ice in the central and southern regions. The projected winter load forecast is 46 gigawatts (lower than the all-time winter peak load). The reliability assessments have not identified any specific concerns for the winter season. SPP anticipates being tight on capacity during extreme cold weather events.

Noteworthy reliability issues included a substation fire in southern Oklahoma in late September resulting in generation dispatch and localized manual load shed to mitigate thermal overloads. Another issue is the Williston Load Pocket in North Dakota, which continues to see high levels of transmission constraints primarily due to generation restrictions in the area. Discussion ensued.

Midcontinent Independent System Operator (MISO)

Durgesh Manjure, RAC member, provided an oral report. Fall operations were normal with only one alert. Overall, MISO's load was trending higher. Locational Marginal Prices (LMPs) were lower than in the last several years. Based on the seasonal resource auction there is sufficient capacity for normal winter operations. A warmer winter is anticipated for a majority of the MISO footprint. Additional winter readiness information is posted on MISO's website.

Saskatchewan Power Corporation (SPC)

Binod Shrestha, RAC member, provided an oral report. In general, SaskPower's expected load growth is one percent annually. There are several near-term generation projects in the pipeline. SaskPower is planning the addition of two new 230 kV transmission lines.

Winter load is expected to be between 3,300 – 3,850 megawatts (November to April). No gas or coal issues are anticipated. Hydro reservoir levels remain below the 10-year average for this time of year. Wind capacity for winter is based on a 3-year on-peak average of 46 percent. There are no major plans for transmission outages impacting operations. SaskPower is predicting a colder than average winter with less snow than average. Adequate operating reserve margins are expected to be met this winter. Discussion ensued.

10. 2023 Work Plan Update

Action Item Review.

Chair Pursley reviewed the action items in the 2023 work plan. Updates were made accordingly.

Clark reviewed the 2023 work plan items and explained how they are mapped to the Regional Risk Assessment (RRA). He noted that the NERC Interregional Transfer Capability Study (ITCS) item may be added to the 2024 work plan. Discussion ensued.

Cold Weather Preparedness Workshop Debrief

Bryan Clark invited members to share comments from the Cold Weather Preparedness Workshop which took place on October 26, 2023. Topics included MISO's Risk Modeling and Consideration of Extreme Cold Weather Events, MRO's Generator Winterization Program (GWP), Winter Storm Elliott



Findings and Recommendations from the FERC/NERC Joint Inquiry. There were 273 total virtual attendees. Discussion ensued.

Draft 2024 Work Plan

Clark solicited ideas, additional items and edits for the 2024 work plan based the key objectives from the prior year. The draft work plan will be presented to the OGOC for feedback at the next meeting on December 13, 2023.

11. Assessment Review

Review 2023 Long-Term Reliability Assessment (LTRA)

MRO Principal Reliability Assessment Engineer, Salva Andiappan, presented the 2023 Long-Term Reliability Assessment (LTRA) Report. The LTRA heat map for the next five years showed that MISO is at high risk for energy shortfalls during normal peak conditions. Future generation retirements are causing the declining reserve margins for SPP and MISO. SaskPower and Manitoba Hydro have sufficient reserve margins. Andiappan presented the 5-year projected summer reserves for MISO and SPP. Both MISO's and SPP's reserve margins are trending downward for the next five years. RAC member, Jeremy Severson volunteered to serve as the liaison and emcee for the LTRA webinar in January 2024. Discussion ensued.

Upon a motion duly made and seconded, the RAC endorsed the 2023 LTRA Report prepared by each of the MRO Planning Coordinators – Manitoba Hydro (MH), Midcontinent Independent System Operator (MISO), Saskatchewan Power Corporation (SPC) and Southwest Power Pool (SPP).

MRO Regional Winter Assessment (RWA)

Andiappan provided key findings from the MRO Regional Winter Assessment (RWA). SaskPower is at high risk of energy shortfalls during the winter season due to retirements. MISO and SPP have sufficient resources under normal weather conditions but are at risk under extreme weather conditions. Manitoba Hydro has sufficient resources to meet reserve margin requirements under normal and extreme demand. There is a potential for natural gas deliverability issues for MISO and SPP associated with extreme weather conditions. Long-term trends indicate an increase in generation forced outage rates possibly due to an aging fleet and fatigue. A positive highlight was a significant improvement in the number of misoperations due to human error compared to last winter. Discussion ensued.

12. NERC Standards Review Forum Update

Vice Chair Nansel provided an update on behalf of the NERC Standards Review Forum (NSRF). Nansel shared the top six high priority work items from the last NSRF meeting. Nansel proposed that the RAC primarily focus on the high priority work items in 2024. The information she presented was distributed to the RAC members via email on November 8, 2023.

13. Protective Relay Subgroup Update

MRO Manager of Reliability Performance, Jake Bernhagen, provided an update on behalf of the Protective Relay Subgroup (PRS). Bernhagen highlighted the NERC BES Protection system Misoperation Reduction Workshop in Atlanta, GA on October 25-26, 2023, with approximately 90 in-person participants. American Electric Power (AEP) gave a misoperation presentation that may be a good topic for a future MRO Reliability Conference. Bernhagen noted the recent hire of MRO Senior

Systems Protection Engineer, Sarah Wernette, who may become the PRS liaison next year. A goal for Wernette and the PRS is to foster more engagement with other relay subgroups across the ERO Enterprise.

14. 2024 Meeting Dates

Chair Pursley reviewed the 2024 meeting dates for the RAC, as well as the other councils and subgroups. There was discussion around the earlier meeting dates in 2024, the 2024 Reliability Conference in May, and a half-day advisory council collaboration meeting on October 2, 2024. All fourth quarter advisory council meetings are scheduled for October 3, 2024. Discussion ensued.

15. RAC Member Roundtable

Chair Pursley invited member participants to share other relevant industry observations. Topics discussed included recognition of the outgoing members, and encouragement to recruit new members to fill the open seats on the RAC.

16. Other Business and Adjourn

Having no further business to discuss, the meeting was adjourned at 3:24 p.m.

Prepared by: Rebecca Schneider, Reliability Analysis Administrator.

Reviewed and submitted by: Bryan Clark, Director of Reliability Analysis



Exhibit A – Meeting Attendees

Reliability Advisory Council Members Present	
Name	Organization
Dick Pursley, Chair	Great River Energy
Gayle Nansel, Vice Chair	Western Area Power Administration
Andy Witmeier	MISO
Binod Shrestha	Saskatchewan Power Corporation
Bryn Wilson	Oklahoma Gas & Electric
Dallas Rowley	Oklahoma Gas & Electric
Derek Brown	Evergy
Jason Weiers	Otter Tail Power Company
Durgesh Manjure	MISO
Jeremy Severson	Basin Electric Power Cooperative
John Stephens	City Utilities of Springfield Missouri
Ron Gunderson	Nebraska Public Power District
MRO Staff Present	
Name	Title
Bryan Clark	Director of Reliability Analysis
Rebecca Schneider	Reliability Analysis Administrator
Shawn Keller	Outreach Coordinator
Salva Andiappan	Principal Reliability Assessment Engineer
Jake Bernhagen	Manager of Reliability Performance
Cris Zimmerman	Manager of Outreach and Stakeholder Engagement
Carolina Margaria	Assistant Corporate Secretary and Governance Administrator
Sarah Wernette	Sr. Systems Protection Engineer
Jenny Knernschild	Compliance Engineer/Auditor, CIP



Other Attendees	
Name	Organization
Jaimin Patel	Saskatchewan Power Corporation
Joshua Phillips	Southwest Power Pool
Kelly Crist	Engie
Lynn Schroeder	Sunflower Electric Power Corporation
Mark Eastwood	City Utilities of Springfield Missouri
Neil Robertson	Southwest Power Pool
Owen Veale	Kansas City Board of Public Utilities
Paul Mehlhaff	Sunflower Electric Power Corporation
Sharon Mayers	CAM Industrial Solutions
Tom Whynot	Manitoba Hydro
Wayne Guttormson	Saskatchewan Power Corporation

MRO Board of Directors, OGOC and General Update
Bryan Clark, Director of Reliability Analysis, MRO

Action

Information

Report

Bryan Clark will lead this discussion during the meeting.



