



Reliability Subcommittee (RSC)

Carmel, IN

January 28, 2022

9:00 am – 11:20 am ET / 8:00 am – 10:20 am CT

Dial-in and WebEx information available at www.misoenergy.org

Minutes

1. Administrative Items (R. McCausland)

Public Meeting Announcement

a. Call to Order / Roll Call

The meeting was called to order at 10:00am ET/9:00am CT.

The Public Meeting Announcement was referenced.

Chair: Ray McCausland

Vice Chair: Todd Sarkinen

MISO Liaison: JT Smith

Stakeholder Relations: Mandi McGirr and Alison Lane

In Person Participants:

Allison Bermudez, MISO
Bert Finzer, MISO
Bob Kuzman, MISO
Brandon, Morris, MISO
Brian Tulloh, MISO
Brittanyne Gyce, MISO
Bruce Froyum, MISO
Chad Allen, MISO

Dan Pacilio, MISO
Darrin Lahr, MISO
Daryl Brown, MISO
Dave Johnston, IN URC
Sarah Freeman, IN URC
David Sapper, CES
Hwikwon Ham, MN PUC
John Wachtler, MN PUC

Justin Stewart, Ameren
Margaret Kristian, National
Grid Renewables
Michael Mattox, MISO
Steve Davies, IN URC
Marlene Parsley, Big Rivers
Temujin Roach, EDF

WebEx Participants:

Adam Renfandt, NDSG
Adam Sabourin, Alliant
Alexandria Koepplinger,
MI PSC
Amber Greb, Entergy
Amber Joyce, MDU
Amy Thurmond, MISO
Andy Kowalczyk, 350 NO
/ EF
Anita Hurst, MISO
Anthony Rowan, MISO
Austin Hoekman, MRES
Ben Kaldunski, PSCW
Ben Sloan, OMS
Bert Finzer, MISO
Bob German, DTE
Bobbi Welch, MISO
Brandon D. Morris, MISO
Brenda Harris, Oxy
Brian C Drumm, ITC
Brian Giggee, MDU
Brian Kiefer, MISO
Brittanyne Gyce, MISO
Brock Ondayko, AEP
Energy

Bruce Froyum, MISO
Carlo Capra, ITC
Carolyn Wetterlin, Xcel
Chelsea Lisowe, WPPI
Chris Bellefy, MN Power
Chris Norton, Amp
Chris Peterson, MISO
Chris Plante, WEC
Christine Ross, MISO
Chuck Hansen, MISO
Clayton W. Robinson,
Cordeli Power
Craig Timson, CIPCO
Cynthia Crane, ITC
Dan Custer, MEC
Dan Drendall, MISO
Daniel Herring, DTE
Danielle Daugherty,
Reliability First
Darren Kearney, SD PUC
Darrin Lahr, MISO
Daryl Brown, MISO
David Cullum, ATC
David Harlan, Veriquet
David Jendras, Ameren

David Shaffer, Dentons
Derek Mosolf, MISO
Devang Joshi, MISO
Devon Taylor, MISO
DeWayne Todd, Alcoa
Diana Farler, DTE
Dick Pursley, GRE
David Sapper, CES
Durgesh Manjure, MISO
Dustin Lewis Eichholt,
Entergy
Ed Achaab, AEP Energy
Lisa Ehrichs, Duke
Elizabeth Walker, IN
URC
Eric Birkner, Ameren
Gail Elliott, ITC
Gayan Wijeweera, MB
Hydro
Ginger Hodge, CES
Giovanti Palacio, GDS
Associates
Hilary Pearson, Line
Visison Inc

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Hwikwon Ham, MN
PUC
Jackie Becker, Ameren
Jacob Krouse, MISO
Jason Burki, Alliant
Jay Hermacinski, MISO
Jay Rasmussen, Duke
Jeff Baker, Duke
Jeff Ihnen, Michaels
Energy
Jeff Wernert, The Prime
Group
Jeremi Wofford,
Ameren
Jerry Terry, MISO
Jessica Lucas, MISO
Jim Kaminski, MISO
Jim Uhrin, Reliability
First
Jodi Walters, Gabel
Associates
John Idzior, Reliability
First
John Thomasen, MGE
John Weber, MRES
Jordan Johnson,
Centerpoint
Judy Lindholm, APSC
Justin McNeil, PSC KY
Kalliah Bruce, MISO
Kara Briggs, NRG
Karl Kohlrus, PPI
Kate Winston,
Ken Kagy, CFU
Kevin Kingsley, MDU
Kevin Van Oirschot,
CMS

