



Interconnection Process Working Group (IPWG)

Conference Call & Webex

November 14, 2022

11:00 am to 1:30 pm ET / 10:00 am to 2:30 pm CT

Dial in and Webex information available at www.misoenergy.org

Minutes

1. Administrative Items (D. Mindham)

a. Welcome and Roll Call

The meeting was called to order at 11:00am ET/10:00am CT.

Chair: David Mindham

Vice Chair: Angela Maiko

MISO Liaison: Ryan Westphal

Stakeholder Relations: Mandi McGirr and Madison Thompson

Participants:

Aaron Demuth, OTP

Aaron Martin, CMS

Aaron Steppa,

EasternGen

Aaron Stoll, PlusPower

Adam Renfandt, NDSG

Adam Solomon,

Steelhead/Vestas

Ajinkya Rohankar,

BayWa

Alan Urban,

Steelhead/Vestas

Allen Brisch, Matrix

Renewables

Amanda Fong, MISO

Amanda

Kastenschmidt, DPC

Amanda Schiro, MISO

Amber Joyce, MDU

Andrew Kienitz, MN

Power

Andy Cotter, ATC

Andy Witmeier, MISO

Aneta Godbole, MISO

Anita Collier, ACES

Ankit Pahwa, Pattern

Energy

Anteneh Workneh, GDS

Anton Ptak, EDFR

Anton Salib, MISO

Antonio Santos, EDFR

Anuhya

Chodagam, MISO

Arunika Chandra,

Arevon

Ben, Stellar Power

Ben Dayman, MEC

Ben Kaldunski,

NSPW

Benjamin Piiru,

Nexamp

Brady Mann, MISO

Brendan Cohen,

Solar Stone Partners

Brent Taylor, MPPA

Brett Furuness,

NIPSCO

Brian Giggee, MDU

Bridget Sparks, AES

Brinda Malladi ,

Arevon

Brock Ondayko,

AEPES

Carlos Cofino, PG

Renewables

Carolyn Wetterlin,

Xcel

Carrie Rowland,

Scout Clean Energy

Charlotte

Thomasson, MISO

Chris Plante, WEC

Chris Stolz, PG

Renewables

Christian Alva,

Scout Clean

Energy

Christopher Supino,
MISO

Cindy Guillot, CLECO

Clayton W. Robinson,

Cordelio Power

Cody Anderson, OTP

Craig Turner, Dakota

Electric

Cynthia Crane, ITC

Dan Alfred, CMS

Dan Barr, ITC

Daniel Clark, Scout

Clean Energy

Darrin Lahr, MISO

Dave Johnston, IN

URC

David Brauch, MISO

David Carlson, IGS

David Davis, Apex

Clean Energy

David Harlan,

Veriquest

David Hastings, MICS

David Kapostasy,

MISO

David Leventhal, AES

David Osterkamp, ITC

David Severson,

Clear Way Energy

David Shaffer, Novel

Energy

David Ticknor, RES

Group

Dean Pawlowski, OTP

➡ Post Only

√ Potential Voting Item

^ Feedback Request

* Verbal Report



Dean Schiro, Xcel
Debra Roby, Jennings,
Strauss & Salmon, PLC
Derek Hasek, Solar
Stone Partners
Derek Mosolf, MISO
Devon Taylor, MISO
DeWayne Todd, Alcoa
Drew Siebenaler, Xcel
Dustin Huff, EDP
Dylan Humenik, First Mile
Development
Dylan McAuliffe, Solar
Landscape
Ean Mulligan, Foundation
Solar Partners
Ed Achaab, AEP
Ed Scarborough,
Distributed Sun
Eric Burton, PG
Renewables
Erik Hanser, MI PSC
Erik Winsand, ATC
Erron Raifsnider, ITC
Ethan Case, Azimuth
Energy
Ethan Tellier, CIPCO
Fei Fan, Recurrent
Energy
Forrest Tingo, MISO
Frank Niscoromni,
DTE
Gala Disasa, MISO
Haley McElyea, 1898
& Co.
Harriet Walsh, Orsted
Heather Andrew,
Power Systems
Huaitao Zhang,
MISO
Huiyi Zhang
Jackson, Next Era
Humberto Branco,
Savion
Hwikwon Ham, MN
PUC
Ian Santos-Meeker,
New Energy Equity
Ignatius Peters, Burns
& McDonnell
Iryna Franko, ACES

