

Board of Directors Meeting Agenda Salt Lake City, UT

Meeting link, Password: WECC | Dial-in Number: 1-415-655-0003, Attendee Access Code: 2632 043 1573

## December 6, 2023, 9:00 a.m. to 12:30 p.m. Mountain Time

- 1. Welcome, Call to Order—Ric Campbell
- 2. Review WECC Antitrust Policy—Jeff Droubay

WECC Antitrust Policy.

Please contact WECC legal counsel if you have any questions.

- 3. Approve Agenda
- 4. Consent Agenda

Approval Item: Meeting Minutes from September 14, 2023

Approval Item: WECC Standards Committee (WSC) Charter

- 5. Review of September 14, 2023, Closed Session—Ric Campbell
- 6. Executive Remarks—Tracey LeBeau, Western Area Power Administration, Administrator and CEO
- 7. NERC Trustee Remarks—Sue Kelly
- 8. Remarks and Reports

WECC President and CEO—Melanie Frye

Reliability and Security Oversight—Steven Noess

#### Break

 $Member\ Advisory\ Committee-Michele\ Beck$ 

Western Interconnection Regional Advisory Body—Eric Baran

Western Interconnection Compliance Forum—Layna McVay

9. Public Comment



## Board Meeting Agenda—December 6, 2023

# 10. Winter Storm Elliott—Heather Polzin, FERC, Attorney Advisor and Reliability Coordinator for the Office of Enforcement

### 11. Board Committee Reports

Finance and Audit Committee - Gary Leidich

Governance Committee – Felicia Marcus

Approval Item: Board Self-Evaluation Process

Human Resources and Compensation Committee - Shelley Longmuir

Approval Item: 2024 Corporate Scorecard

Standards Committee—Ian McKay

## 12. Technical Activities Update

Reliability Planning and Performance Analysis – Branden Sudduth

Joint Guidance Committee – Jonathan Aust

Reliability Risk Committee—Meg Albright

Reliability Assessment Committee—Chelsea Loomis

#### 13. Review New Action Items

## 14. Review Upcoming Meetings

March 12–13, 2024	Salt Lake City, UT
June 11–12, 2024	Salt Lake City, UT
September 17-18, 2024	Salt Lake City, UT

## 15. Adjourn





Board of Directors Meeting
Approval Item
Consent Agenda
December 6, 2023

# For Board Approval

The consent agenda for this meeting consists of:

Approval Item: Meeting Minutes from September 14, 2023

Approval Item: WECC Standards Committee (WSC) Charter

#### Recommendation

Staff believes that these items do not require additional Board discussion, and each is non-controversial and appropriate for the consent agenda. Attached is background information on each item.



Board of Directors
DRAFT Meeting Minutes
September 14, 2023
Vancouver, B.C.

#### 1. Welcome, Call to Order

Ian McKay, Board of Directors (Board) Chair, called the meeting to order at 8:31 a.m. PT on September 14, 2023. A quorum was present to conduct business. A list of attendees is attached as Exhibit A.

# 2. Review WECC Antitrust Policy

Jeff Droubay, Vice President and General Counsel, read aloud the WECC Antitrust Policy statement. The meeting agenda included a link to the posted policy.

## 3. Approve Agenda

Mr. McKay introduced the proposed meeting agenda.

On a motion by Richard Woodward, the Board approved the agenda.

# 4. Consent Agenda

On a motion by Joe McArthur, the Board approved the consent agenda, which consisted of:

Approval Item: Minutes from June 14, 2023, and

Approval Item: Reliability Risk Committee (RRC) Charter.

### 5. Review of June 14, 2023, Closed Session

Mr. McKay addressed a comment in the Board Effectiveness Survey regarding closed Board session discussions and transparency. Mr. McKay stated that most closed session discussions are compliance related and, hence, confidential. The Board has been transparent by providing a closed session overview to the membership, as well as sharing the closed session agenda with MAC leadership. He asked that, if Ms. Beck is able, to ask the commenter to provide the Board with clarity on where they feel there may be lack of transparency.

Mr. McKay closed by reviewing the June 14, 2023, closed session.



#### Draft Board Meeting Minutes—September 14, 2023

#### 6. Executive Remarks

Dave Morton, Chair and CEO, British Columbia Utilities Commission, was unable to attend, and no remarks were provided.

#### 7. NERC Trustee Remarks

Mr. McKay introduced Jane Allen and Kristine Schmidt, NERC Board Trustees.

Jane Allen, NERC Trustee, acknowledged that NERC values the relationship with WECC and thanked the Board for inviting her. She commented that the NERC Board is focused on challenges to the bulk power system, highlighted the NERC Risk Priority Report, emphasized the partnership between WECC and NERC on industry reports and workshops, summarized the focus of the Technology and Security Committee, and reminded the Board of the Grid Security Conference and Grid Ex being held later this year. Ms. Allen closed by highlighting the evolving risk environment and stating that industry is continually being asked to do more, like the Interregional Transfer Capability Study (ITCS).