Khamsune
Vongkhamchanh,
Entergy
Kimberly Dunning,
Centerpoint
Kurt Zala, Appian Way
Leslie Hamby,
Centerpoint
Marcus Hawkins, OMS
Marty Evans, Cleco
Matt Beilfuss, WEC
Maxx Snell, MDU
M Bradley, ITC
Megan Wisersky, MGE
Michael Fortini, DTE
Michael Saer, GRE
Michael Samson, DTE
Mike Gahimer, NIPSCO
Mike Schowalter, Fresh
Energy
Miles Taylor, NIPSCO
Mitchell Myhre, Alliant
Natalie McIntire, CGA
Nathan Benedict, ITC
Noel Darce, Stone
Pigman
Noelle Linch, Entergy
Pablo Ruiz, NewGrid
Paul Duer, MISO
Paul Luciani, Ameren
Peg Abbadini, HE
Presley Reed, Dentons
Preston R., OTP
Rhonda Peters,
Intertranec
Rick Stegehuis,
WEC/WPS/MIUP
Robert Fox, NIPSCO
Robert Francis, Entergy

Robert Vosberg, LPSC
Staff
Ramya Ramaswamy,
PUCT
Ryan Frink, GRE
Ryan Wernette, WPSCI
Ryan Yeoman, MI PSC
SDunbar, LUS
Seth Mayfield, MISO
Simon Mahan, SREA
Stacie Hebert, OTP
Steve Davies, IN URC
Stewart Dover, LUS
Susan Rossi, Xcel
Tag Short, MISO
Terry Harbour, MEC
Terry Jarrett, MJMEUC
Terry Volkmann,
HE/CFU
Thomas Kohler,
Ameren
Tia Elliott, Cleco
Timothy Mickelson,
GRE
Tom Siegrist, SMXB
Law
Trey Mayeux, Cleco
Valy Goepfrich, WPPI
Ven Bujimalla, IA IUB
Venona Greaff, Oxy
Vikram Godbole, MISO
Walt Cecil, MO PSC
Walt Ullrich, GRE
Wendy Reed, Wright &
Talisman
Werner Roth, PUCT
Wes Pfaff, MRES
Zachary Callen, ICC

b. Review Agenda

The agenda was reviewed and accepted as posted.

c. Review Meeting Minutes / Action Items

The minutes were reviewed and accepted as posted.

Action Item	Owner	Date	Status
Leadership Election – MISO to email ballot for Vice Chair election to RSC distro list	MISO	12/10/2021	Closed
Management Plan <ul style="list-style-type: none"> Reconfiguration for Congestion Cost Task Team-Closed (RCCTT) – update AARs/Jointly Owned Facilities Final Report – non-confidential takeaways 	MISO	12/10/2021	Closed

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<ul style="list-style-type: none"> • SOLTT – non-confidential updates • Pre-positioning for extreme weather – March 2022 			
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d. Annual Charter and Management Plan Review and Approval✓

The 2022 RSC Charter and Management Plan were reviewed.

The following updates were made to the 2022 RSC Management Plan:

- Operational Events Review(s) – group decided to move this under Recurring Tasks
- Operating Guide Information Classification (RSC-2021-1) – added to March 3

Valy Goeprich of WPPI moved a motion to approve both the Charter and Management Plan. Megan Wisersky of MGE seconded the motion. The motion to approve both the 2022 Charter and Management Plan was carried by General Consent. The 2022 RSC Charter and Management Plan will now go to the Steering Committee (SC) for approval.

2. Status Updates ➡ (R. McCausland)

a. Steering Committee Update

The SC Status Report is posted with meeting materials. There were no questions or comments.

b. Reliable Operations Working Group – Closed (ROWG-CLOSED)

The ROWG-Closed last met on December 10, 2021, and will meet next on February 11, 2022.

c. System Restoration and Reliability Training Working Group (SRRTWG)

SRRTWG Co-Chair Diana Farler and Mark Bradley of DTE (on behalf of SRRTWG Co-Chair Colt Payne) expressed concern regarding the reduction of opportunities to participate in member drills. They reminded the group that Market Participants (MPs) may only participate in member drills from a separate room and therefore are not able to fully participate. SRRTWG Co-Chair Farler and Mr. Bradley recommended for MISO to deliver training without the simulators so that MPs could be in the same room. RSC Chair McCausland attended the November 3, 2021, SRRTWG and shared that he is working to address the needs of the stakeholders.