Isabel Ricker, Fresh
Energy
Jackson Evans, MISO
Jacob Hillman, Xcel
Jamal Khudai, ATC
James Okenfuss,
Savion
James Svenstrup,
Trajectory Energy
Jared Brown, Earth
Rise Energy
Jasmie Guan, AES
Jason Cox, EQ
Energy Advisors
Jason Goar,
Cooperative Energy
Jason Weiers, OTP
Jay Rasmussen,
Duke
Jeff Baker, Duke
Jeff Hudson, Urban
Grid Co
Jeremi Wofford,
Ameren
Jeremiah Doner,
MISO
Jeremy Barlow,
MPUS
Jeremy Karpf, OYA
Renewables
Jessica Banike, WEC
Jessica Collingsworth,
Nexamp
Jessica Willey, Xcel
Jim Denniston, Xcel
Jim Kilgore, MISO
Joe Reddoch, MISO
Joey Cheng, ATC
John Albers,
SunPower
John Schwegler,
Entergy
John Thomasen,
MGE
John Wachtler, MN
PUC
John Weber,
MRES
Jon Langford,
Orsted
Jonathan Roberts,
Soltage

Josh Grindeland, PG
Renewables
Julia Henry,
Forefront Power
Justin Salinas, ENEL
Justin Stewart,
Ameren
Karthik Mekala,
RWEA
Kate Winston, S&P
Global
Kathryn Dial, Next
Era
Kathy Estrada, GDS
Keith Cargill, AES
Ken Gavin, DTE
Ken Kagy, CFU
Kevin Kilgallen,
Avangrid
Khamsune
Vongkhamchanh,
Entergy
Kim Sperry, MISO
Kimberly Dunning,
CenterPoint
Komal Patel, Scout
Clean Energy
Konstantin, DTE
Kristin Swenson,
First Mile
Development
Kun Zhu,
SunEnergy1
Kurt Vanderlick,
Cleco
Kush Gandhi,
Kyle Jenkins, East
Point Energy
Kyle Trotter, MISO
Kyle Watson,
Entergy
LaShel Marvig, Excel
Laura L Couillard,
Power Systems
Laura Witzling,
PSCW
Lauren Azar ,
NRDC's SFP
Lauren Strager, ITC
Lei Tang, Next Era
Lesley McCain,
Illinois Solar

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√ Potential Voting Item

^ Feedback Request

* Verbal Report



Liang Qi, MISO
Ling Hua, Clear Way
Energy
Lisa Silverwulf, HDR
Liz Gephardt, SPP
Madison Pitts, MISO
Malcolm Ainspan,
NRG
Mandy Yang, Green
Backer Capital
Margaret Kristian,
National Grid
Renewables
Mary Long , CMS
Matt Pawlowski,
Next Era
Matt Stobb , AES
Matt Stupnik, Cedar
Creek Energy
Matt Van Arkel, New
Lead Energy
Matt Waldron, ATC
Max Cury, EDP
Meera Shukla,
MISO
Megan Pamperin,
MISO
Michael Fortini,
ITC
Michael Olson,
ENGIE
Michael Ruiz, Xcel
Michael Saer, GRE
Michael Whalen,
Foundation Solar
Partners
Michaela Flagg,
CES
Mike Blackwell,
Husch Blackwell
Mike Gahimer,
NIPSCO
Mike Schowalter,
Fresh Energy
Miles Larson,
LSBP
Milica Geissler,
MISO
Mingxin Zhang,
GPI
Mitchell Myhre,
Alliant

Monica
Mchareune,
ENGIE
Nakhia Crossley,
Natalie Haberman,
Fresh Energy
Natalie McIntire,
Navya Gundeti,
ENGIE
Nick Korhonen,
GRE
Nick Puga, Bates
White
Nick Tenney, CMS
Nitin Kushwaha,
National Grid
Renewables
Noel Augustine,
SB Energy
Noel Darce, Stone
Pigman
Patrick, Solar
Landscape
Patrick Dalton,
MISO
Patrick Turcotte,
Superior Power
Praveen Iyer ,
EDFR
Preston Hart, OTP
Rafik Halim,
National Grid
Renewables
Raj Pudhota, TED
Renewables
Rajat Pungaliya,
PG Renewables
Randall Oye, Xcel
Randy Johannng,
ATC
Rao Konidena,
Ravi Bantu, SB
Energy
Ray McCausland,
Ameren
Rebecca Moore
Darrah, ACES
Renatta White,
MISO
Rhonda Peters,
Intertranec
Rob Wells, ITC