MIDWEST
RELIABILITY
ORGANIZATION

OGOC and BOD Update

Bryan Clark, P.E.
Director of Reliability Analysis
February 22, 2024

CLARITY

ASSURANCE

RESULTS

OGOC Q4 Strategy Summary

- **Focus Areas Discussion**
 - Uncertain Energy Availability (*Extreme*)
 - Generation Unavailability During Extreme Cold Weather (*High*)
- **Feedback on the 2024 Draft Work Plan**
 - New Item to Support ITCS
 - Updated wording in Activities and Notes



Future Meeting Dates

- **Q1 OGOC Meeting**
 - March 6, 2024 (Virtual)
- **Q2 OGOC Meeting**
 - May 22, 2024
- **Q2 BOD Meeting**
 - May 23, 2024





Questions

Interregional Transfer Capability Study (ITCS) Update
Bryan Clark, Director of Reliability Analysis, MRO

Action

Information

Report

Bryan Clark will lead this discussion during the meeting.

[ITCS Link](#)

Reliability and Security Technical Committee (RSTC) Meeting Update
Jake Bernhagen, Manager of Reliability Performance, MRO

Action

Information

Report

Jake Bernhagen will lead this discussion during the meeting.

MRO Representatives on NERC Subgroups – Written Reports

- a. NERC Electric Gas Working Group (EGWG)
Jaimin Patel, SaskPower

Action

Information

Report

There is no written report for the EGWG.

MRO Representatives on NERC Subgroups – Written Reports

b. NERC Inverter-Based Resource Performance Subcommittee (IRPS)

Mostafa Sedighizadeh and Naved Khan (on behalf of Doug Bowman), Southwest Power Pool

Action

Information

Report

NERC conducted an IRPS conference call/Webex on January 18, 2024, which included the following focus areas. Informational technical presentations were also made on industry facing IBR related issues.

Area of Focus

- IRPS Item #16 (SAR: Revisions to FAC-001 and FAC-002)
 - IRPS is developing a SAR regarding revision to FAC-001-3 and FAC 002-2. During the meeting draft SAR was presented, discussed, and shared with IRPS members for comments.
 - The proposed SAR addresses reliability issues identified in the NERC disturbance reports on abnormal IBR performance issues by accomplishing the following:
 - Enhancing the latest FAC-001 standard to require that TOs establish uniform IBR performance requirements covering specific topics of paramount importance for BPS reliability while leveraging technical aspects of work already completed within the industry.
 - Enhancing the latest FAC-002 standard to require Transmission Planners (TPs) and Planning Coordinators (PCs) to establish processes and assess conformity (through a combination of review of documentation simulation studies and physical tests) that a newly interconnecting IBR complies with applicable IBR performance requirements.
 - Modify either FAC-001 or FAC-002 to include requirements for Generator Owners to appropriately and reliably commission IBR facilities and provide adequate proof that commissioning checks (i.e., as-built evaluation, commissioning testing, etc.) were conducted and that the plant matches the as-modeled facility during the interconnection process.
 - To support and enhance reliable commission of IBR facilities, IRPS is working on a white paper under work item IRPS #24 – Commissioning Best Practices White Paper – providing technical basis and recommendations to be used by industry stakeholders to improve commissioning processes for IBR facilities.
 - After IRPS review, draft SAR will be taken to March Reliability Steering Technical Committee (RSTC) meeting. RSTC to initiate a period for industry comments.
- NERC work plan for FERC Order No. 901
 - NERC has created a work plan to address FERC Order No. 901 providing a timeline and strategy.
 - FERC Order 901 was issued in October 2023 addressing wide spectrum of IBR related performance issues and Reliability Standards.

o General summary

- Milestone 1: Submit Information Work Plan - January 2024
- Milestone 2: Complete active projects for registered IBRs to address IBR performance requirements and post event performance validation- November 2024 and create SARs and begin new projects for registered IBRs to supports Milestone 3
- Milestone 3: Complete active and new projects to address data sharing and model validation – November 2025, create SARs (as needed) and begin new projects to address planning and operational studies.
- Milestone 4: Complete active and new projects to address planning and operational studies for registered IBRs, Unregistered IBRs, and DERs – November 2026

Accomplishments

- Completion of Milestone 1 to address FERC Order 901

Challenges

- SAR development for the revision of FAC -001 and FAC-002 and addressing limitation of legacy equipment/existing IBRs which cannot be modified.
- Prioritization of NERC projects with assigned directives for FERC Order 901– will require continual coordination between active standard projects.

MRO Representatives on NERC Subgroups – Written Reports

- c. NERC System Planning Impacts from DER Working Group (SPIDERWG)
Wayne Guttormson, SaskPower

Action

Information

Report

The last SPIDERWG meeting was held on February 5th and 6th. The meeting was a virtual meeting and covered the following working group coordination and analysis subgroup activities.

- Agenda packages and minutes are posted on SPIDERWG site ([System Planning Impacts from DER Working Group \(SPIDERWG\) \(nerc.com\)](#) and [SPIDERWG Extranet](#)).
- SPIDERWG workplan posted at [Report \(nerc.com\)](#) and [SPIDERWG Extranet](#)).
- RTSC strategic plan posted at [Report \(nerc.com\)](#)
- RSTC workplan posted at <https://www.nerc.com/comm/RSTC/Documents/RSTC-Work-Plan.xlsx>
- RSTC Newsletter [January RSTC Newsletter \(nerc.com\)](#)

General Activities:

- Status updates, administrative materials, and RSTC outcomes.
- Workplan Review

Coordination Subgroup Activities:

- Standards Committee Engagement
 - o Engagement with ongoing Standards Projects from SPIDERWG submitted SARs:
 - Project 2022-02 for TPL-001 and MOD-032 revisions.
 - Project 2023-05 for FAC-001 and FAC-002 revisions.
 - Project 2023-08 for MOD-031 revisions.
- White Paper Update: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding DERs.
 - o Presentation of comments and responses.
 - o Finalized for submission to the RSTC.
- White Paper Update: Variability, Uncertainty, and Data Collection for the BPS with DER Aggregators
 - o Presentation of progress.
- Proposed SAR Revisions Update:
 - EOP-004
 - Work ongoing.
 - Collaborating with NERC RS/RTOS
 - EOP-005
 - Work ongoing.
 - Collaborating with NERC RTOS
 - PRC-006
 - Work ongoing. Reviewing industry comments.
 - Collaborating with NERC SPCWG
 - BAL-003
 - Work moved to NERC RS
 - OPA/RTA Clarity Edits

- Collaboration with NERC RTOS.