MISO confirmed that *per the FERC Standards of Conduct, Market Function personnel, a group that may include Market Participants (MPs) and GOPs that are also MPs, cannot have access to non-public transmission information under the FERC Standards of Conduct. That includes information from the MISO simulator. To make these exercises relevant, MISO uses non-public transmission information in its simulator. Market Function personnel can participate with their TOPs, but in a separate room away from anyone who is seeing, discussing, or accessing non-public transmission MISO information. MISO will take these comments back and work with the training group and stakeholders to improve the concerns discussed in the RSC.*

3. MISO Posted Items ➡ (R. McCausland)

a. AFC Open Reports

4. Liaison Report (J. Smith)

- Operations Monthly Review (November and December) - Mr. Smith provided an overview of load, performance, and highlights of notable days from the Operations Monthly Report for November and December. MISO's reliability, markets and operational functions performed well in November and December 2021. MISO had an all-time wind peak in November and December. MISO had severe weather alerts in the North, Central, and South Regions in December. For more details on Monthly Operations, please reference the Monthly Ops Report links in the Liaison Report posted with meeting materials.

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- Reconfiguration for Congestion Cost Task Team (RCCTT) – The first meeting was on January 20, 2022, and the next meeting will be February 17, 2022. RSC Chair McCausland reminded the RSC that the RCCTT is a closed group that can discuss things such as real configuration requests and the checklist that might be needed to consider a reconfiguration.
- NERC FAC-011 Standard Change Impacts (SOLTT) – next meeting: February 9, 2022
- AARs/Jointly Owned Facilities – Final Report – The AAR ad-hoc group examined the issue and proposed five optional practices to coordinate and facilitate NERC FAC-008 compliance (required System Operating Limit (SOL) sharing). The group also identified a need for MISO to play a role as a “clearinghouse” for the most limiting rating on facilities, especially as use and rating update rate of AARs increases. No changes have been implemented yet. These recommendations will be rolled into the broader FERC Order 881 efforts.
- Order 841: Reliability and non-Market Products – Electric Storage Resource participation compliance timeline available in posted presentation
- SRRTWG Simulation Participants and 2022 PSR Drills – MISO is taking the comments discussed at the RSC and is actively working this out to find a good path forward.
- 2022 Stakeholder Training Calendar – The 2022 MISO Market Capacity Emergency Drill Registration notice that MISO sent to stakeholders on January 27, 2022, includes upcoming training opportunities.
- Weekly Fuel Consumables Data Request – MISO thanked Members for their participation. Mild weather and fuel management has resulted in healthy stockpiles. MISO intends to do this again next season and will start this data request earlier. With limited data points MISO does not plan to post summary information.
- MOD Standards Retirement and NAESB WEQ-023 Implementation - MISO invited stakeholders to attend the March 10, 2022, Market Subcommittee (MSC) meeting for further details on NAESB responsibilities and transition to v3.3.
- CIP-012: ICCP WAN Router Upgrade Update – MISO will install the replacement WAN router equipment between February 2022 and May 2022. A new CIP-012 agreement will be executed in preparation of the NERC-CIP-012-1. MISO asked stakeholders to ensure that their sites have been scheduled for their ICCP / WAN Router Upgrade.

5. Standards and Assurance Update (B. Welch)

Discuss emerging standards development projects & current FERC, NERC & NAESB activities

MISO provided an update on FERC, NERC, NAESB activities, upcoming enforcement dates, and conferences and webinars. FERC issued an Internal Network Security Monitoring (INSM) NOPR on January 20, 2022. Comments will be due on the INSM NOPR on March 28, 2022. MISO reviewed the NERC Standards recently posted for Comment and/or Ballot. Of note, *Project 2021-08 – Modifications to FAC-008* is targeted to the generator community. Comments on *Project 2020-05 – Modifications to FAC-001 & FAC-002* will be due January 31, 2022. MISO discussed the transition of regulation governing the calculation of Available Transfer Capability (ATC) and Available Flowgate Capability (AFC). The select NERC MOD Standards will be retired January 26, 2023, and the select NAESB Version 3.3 Wholesale Electric Quadrant (WEQ) Business Practice Standards will become effective January 27, 2023. MISO will discuss this transition at the Market Subcommittee (MSC) on March 10, 2022. CIP-012-1 – Communications between Control Centers will be effective on July 1, 2022. Links to upcoming enforcement dates can be found in the posted presentation.

6. Application of Forecasted and Real-time Ambient Adjusted Ratings (RSC-2018-54A) (B. Kiefer) Emergency Line Rating Use and Methodologies (RSC-2021-54B)

Summarize FERC Order 881 on Line Ratings and its impacts

MISO reviewed the requirements and impacts of FERC Order 881. Transmission Owners (TOs) must provide normal and emergency Ambient-Adjusted Ratings (AARs) for all transmission facilities at

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least hourly for the current hour and next 10 days. AARs must be incorporated into transmission service and near-term markets. Current and forecasted AARs are required to be implemented by July 12, 2025 (3 years from compliance filing due date). The compliance filing date is July 12, 2022.