Robert Hirschak , Cleco
Robert Sherick,
GridUnity
Robert Vosberg, LPSC
Staff Consultant
Robert Zullo,
Roberto Paliza, Paliza
Consulting
Rock Park, National
Grid Renewables
Ron Carrier, Big Lake
Consulting
Ruth Kloecker, ITC
Sam Hipple, MISO
Samantha Weaver,
Community Solar
Access
Sandeep Tadepally,
MISO
Sarah Henderson,
MISO
Sarah Nieman, MISO
Sarvesh Gadre, Arevon
Sean Rogers, Xcel
Shailabh Mazari,
Avangrid
Shane O'Brien, AYP
Shane Shields,
Foundation Solar
Partners
Shaun Murphy, Urban
Grid Co
Shawn Welch, Doral
LLC
Sherry Johnson, OTP
Shirley Schultz, AMP
Simon Cherucheril, PG
Renewables
Sophia Dossin ,
Invenergy
Srijan Karim, MEC
Stacie Hebert, OTP
Steve Coleman,
Steve Leovy, WPPI
Steve Rakow, MN PUC
Susan Rossi, Xcel
Tag Short, MISO
Ted Curry, Superior
Power
Temujin Roach , EDFR
Terry Jarrett, MEC

➡ Post Only

√ Potential Voting Item

^ Feedback Request

* Verbal Report



Tian Lan, Matrix
Renewables
Tim Tessier, IA
OCA
Todd Cater,
Foundation Solar
Partners
Tom McDonough,
Xcel
Trey Mayeux,
Cleco
Tricia
DeBleeckere,
MISO

Tung Nguyen, Next
Era
Tyler Mowbray,
MEC
Venkata Bujimalla,
IA IUB
Viqui CArballo,
Novel Energy
Vish Sankaran,
ICF
Warren Hess,
CMPAS
Weiqing Jiang,
Jupiter Power

Werner Roth,
PUCT
Wes Pfaff, MRES
William Kenney,
Quanta Technology
Yarrow Etheredge,
Entergy
Yasmine
Abdennadher, PSCW
Yoon Kim, Alliant
Zack Fernandez,
PSCW
Zeeshan Yasin, Novel
Energy

b. Review Agenda

The agenda was accepted as posted.

c. Review Meeting Minutes / Action Items

The Minutes were accepted as posted.

Action Item	Owner	Date	Status
Leadership Nominations – interested candidates to email brief biography to Stakeholder Relations by October 24; MISO to send notice to the IPWG distribution list Status Update: MISO sent notice to stakeholders on 10/10/2022.	Stakeholders	10/10/2022	Closed
Item 07 – ERIS/DFAX Presentation – request for MISO to review Slide 8 – stakeholders inquired about the numbers adding up; MISO agreed to provide clarification Status Update: MISO reviewed the presentation and corrected summation errors in the West Region and South Region data, and reposted Item 07 on November 9, 2022.	MISO	10/10/2022	Closed
MISO requests feedback on DER Affected System Proposals by October 24, 2022	Stakeholder Relations	10/10/2022	Closed
MISO requests feedback on ERIX DFAX Reduction Proposal (PAC-2022-3) by October 26, 2022	Stakeholder Relations	10/10/2022	Closed
MISO requests feedback on the BPM-015 Changes to Reflect the GIP Timeline Reduction by October 28, 2022	Stakeholder Relations	10/10/2022	Closed

d. Review Management Plan

The 2022 IPWG Management Plan was reviewed.

➡ Post Only

√ Potential Voting Item

^ Feedback Request

* Verbal Report



e. Leadership Election and Announcements ✓

One nomination for Chair and one nomination for Vice Chair were received. MISO requested a last call on nominations during the meeting and no other nominations were brought to the floor. The Chair and Vice Chair of the IPWG for 2023 were approved by General Consent and will be incumbents David Mindham from EDP Renewables and Angela Maiko from GRE.

2. Liaison Report (R. Westphal)

- MISO Feedback Responses - posted to the [MISO Feedback Tool](#)
 - [MISO DER Affected System Proposals \(20221010\)](#) – Contact: Patrick Dalton
 - [ERIS DFAX Reduction Proposal \(PAC-2022-3\) \(20221010\)](#) – Contact: David Brauch
 - [BPM-015 GIP Timeline Updates \(20221010\)](#) – Contact: Sarah Henderson
- MISO-SPP Interim Study Improvements (PAC-2022-4) – PAC assigned new issue to the IPWG on October 19, 2022
- Main Parent Entity Super Week – November 28-December 2, 2022 – reminder to register

3. MISO Posted Items ⇨ (R. Westphal)

a. FERC Status Report – Sarah Nieman

b. Definitive Planning Phase (DPP) Study Cycle Update - MISO shared that the DPP-2022 Cycle kickoff has been delayed and that the associated DPP 1 start date has been moved to February 27, 2023. A notice was sent to the IPWG distribution list on November 7, 2022.