Analysis Subgroup Activities:

- Guideline Review Update: BPS Planning Practices under Increasing Penetrations of DER
 - o Presentation of progress.
 - o Review of comments.
- White Paper Review: Modeling of DER Aggregator and DERMS Functional Impacts
 - o Presentation of progress.
- Review of Proposed Guidelines:
 - o DER forecasting practices and relationship to BPS studies,
 - o detection of aggregate DER response during grid disturbances, and
 - o aggregate DER response for emergency operations and cold weather.

Next meeting:

- Schedule for 2024: April 30th - May 1st (hybrid), July 30th - 31st (virtual), and October 15th - 16th (hybrid).

Areas of Focus

The following workplan deliverables are being proposed for submission (to be finalized) for RSTC action at the March 2024 meeting.

- SAR for OPA/RTA Clarity Edits – Request for **Review**, and **Authorization to post** for 45-day comment period.
- Reliability Guideline: BPS Planning Practices under Increasing Penetrations of DER – Request for **Review**, and **Authorization to post** for 45-day comment period.
- White Paper: Variability, Uncertainty, and Data Collection for the BPS with DER Aggregators – Request for **Review**.
- White Paper: Communication and Coordination Strategies for Transmission Entities and Distribution Entities regarding DERs – Request for **Approval**

Accomplishments

- Nothing to report this quarter.

Challenges

- New RSTC Strategic Workplan for 2024-2025.
 - o Strategic Priorities
 - Grid Transformation
 - Inverter Based Resources
 - Resilience and Extreme Events, and
 - Security
 - o Grid Transformation:
 - o Distributed Energy Resources: High penetration of DER may pose a reliability risk.
 - Identify specific reliability risks, Load forecasts, and Ride-through
 - o Demand and DER Aggregation: Increasing aggregation of demand side resources may pose reliability and security risks.
 - Identify specific aggregation operating mode.

MRO Representatives on NERC Subgroups – Written Reports

- d. NERC System Protection and Control Working Group (SPCWG)
Lynn Schroeder, Sunflower Electric Power Corporation

Action

Information

Report

Areas of Focus

1. Determination of Practical Transmission Relaying Loadability has been reviewed by the RSTC. Requesting final approval in March RSTC meeting. Originally published in December 2017 for PRC-023-4, this version has been updated for PRC-023-5 and has been placed into the current NERC format and template. Technical revisions include drafting team clarification recommendations to Appendix C related to out of step.
2. PRC024 IBR Whitepaper to RSTC in March requesting reviewers prior to approval process. This paper discusses and provides an example of how an IBR plant, such as a wind farm, can show compliance considering the voltage that would be seen at each individual turbine control throughout the feeders of the plant.
3. Transmission System Phase Back Up Protection to RSTC in March requesting reviewers prior to approval process. In 2011, the System Protection and Control Subcommittee published a version of this document as a Reliability Guideline. After review, this document is a Technical Reference Document. This document has been revised to place it in the new format style and reviewed by the SPCWG and determined that it is still a valid and relevant reference for industry.
4. Technical Reference related to maintenance for ethernet based P&C is being developed to provide industry guidance for impacts of systems such as 61850 architectures on NERC Protection System definition and related standards. Writing assignments are in progress.
5. Whitepaper on footnote 13 of TPL001. Writing assignments are in progress. This is intended to be provided to the standard drafting team.

Accomplishments

- “Determination of Practical Transmission Relaying Loadability Settings” IG complete pending RSTC final approval.
- “Transmission System Phase Back Up Protection” complete pending RSTC review.
- “PRC024 IBR Whitepaper” complete pending RSTC review.

Challenges

1. Increased IBR across the grid and their impacts to system protection, such as modeling and injection characteristics during fault conditions.

Future meeting schedule

Next scheduled meeting is on February 8th, followed by April 11th. Both planned meetings are Webex.

MRO Representatives on NERC Subgroups – Written Reports

- e. NERC Energy Reliability Assessment Working Group (ERAWG)
Tom Whynot, Manitoba Hydro

Action

Information

Report

A joint ERAWG and EGWG Meeting was held January 18, 2024.

- The EGWG Drafting Team has reviewed and updated the EGWG Fuel Assurance Reliability Guideline. Industry comments from the last intake round have been addressed and are approved as of the December 6, 2023, meeting.
- The ERAWG has Daniel Farmer as the new Vice Chair alongside the existing Chair, Mike Knowland.
- Mike Knowland highlighted an item from the RSTC that the [NARUC](#) is pursuing and similar ERAWG/EGWG initiative, called [GEAR \(Gas-Electric Alignment for Reliability\)](#) to be led by state regulators.
- As highlighted in the NERC 2023 Long-Term Reliability Assessment released in December, the Midcontinent Independent System Operator (MISO) and the SERC-Central areas do not meet resource adequacy criteria benchmark of 1 day in 10-year load loss metric in the current assessment.

The upcoming ERAWG Meeting will be March 6, 2024.

Volume 2 of the whitepaper is scheduled for completion date in Q2 2024.

2024 Work Plan Update

a. Review Action Items

Gayle Nansel, Reliability Advisory Council Chair

Action

Discussion

Report

Chair Nansel will lead this discussion during the meeting.

2024 Work Plan Update

b. NERC Rep Assignments

Gayle Nansel, Reliability Advisory Council Chair

Action

Discussion

Report

Chair Nansel will lead this discussion during the meeting.

2024 Work Plan Update

c. 2024 Reliability Conference Update

Dallas Rowley, Reliability Advisory Council Member

Action

Discussion

Report

Dallas Rowley will lead this discussion during the meeting.

Reliability Coordinator Updates

- a. Midcontinent Independent System Operator (MISO)
Andy Witmeier, MISO and RAC Member

Action

Information

Report

Andy Witmeier will provide an oral report during the meeting.



Winter Operations Update

February 2024

MISO's reliability, markets and operational functions performed as expected

Load and Renewables



Peak Load

106 GW
January 17, 2024

All-Time Wind Peak

January 12, 2024
25.7 GW

All-Time Solar Peak

February 19, 2024
4.4 GW

Season Highlights

Experienced noticeably warmer weather in the North and Central Regions this Winter, as compared to the 10-year norm.