Ms. Allen responded to a question on what can be done about retirements outpacing replacement power.

## 8. Remarks and Reports

Mr. McKay reminded the Board that the Reliability Planning and Performance (RPPA) update will be at the end of the agenda and will be combined with the technical committee updates to provide more efficiency and coordination.

The following people gave reports to the Board:

- a. Melanie Frye, President and CEO, shared an ERO video highlighting the August 14, 2023, blackout and 20 years of subsequent progress on grid reliability. She shared that a staff event, WECC Week, was held to connect, train, and collaborate with staff. She summarized FERC, NERC, regional, and international activities and closed by reviewing scorecard achievements to date. The Board asked questions about the scorecard and whether WECC anticipates hitting the target of 12 reliability assessments.
- b. Steven Noess, Vice President Reliability and Security Oversight, provided an update on the Oversight Trends Report, inverter-based resources (IBR), self-logging, oversight planning, 2024 monitoring priorities, and Align implementation in Canada. Directors inquired about CMEP best practices, outreach on IBR inventory, and the self-logging program.
- c. Michele Beck, Member Advisory Committee (MAC) Chair, thanked Linda Jacobson-Quinn for her work as MAC chair and congratulated the new and re-elected MAC representatives. She reported on the MAC Work Plan discussions and possible format changes for 2024. Mr.



#### Draft Board Meeting Minutes—September 14, 2023

McKay reiterated thanks to Ms. Jacobson Quinn and congratulated the elected MAC representatives and leaders.

d. Mary Throne, Western Interconnection Regional Advisory Body (WIRAB), gave the floor to Laura Rennick, Executive Director Western Interstate Energy Board (WIEB) who summarized her work history and open WIEB positions. Ms. Throne then remarked that WIRAB participated in the MAC Board Effectiveness Survey, highlighted WIRAB advice to FERC on the WECC 2024 budget and commented on the push for more market development and the importance of continuing reliability discussions. Ms. Throne closed by reflecting on NERC's 2023 ERO Reliability Risk Priorities Report. The Board inquired on how WIRAB and WECC can address the issue of energy policy risk.

## 9. Class Reports and Interactive Forum Debrief

The Board discussed the interactive forum held the previous day on stakeholder mapping. The directors discussed accessibility, rollout strategies, and products vs. audience.

#### 10. Public Comment

No comments were made.

# 11. Board Committee Reports

#### a. Finance and Audit Committee

Gary Leidich, Finance and Audit Committee (FAC) Chair, reported on the previous day's meeting, including discussion on ITCS budget impact, year-to-date expenditures, and Mexican regulatory update.

#### b. Governance Committee

Shelley Longmuir, Governance Committee (GC) Chair, reported on the GC meeting held August 21, 2023, where the GC focused on the GC Charter and Board knowledge transfer.

#### c. Human Resources and Compensation Committee

Richard Woodward, Human Resources and Compensation Committee (HRCC) Chair, reviewed the closed session HRCC meeting, including turnover and retention, review of the 401(k) plan performance, overview of the draft 2024 corporate scorecard, and CEO goals.

#### d. WECC Standards Committee

James Avery, WECC Standards Committee (WSC) Chair, reported on WSC activities and the elections for vacant seats.



#### Draft Board Meeting Minutes—September 14, 2023

# 12. Technical Activities Update

Branden Sudduth, Vice President Reliability Planning and Performance Analysis, provided a technical activities update. Mr. Sudduth summarized the new format for reporting to the Board, reported on ITCS activities, and reviewed development on the Transmission Trends Assessment.

Mr. McKay requested that the Board stay informed if there are staffing needs to assist with the ITCS and ongoing RPPA work.

Additional remarks were provided by:

- a. Jonathan Aust, Joint Guidance (JGC) Co-Chair, who reported on JGC activities.
- b. Philip Augustin, Reliability Assessment Committee (RAC), Co-Chair, who highlighted work of the Long-Term Planning Task Force.
- c. Dede Subakti, Reliability Risk Committee (RRC) Co-Chair, who highlighted the RRC work and timeline on development of the list of reliability and security risks.

## 13. Leadership Elections

Mr. McKay turned chair duties over for this item to, Kris Hafner, Director, who reported that each year the Board confirms Board leadership and, in accordance with the Board Governance Guidelines, she canvassed each director and affirmed that Ric Campbell and Jim Avery are willing to stand for election in the Board leadership positions.

On a motion by Mr. McKay, the Board elected Mr. Campbell as chair. Mr. Campbell abstained.