4. Distributed Energy Resource (DER) Interconnection^ (P. Dalton)

Implementation timeframe and request feedback on the draft DER AFS Whitepaper

a. DRAFT MISO DER Affected Systems Study Business Practices Whitepaper Rev 1 –

MISO posted the *DRAFT MISO DER Affected Systems Study Business Practices Whitepaper Rev 1* with the November 14 IPWG materials sent a notice to the IPWG distribution list on November 4, 2022.

b. Distributed Energy Resource (DER) Interconnection

MISO discussed the *DRAFT MISO DER Affected Systems Study Business Practices Whitepaper Rev 1* and new implementation and reporting proposals, stakeholder feedback received from October, and requested additional stakeholder feedback on the entire proposal that can be found in the whitepaper. MISO proposed a draft implementation schedule, implementation guidance, and initial reporting parameters. MISO shared that next steps will include proposing redlines to BPM-015 to the IPWG and then to the PAC in early 2023.

MISO adjusted the Distributed Energy Resources (DER) Affected Systems (AFS) study deposit submittal timeframes to be **30 business days**, up from the 10 business days previously proposed, based on stakeholder feedback on internal business processes and timeline certainty. MISO's new DER AFS aims to evaluate **new, active DER interconnection applications** from an AFS perspective. MISO views this as a **continuation of existing DER practices**, in which parties are playing the roles described in MISO's DER AFS proposals. **Affected Systems studies are common** in state-jurisdictional interconnection practices, though specific details may vary among jurisdictions.

MISO discussed a proposed set of initial reporting information to support visibility into the new DER AFS process. The group discussed MOD-32 and MISO explained the dispatch process. Stakeholders clarified that transmission studies are done by Transmission Planners



(TPs) rather than Transmission Owners (TOs). MISO clarified that it did not use the NERC functional definitions in the whitepaper.

MISO shared that it is seeking to balance the time needed for all parties to communicate and implement changes with the need to deliver timely process refinements. The group discussed how information would flow for DER AFS. Regarding DER Owners, MISO confirmed that MISO will share information with those who have approved access via Non-Disclosure Agreements (NDAs). Stakeholders expressed that there may be critical information that developers may need that could impact their projects and recommended a potential Tariff change regarding notification of potential transmission impacts. Stakeholders thanked MISO for making the new DER AFS process publicly available.

MISO clarified that there are no transmission rights conferred by MISO's DER AFS. The group discussed energy transactions and injection. MISO proposed that cost allocation follow the Relevant Electric Retail Regulatory Authorities (RERRA). MISO confirmed that DER allocation is not in MISO's jurisdiction and is instead administered through applicable RERRA rules. MISO clarified that it is now at the point of needing specific operating context to talk about integration of MISO proposals with RERRA-jurisdictional processes. MISO discussed jurisdictional constructs and its established relationship with TOs regarding deposits and refunds.

MISO invited stakeholders to share their ideas, potential solutions, and specific examples that may require Tariff changes in their feedback request submissions. MISO requests feedback on the **MISO DER Affected System Study Whitepaper** by December 9, 2022. Feedback requests and responses are managed through the Feedback Tool on the MISO website: <https://www.misoenergy.org/stakeholder-engagement/stakeholder-feedback/>.

5. MISO-SPP Interim Study Improvements (PAC-2022-4)^ (K. Trotter)
Discuss study coordination improvements between MISO and SPP and request feedback on BPM-015

MISO provided a summary of the new issue assigned to the IPWG, reviewed a proposed resolution, and requested stakeholder feedback on draft BPM-015 language and potential resolutions. The MISO-SPP JOA requires coordination of milestones and amount of service that can commence up and until network upgrades on impacted party's system are in-service. MISO resources limited by SPP Affected System constraints do not get periodic limited operation studies before in-service date of the network upgrade. MISO resources may only request a Limited Operation Impact Study (LOIS) from SPP for additional consideration of limited operation. MISO shared that MISO and SPP have identified a process improvement to bring better service to customers.