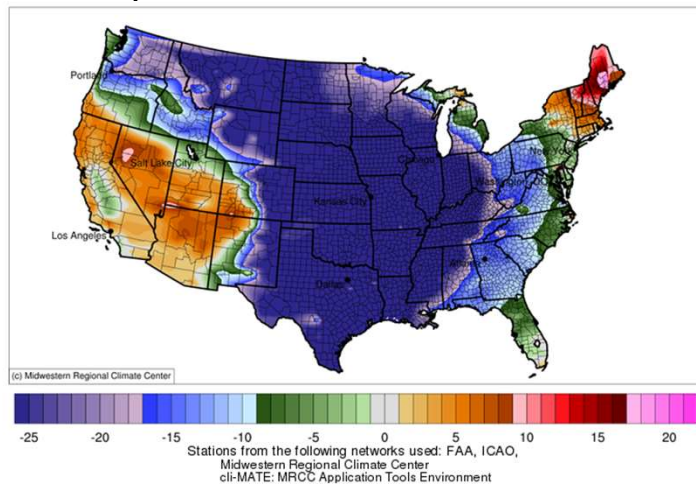
Winter Storm Heather brought below-normal temperatures and all-time winter peak for South region



On January 14 -17, Winter Storm Heather brought significantly below-normal temperatures to MISO and an all-time winter peak for South region

WINTER STORM ELLIOTT DECEMBER 23, 2022

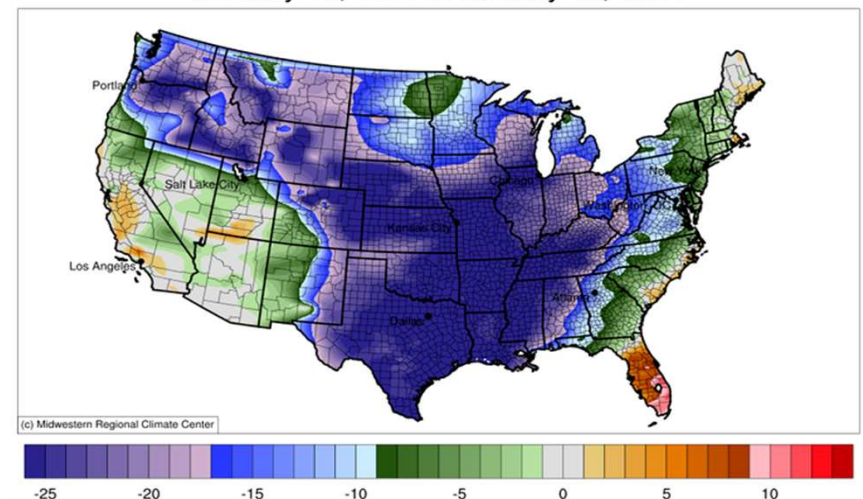
**Average Temperature:
Departure from 30-Year Normal**



System Peak Load	107 GW
Unplanned Outages	49 GW
Scheduled Load Modifying Resources*	1.2 GW
RDT Max Flow & Direction	2.7 GW N-S
Precipitation: <i>Modest snowfall across MISO's North and Central regions</i>	

WINTER STORM HEATHER JANUARY 16, 2024

**Average Temperature (°F): Departure from 1991-2020 Normals
January 16, 2024 to January 16, 2024**



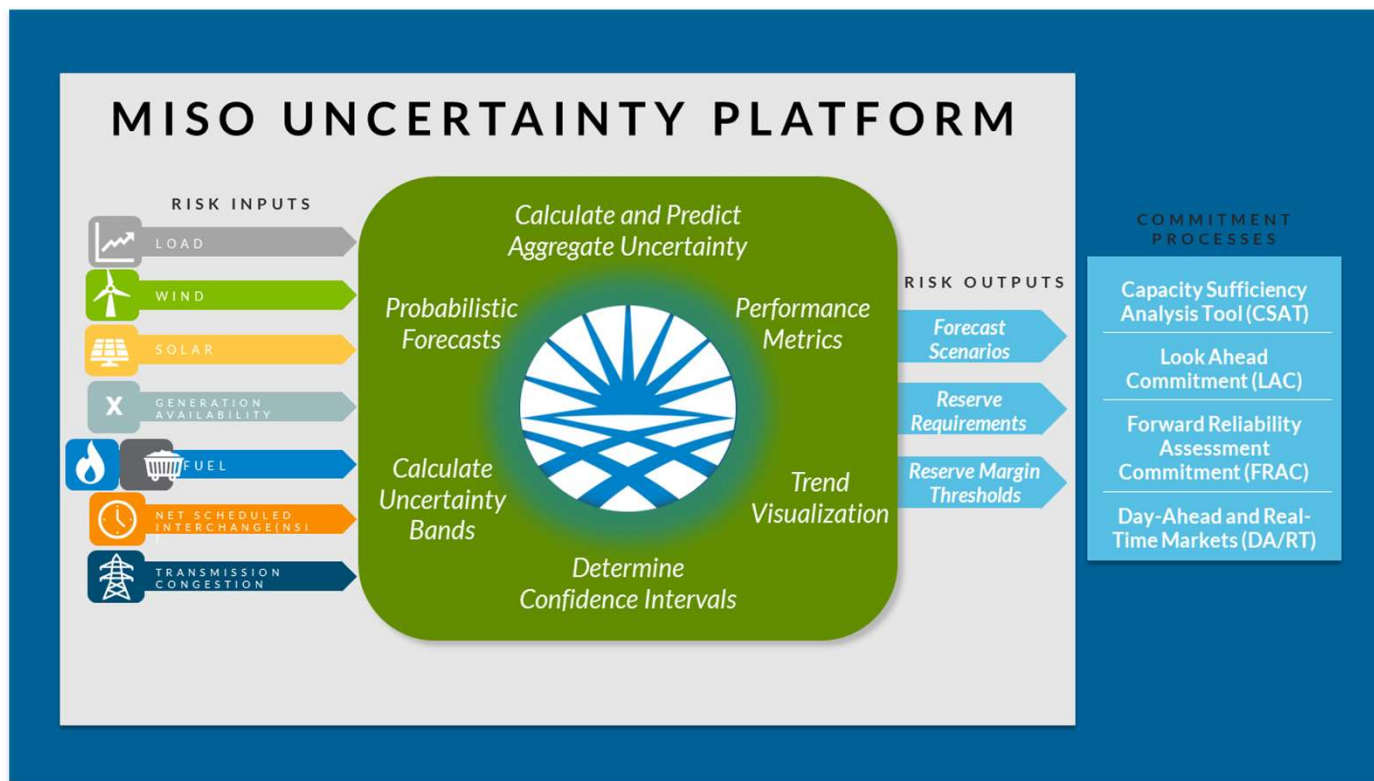
System Peak Load	106 GW
Unplanned Outages	36 GW
Scheduled Load Modifying Resources*	0 MW
RDT Max Flow & Direction	2.6 GW N-S
Precipitation: <i>Moderate snowfall across MISO's South and Central regions</i>	

Winter Storm Heather had limited impact on MISO due to high wind production and less gas generator outages compared to previous winter storms

- Fuel supply issues, particularly with holiday weekend increase uncertainty in unit commitment processes
- Load forecasting models continue to experience challenges with extreme temperatures
- Good coordination with SPP and other adjacent RCs in the week preceding the storm

Projects continue focused on improvements to uncertainty in operations planning

- Implemented process to dynamically calculate Short Term Reserve product requirements and Next-Day Reserve Margin
- Uncertainty Platform quantifies risk for each operating day



Reliability Coordinator Updates

- b. Saskatchewan Power Corporation (SPC)
Binod Shrestha, SPC and RAC Member

Action

Information

Report

Binod Shrestha will provide an oral report during the meeting.