The key definitions from FERC Order 881 can be found in the posted presentation. MISO reviewed the roles and responsibilities of the TOs and Transmission Providers (TPs). MISO reviewed the list that Order 881 is requiring AARs to be provided for. MISO shared that AARs must be leveraged in real-time ratings and forecasted ratings. The group discussed emergency ratings, MISO's standard operating process, and rating methodologies. Emergency ratings must be uniquely determined by the TOs. MISO stated that its position that all facilities under the orders' scope will be covered, and it will not matter how the facilities are networked in the real-time systems.

MISO discussed additional season ratings, transparency and MISO impacts. FERC is requiring four seasons and has allowed flexibility in defining the timespan of each season. MISO must maintain five years of ratings data. MISO's real-time AAR systems are mature and support AARs and Dynamic Line Ratings (DLRs). MISO will share more information as the specific implementation details with TOs become available.

MISO confirmed that FERC does require Tariff changes for MISO and MISO will work with their legal team to ensure the Tariff meets all of the changes (Pro Forma Attachment M in the Order). The group inquired about the compliance filing and whether or not it would require lower voltage. MISO will work with its legal team to confirm the order's scope in relation to MISO's definition of Functional Control.

MISO is reviewing what sort of services they can provide to facilitate compliance and implementation. MISO will have to work out the timing of the new rating data interface with members, and it will likely need to be worked out before 2025, as people bring their systems on. MISO will make timelines available as they do project planning. MISO will develop an implementation plan and collaborate with TOs. MISO is ready and partnering with TOs to add their new AAR as they are made available.

7. Generation Stability Limits[^] (D. Pacilio)

Review Real-Time and Day-Ahead solutions for generation stability limitations along with proposed Tariff updates

a. Tariff Section Generation Stability Offer Limitations -- DA Redline ➡

b. Tariff Section Generation Stability Offer Limitations -- RT Redline ➡

c. Tariff Sections Generation Stability Offer Limitations -- DAMAP, Mod D, Mod E-1 Redline ➡

MISO reviewed real-time and day-ahead solutions for generation stability limitations along with proposed Tariff updates. Generation stability issues are increasing due to the changing generation landscape. A public Generation Stability Limits Procedure defines the Day-Ahead (DA) and Real-Time (RT) processes to limit generation for system stability issues. The proposed Tariff language changes align the Tariff with the Generation Stability Limits Procedure (SO-P-NOP-00-497).

The current RT and DA tools are based on thermal constraints. At this time, MISO uses manual processes to limit generation due to stability limits. An ad-hoc group that reported to the Reliable Operations Working Group - Closed (ROWG-Closed) was created to develop solutions to limit generation due to stability limits. Software solutions and existing processes were reviewed. Software solutions were deemed not viable at this time due to other existing software priorities and cost. The software solutions can be revisited if needed. The ad-hoc group then focused on documenting the existing processes in a public procedure that can be found on the MISO website. The Generation Stability Limits procedure documents two options that can be used for generation stability issues.



MISO reviewed five examples of proposed Tariff changes that are intended to align the Tariff with the Generation Stability Limits procedure and can be found in the posted presentation. Three redlined sections of the Tariff are also posted with the RSC meeting materials.

MISO confirmed that the Independent Market Monitor (IMM) has approved the proposed Tariff changes. MISO is anticipating a June/July 2022 timeframe for FERC filings for Tariff changes. The group had questions regarding capacity and accreditation and were encouraged to submit those with their feedback submission. MISO requests feedback on **Proposed Tariff Changes for Generation Limitations that are provided by the Transmission Provider (TP) or Transmission Operator (TOP)** by February 18, 2022.

8. Annual Generator Winterization Survey for 2022^ (M. Mattox)
Discuss Potential Winterization Survey Changes

MISO discussed potential Annual Generator Winterization Survey changes. The 2021 survey had the highest response rate ever. The proposed survey improvements are aimed at gathering additional data and improving the user experience. MISO may add questions to the 2022 survey regarding start-up temperatures. MISO anticipates opening the 2022 Survey on August 30, 2022. MISO requests feedback on **Annual Generator Winterization Survey** for 2022 by February 10, 2022.

9. New Business (All)
None

10. Action Items (M. McGirr)

Action Item	Owner	Date	Status
Management Plan <ul style="list-style-type: none">Operating Guide Information Classification (RSC-2021-1) – add to March 3	Stakeholder Relations	1/28/2022	Closed
MISO requests feedback on Annual Generator Winterization Survey for 2022 by February 10, 2022.	Stakeholder Relations	1/28/2022	Closed
MISO requests feedback on Proposed Tariff Changes for Generation Limitations that are provided by the Transmission Provider (TP) or Transmission Operator (TOP) by February 18, 2022.	Stakeholder Relations	1/28/2022	Closed

11. Adjournment

The meeting adjourned at 11:32 am ET / 10:32 am CT.

Next Meeting: March 3, 2022

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