SPP has been working with MISO on this issue and this issue has been discussed in various SPP and MISO stakeholder meetings. MISO resources are bound by limits until the network upgrade and the LOIS may continue for extended time. MISO discussed the MISO and SPP proposal for resolution and potential benefits to the proposed resolution. MISO resources limited by SPP constraints will utilize MISO's Annual Energy Resource Interconnection Service (AERIS) and Quarterly Operating Limit (QOL) interim study processes. SPP would communicate to MISO the



thermal constraint for which mitigation is being required and the applicable limit for the constraint. MISO would use its own interim study process for the conditional generator to respect thermal constraints identified in SPP's Affected System study. SPP's initial AFS study could still calculate and report an initial operating limit to serve as a preliminary indicator to the Interconnection Customer (IC) of how much injection may be expected.

To leverage MISO's AERIS Study and QOL interim study process, MISO could use their own AERIS study process. SPP has not yet implemented a process similar to MISO AERIS/QOL Studies. MISO discussed a proposed modification to BPM-015, Section 6.4.3.2 – Limitations on MISO Generators With Impacts on the SPP System and related cleanup to Section 6.4.3.1 – Limitations on SPP Generators With Impacts on the MISO System. MISO clarified that the constraint is not the generator injection limit – it is the facility rating. Stakeholders inquired about how thermal will be handled relating to NRIS. MISO clarified that NRIS is just like an ERIS request that requires a network upgrade and that the unit that is requesting the NRIS service does not get that service until all of those upgrades are in place.

MISO requests feedback on the **MISO-SPP Interim Study Improvement and Proposed BPM-015 Redlines (PAC-2022-4)** by December 9, 2022. Feedback requests and responses are managed through the Feedback Tool on the MISO website: <https://www.misoenergy.org/stakeholder-engagement/stakeholder-feedback/>.

6. ERIS DFAX Reduction Proposal (PAC-2022-3) (D. Brauch)

Review final proposal

MISO presented the final proposal that will be presented to the PAC. MISO discussed the feedback received for the specific questions asked in the [ERIS DFAX Reduction Proposal \(PAC-2022-3\) \(20221010\)](#). The majority of responses agree with including DFAX reduction with implementation of LRTP portfolio and therefore also agree with bifurcating the implementation between MISO Midwest and MISO South. There was mixed feedback on voltage class bifurcation. MISO noted there were some responses that propose no change.

MISO's proposal for the PAC will be to implement a DFAX reduction when LRTP projects are included in the model and only on voltages less than 345kV. Feedback throughout the discussion has pointed to the importance of the LRTP portfolio for the transition. MISO believes that it's reasonable to only change the ERIS DFAX constraint criteria on assets that are less than 345 kV; 345kV and above facilities will continue to use a 20% DFAX cutoff.

MISO discussed the transition plan for the DFAX reduction. The DFAX reduction implementation would begin in the DPP 2022 cycle. The DPP 2022 cycle kick-off has been delayed to February 27, 2023. MISO's intention is that the pre-screening analysis will utilize this DFAX reduction proposal. This will give customers the ability to see impact of the proposal before kicking off the phase 1 study cycle. MISO reviewed updates to the BPM-015 redline language to implement DFAX reduction.

Stakeholders expressed their support and opposition of the proposal. Some concerns were regarding the speed for which the proposal moved through the process, granularity of study data provided, constraint criteria for different voltages, and cost allocation. Some stakeholders expressed that they would like a more phased implementation.



Tentative Schedule/Next Steps

Stakeholder meeting and purpose	Date
IPWG •Finalize recommendation for PAC	Nov 14
PAC Meeting •Discuss recommendation from IPWG and review BPM redlines •Request feedback	Nov 29
PAC Meeting •Review feedback	Q1 2023

7. New Business (All)

None

8. Action Items (M. McGirr)

Action Item	Owner	Date	Status
Leadership Election and Announcements Congratulations to incumbents Chair Mindham and Vice Chair Maiko. MISO will send an announcement to the IPWG distro.	Stakeholder Relations	11/14/2022	Closed
MISO requests feedback on MISO DER Affected System Study Whitepaper by December 9, 2022	Stakeholder Relations	11/14/2022	Closed
MISO requests feedback on MISO-SPP Interim Study Improvement and Proposed BPM-015 Redlines (PAC-2022-4) by December 9, 2022	Stakeholder Relations	11/14/2022	Closed

9. Adjourn

Meeting adjourned at 1:34 pm ET/12:34 pm CT.

Next Meeting: January 31, 2023 (Webex/Conference Call)

➡ Post Only

√ Potential Voting Item

^ Feedback Request

* Verbal Report