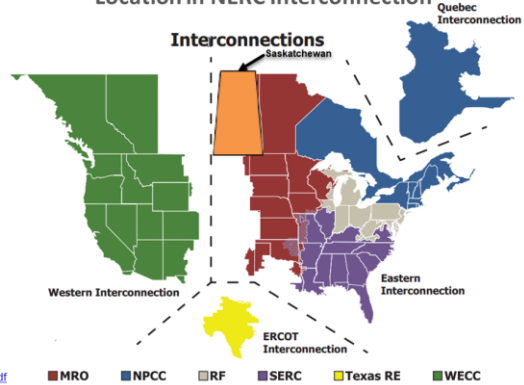
SASKPOWER UPDATE MRO RAC MEETING



February 22, 2024

Existing System

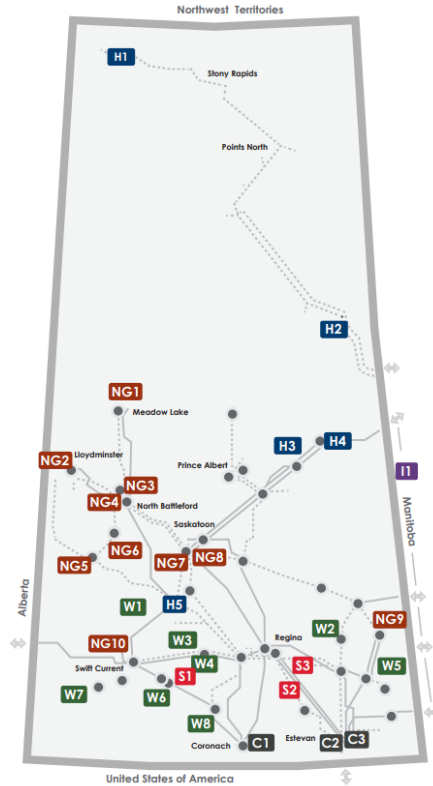
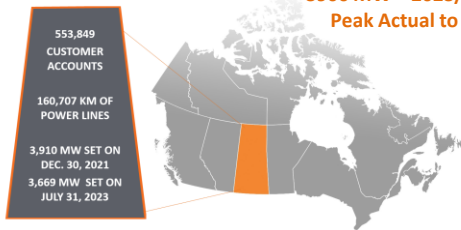
Saskatchewan Location in NERC Interconnection



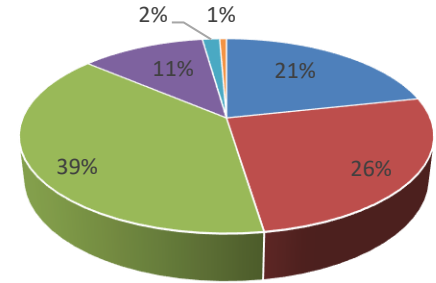
Source: [NERC Interconnections.pdf](https://www.nerc.com/interconnections)

SASKATCHEWAN'S PRIMARY ELECTRICITY SUPPLIER

3900 MW – 2023/24WIN
Peak Actual to date



Existing Generation – Installed Capacity (%)



■ Hydro ■ Coal ■ Natural Gas ■ Wind ■ Solar ■ Other Small

Name Plate (MW)

7	3	10	8	3	Other Small	Import	Total
Hydro Facilities	Coal Facilities	Natural Gas Facilities	Wind Facilities	Solar Facilities			
865	1389	2065	617	86	34	290	5346

2023-24 Winter Highlights

- Loads are below forecasts due to the warmer than expected winter season
- In the middle of January, experienced cold snap (system load recorded ~3900 MW)
 - System behaved as expected
 - SaskPower assisted Alberta when Alberta called for a voluntary load curtailments
- Able to manage the loads and generation without any EEAs

2024 Summer Outlook

Summer reliability assessments are on-going, below are the initial highlights on assessment inputs:

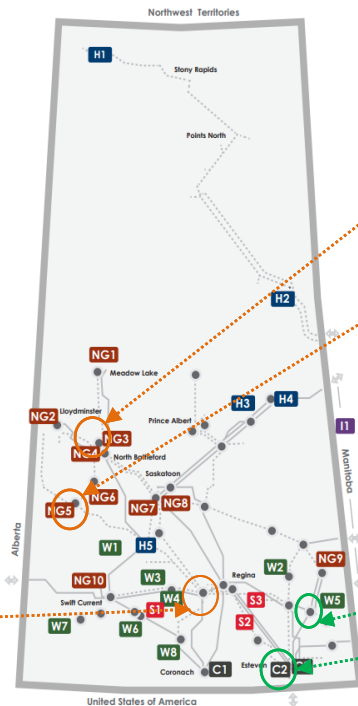
- **Load**
 - Expected to be between 3000 MW and 3450 MW for the Summer months (May to Oct)
- **Generation**
 - Planned generation outages are scheduled in May, June as well as September and October
 - Great Plains, a 377 MW combined cycle gas plant, is expected to be online in the Summer
- **Fuel**
 - Expect to have no gas or coal issues
 - Expecting a low hydro season which will impact our hydro operations all summer
 - Expect to see average capacity factors for wind for the summer season
- **Transmission**
 - No internal lines are scheduled to be out of service that would impact generation
 - Presently there are no tie lines that are scheduled for maintenance
- **Weather**
 - Current projections are not available for summer (assumed an average summer season)
 - Some forecasts are indicating a La Nina summer season
- **Interchange**
 - No firm import from the U.S.
 - Contractual imports from Manitoba (290 MW + 25 MW)

Near Term Major Projects: Generation

- New combined cycle gas facility
 - Great Plains Power Station 377 MW (Summer 2024)



Great Plains Power Station - under construction



- New simple cycle gas units
 - Yellowhead Power Station 45 MW (Winter, 2025)
 - Ermine Power Station 45 MW (Summer, 2025)
- New Wind and Solar PV generation facilities
 - Bekevar Wind Energy Project 200 MW (Winter, 2024)
 - Estevan Solar Facility Project 100 MW (Winter, 2026)

Saskatchewan 2023 LTRA Highlights

Generation (Summary)

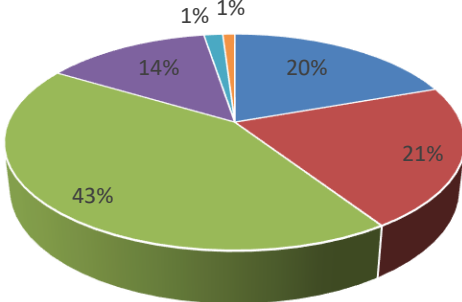
Planned new generation additions (2023-2033)

- Approximately up to 2735 MW of internal generation projected to be added (including Tier 1, Tier 2 and Tier 3) throughout the assessment period
 - 735 MW of Tier 1 additions include 467 MW Natural gas, 200 MW wind, etc.
 - 1280 MW of Tier 2 additions which will be a mix of Natural Gas, and Solar PV
 - 720 MW of Tier 3 additions which is mainly wind and solar

Projected Generation Retirements (2023-2033)

- Confirmed: Approximately 212 MW projected for retirement, mainly driven by end of life.
- Unconfirmed: 1200 MW of conventional coal and 150 MW of wind.

Expected Resources (2028)



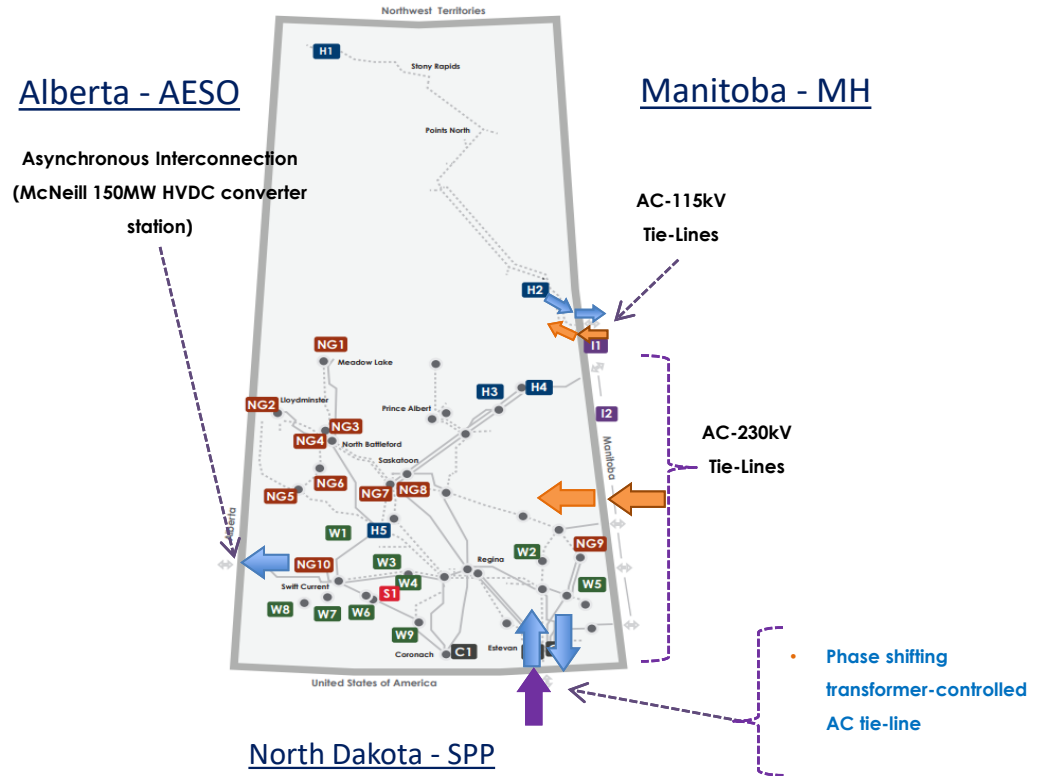
■ Hydro ■ Coal ■ Natural Gas ■ Wind ■ Solar ■ Other Small

5900 MW

Saskatchewan 2023 LTRA Highlights

Capacity Transfers

- Up to **315 MW** of existing firm import contracts
- SaskPower is expanding its interconnection with SPP
 - Two new 230 kV tie lines are being added to facilitate up to 500 MW of import contracts from SPP
 - Transmission service is expected to begin in October 2027



Near Term Major Projects: Transmission

- New Transmission Service Between SaskPower and Southwest Power Pool (SPP)
 - Two - 230 kV International Power Lines between SaskPower and SPP (Saskatchewan – North Dakota)
 - New 230 kV transmission reinforcements in the Regina, South-East Saskatchewan Area to facilitate the new transmission service between SaskPower and SPP
- SaskPower currently has a 20MW/20MWh battery under construction
 - plans to expand this site by 60 MW/60MWh

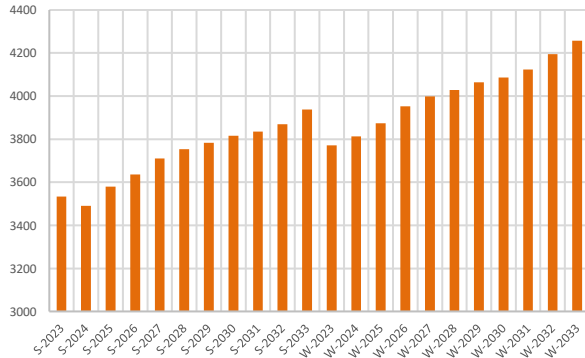


Saskatchewan 2023 LTRA Highlights

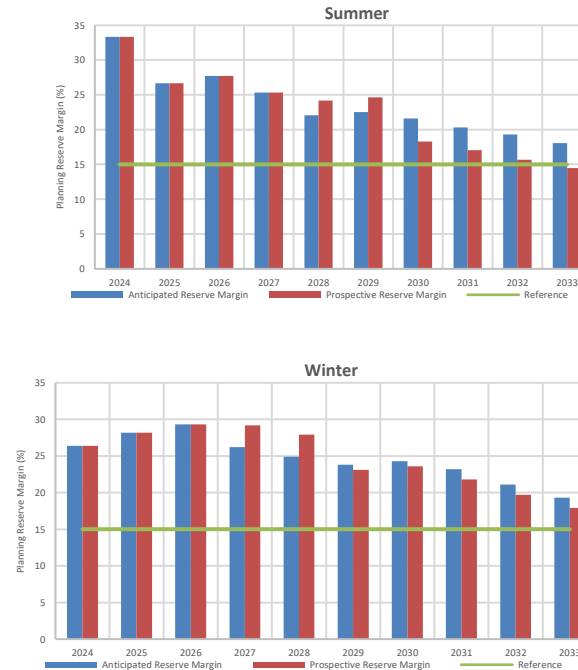
Planning Reserve Margin and NERC Risk Area Summary

Average annual growth ~1.0%

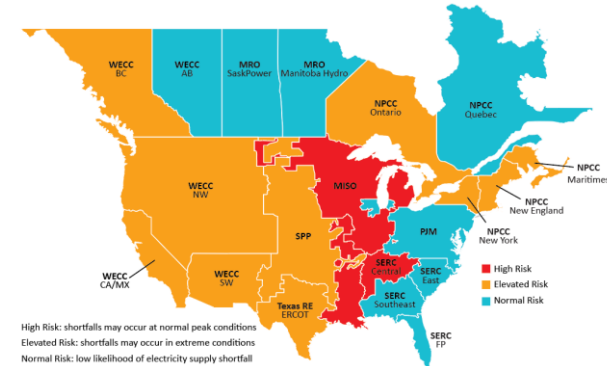
Demand Forecast (MW)



Planning Reserve Margin



In the near-term, Saskatchewan falls under normal risk category



Thank You



Reliability Coordinator Updates

c. Southwest Power Pool (SPP)
C.J. Brown, SPP and RAC Member

Action

Information

Report

C.J. Brown will provide an oral report during the meeting.

Planning Coordinator Updates

- a. Saskatchewan Power Corporation (SPC)
Binod Shrestha, SaskPower and RAC Member

Action

Information

Report

Binod Shrestha will provide an oral report during the meeting.

Planning Coordinator Updates

b. Manitoba Hydro

Nandaka Jayasekara, Manitoba Hydro and RAC Member

Action

Information

Report

Nandaka Jayasekara will provide an oral report during the meeting.

MRO Regional Risk Assessment (RRA)
Mark Tiemeier, Principal Technical Advisor, MRO

Action

Information

Report

Mark Tiemeier will lead this discussion during the meeting.



MIDWEST
RELIABILITY
ORGANIZATION

MRO 2024 Regional Reliability Risks and 2025 RRA Timeline

Mark Tiemeier

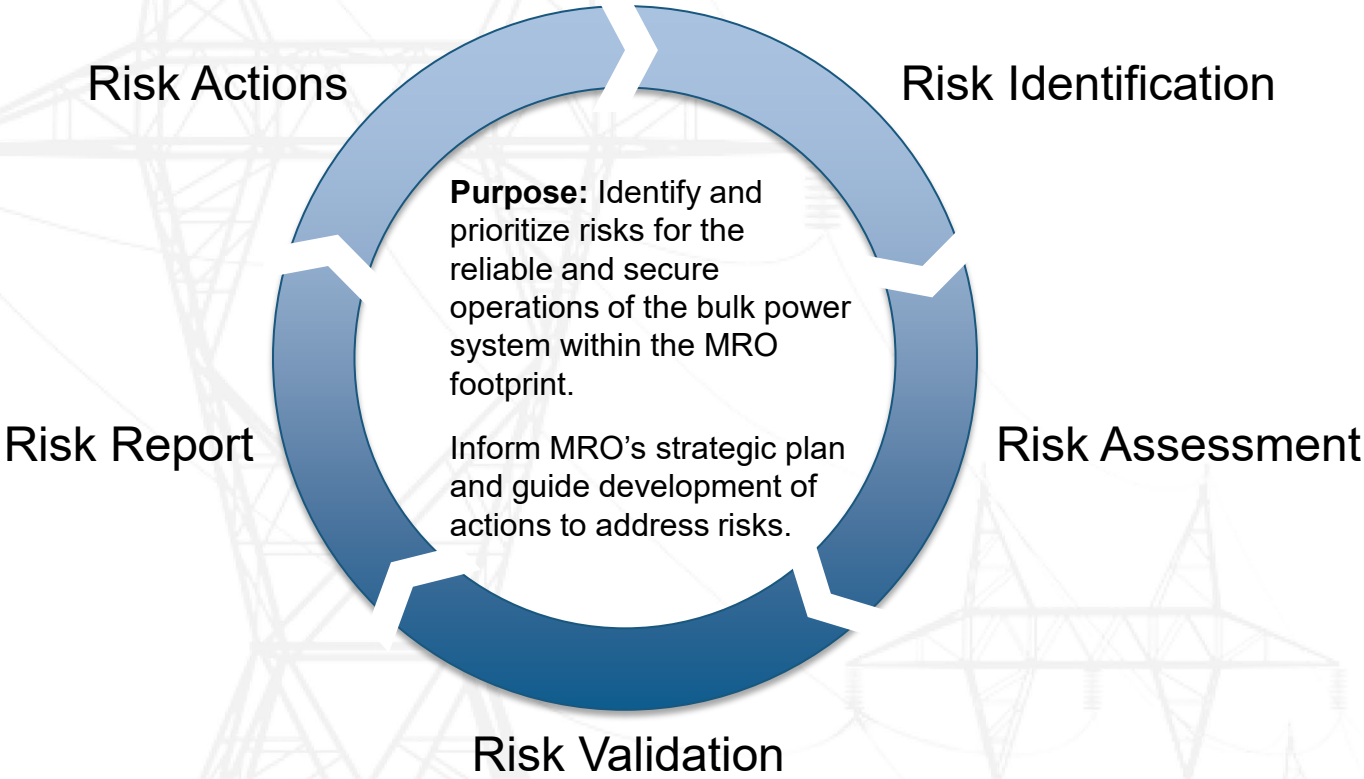
Principal Technical Advisor

CLARITY

ASSURANCE

RESULTS

Regional Risk Assessment Process

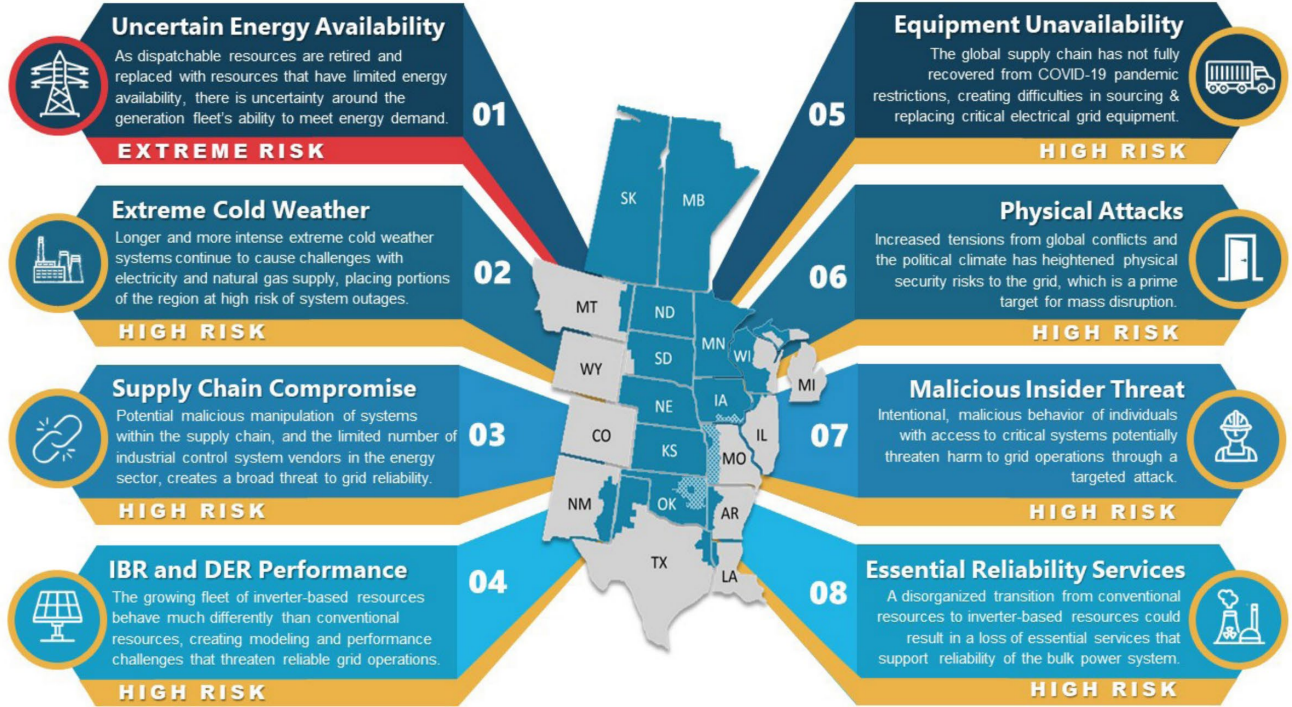




2024 Regional Risk Assessment

Top risks to the reliable and secure operation of the regional bulk power system.

Published
Feb 5, 2024



More information about bulk power system regional risk and mitigating activities can be found at www.mro.net

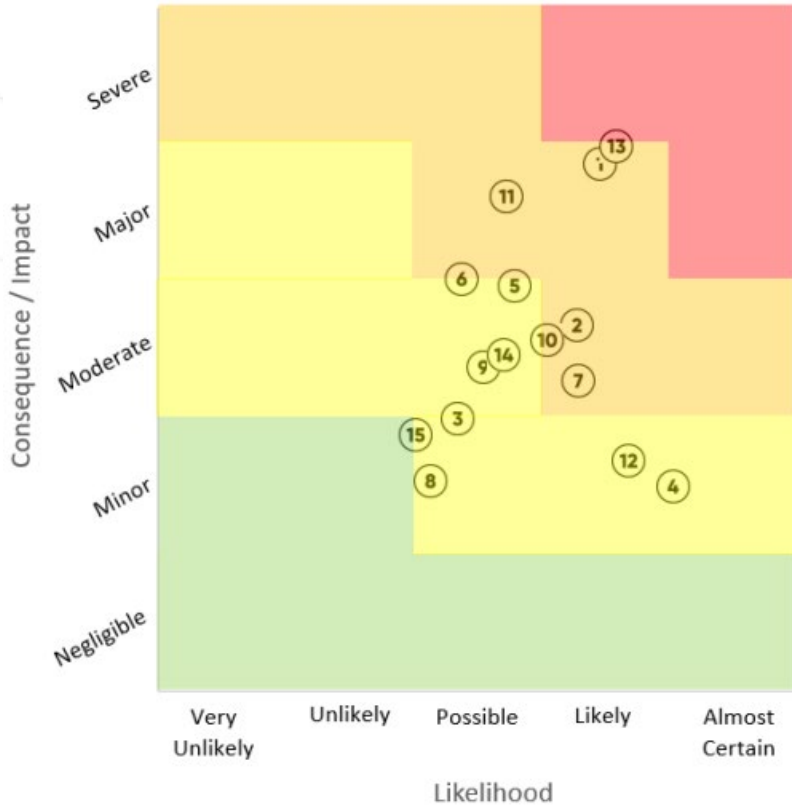


CLARITY

ASSURANCE

RESULTS

2024 Regional Reliability Risks



Reliability Risks

1	Generation Unavailability During Extreme Cold Weather
2	Inadequate IBR and DER Modeling and Performance
3	Increased Penetration of Internet-Connected Devices
4	Insufficient Physical Access Controls
5	Loss of Essential Reliability Services
6	Malicious Insider Threat
7	Material and Equipment Unavailability
8	Misoperations Due to Human Errors
9	Phishing / Malware / Ransomware
10	Physical Attacks
11	Supply Chain Compromise
12	Tight Supply of Expert Labor
13	Uncertain Energy Availability
14	Use of Inaccurate Transmission Facility Ratings
15	Vulnerabilities of Unpatched Systems



2024 RRA Webinar

**Wednesday,
February 28, 2024**

9:00-10:00am

[https://www.mro.net/event/
2024-regional-risk-
assessment-overview-
webinar/](https://www.mro.net/event/2024-regional-risk-assessment-overview-webinar/)

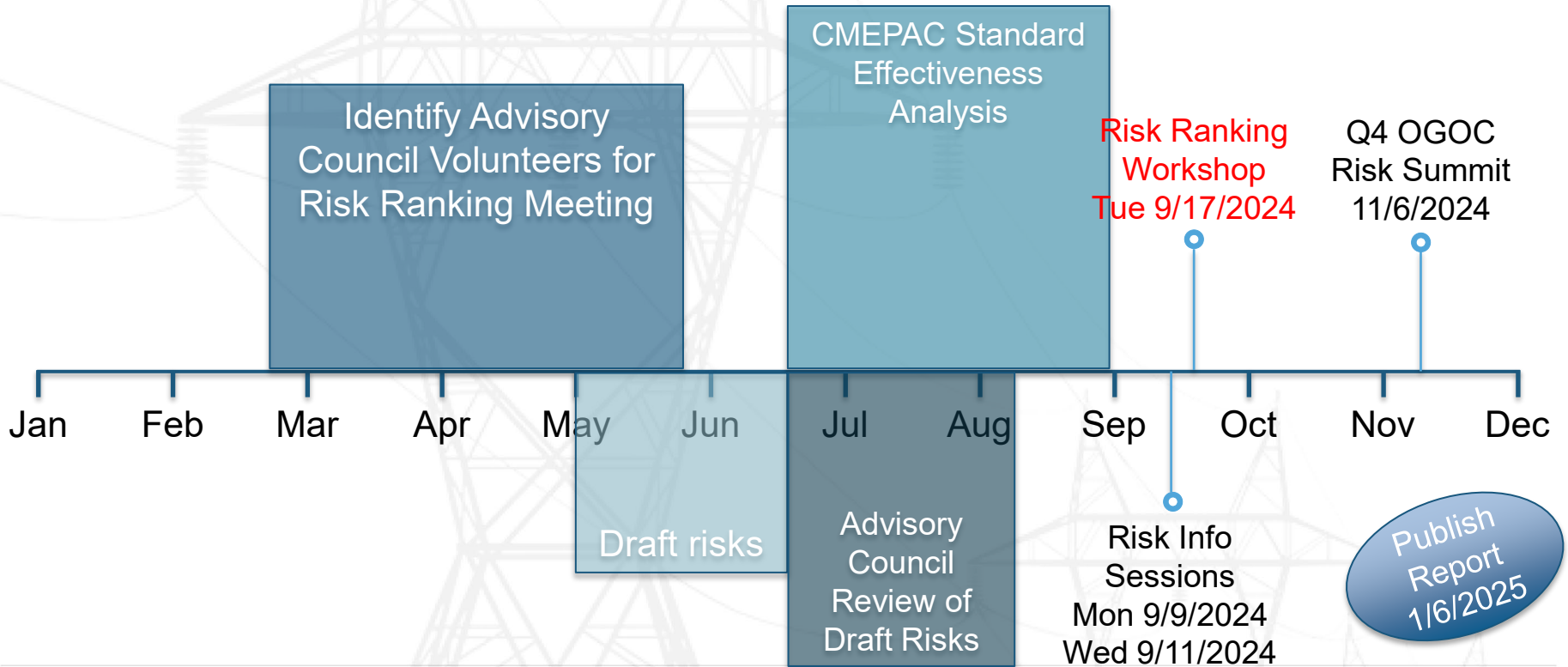


CLARITY

ASSURANCE

RESULTS

2025 RRA Timeline





CLARITY

ASSURANCE

RESULTS

NERC Standards Review Forum (NSRF) Update
Gayle Nansel, Reliability Advisory Council Chair

Action

Information

Report

Chair Nansel will lead this discussion during the meeting.

Protective Relay Subgroup (PRS) Update
Jake Bernhagen, Manager of Reliability Performance, MRO

Action

Information

Report

Jake Bernhagen will lead this discussion during the meeting.

2024 Meeting Dates
Gayle Nansel, Reliability Advisory Council Chair

Action

Information

Report

Chair Nansel will lead this agenda item.

	Q1 2024	Q2 2024	Q3 2024	Q4 2024
RAC	2/22	5/16	8/8	10/3
SAC	2/21	5/14	8/6	10/3
CMEPAC	2/20 Virtual	5/7	7/23	10/3
PRS	3/12	6/11	9/10	12/10
OGOC	3/6 Virtual	5/22	8/20	11/6
BOD	2/8 Virtual	5/23	8/22	11/7

***Joint council meeting
 10/2/24 PM**

MRO CONFERENCE DATES 2024	
Q1	RAM Conference: March 20, 2024, Virtual conference
Q2	Reliability Conference: May 14–15, 2024, Social networking event and conference (hybrid); St. Paul, MN
Q3	CMEP Conference: July 23–24, 2024, Social networking event and conference (hybrid); Kansas City, MO
Q4	Security Conference: October 1–2, 2024, Social networking event and conference (hybrid); St. Paul, MN

OTHER CONFERENCE DATES 2024
GridSecCon: October 22–25, 2024 (Co-hosted by NERC E-ISAC and MRO); Minneapolis Hyatt Regency, Minneapolis, MN

RAC Member Roundtable
Gayle Nansel, Reliability Advisory Council Chair

Action

Discussion

Report

Chair Nansel will lead this discussion during the meeting.

Other Business and Adjourn
Gayle Nansel, Reliability Advisory Council Chair

Action

Discussion

Report

Chair Nansel will lead this discussion during the meeting.