On a motion by Mr. Campbell, the Board elected Mr. Avery as vice chair. Mr. Avery abstained.

Mr. Campbell took a moment to reflect on Mr. McKay's tenure as chair and thanked him for his leadership and contributions to the Board.

#### 14. Review New Action Items

There were no new action items created during this meeting.

# 15. Upcoming Meetings

December 5–6, 2023	Salt Lake City, UT
March 12–13, 2024	Salt Lake City, UT
June 11–12, 2024	Salt Lake City, UT



# Draft Board Meeting Minutes—September 14, 2023

# 16. Adjourn

On a motion by Richard Woodward, the Board adjourned at 11:45 a.m. PT and moved into closed session, which commenced at 12:15 p.m. PT.



# Draft Board Meeting Minutes—September 14, 2023

# **Exhibit A: Attendance List**

## **Members in Attendance**

James Avery	Director
Ric Campbell	Vice Chair
Melanie Frye	CEO
Kris Hafner (virtual)	Director
Gary Leidich	Director
Felicia Marcus	Director
Joe McArthur	Director
Ian McKay	Chair
Shelley Longmuir (virtual)	Director
Richard Woodward	Director
Others in Attendance	
Jane Allen	Board of Trustee, NERC
Kristine Schmidt	Board of Trustee, NERC





Board of Directors Meeting

Approval Item

WECC Standards Committee Charter

December 6, 2023

#### **Board Resolution**

*Resolved*, that the WECC Board of Directors (Board), acting on the recommendation of the WECC Standards Committee (WSC) at the meeting of the Board on December 6, 2023, approves the WSC Charter as presented and attached.

## Background

A clean and a redlined version of the proposed WSC Charter are included in the Board package.

The proposed revisions are minor and include reformatting of information, inclusion of approved language from the WECC Glossary of Terms and Naming Conventions (Glossary), which is being retired in an ongoing project, and clarifying language revisions.

#### Recommendation

The WSC chair recommends approval of the revised WSC Charter.

#### **Issues and Risks**

If the proposed revisions to the WSC Charter are not approved, the charter will be outdated and valuable information will be lost when the Glossary is retired.



# WECC Standards Committee Charter

## **Establishment and Authority**

The WECC Standards Committee (WSC) is established by the WECC Board of Directors under Section 8.3 of the WECC Bylaws.

## **Purpose and Responsibilities**

The purpose of the WSC is to oversee the implementation of the WECC Reliability Standards Development Procedures (Procedures) pursuant to this Board-approved charter.<sup>1</sup>

The WSC will-

- 1. Maintain and administer the Procedures, including:
  - a. Due process,
  - b. Balloting,
  - c. Annual review of the WECC Glossary of Terms Used in WECC Criteria, and
  - d. Meeting the quality control attributes of FERC Order 672.
- 2. Administer each Standard Authorization Request (SAR) to ensure the requested project:
  - a. Is within WECC's authority to develop;
  - b. Is appropriate for development by WECC; and that it
  - c. Remains within the scope of the SAR, as may be changed by the WSC.
- 3. Monitor and manage the development of projects created per the Procedures including:
  - a. Drafting team selection,
  - b. Provision of general oversight and guidance to include a description and explanation of the project to be drafted, and
  - c. Time and resource prioritization where needed.
- 4. Perform other duties assigned by the Board.

<sup>&</sup>lt;sup>1</sup> The Procedures require approval by the Board, NERC, and FERC.

## **Committee Composition and Governance**

#### 1. Membership

a. The WSC will be composed of one representative from each of the WECC Standards Voting Segments (SVS) as defined in the Procedures, plus one member of the Board assigned by the Board chair to serve as the WSC chair.

#### b. Eligibility

- i. An individual is eligible to serve on the WSC if that individual:
  - Meets the membership eligibility criteria in the Segment Qualifications Guidelines and Segment definitions in the NERC Rules of Procedure, Appendix 3D, registered Ballot Body Criteria, as amended from time to time, and
  - Agrees to place reliability of the Western Interconnection ahead of personal or corporate interests.
- ii. No individual, firm, or affiliate will serve in more than one SVS at a time. The Director of Standards has authority to make the final determination on the question of affiliation.

#### c. Balloting

- i. A request for WSC SVS nominations must be announced and remain open for no less than 14 days. Self-nominations are permitted. Each nominee's eligibility will be verified under the direction of the Director of Standards.
- ii. At the closing of the nomination period, notice of ballot will be dispatched announcing the ballot window and providing balloting instructions. The ballot window will remain open for:
  - 1) No less than 14 days or until the sum of the ballots cast becomes outcome determinant, and
  - 2) No more than 30 days.
- iii. To be eligible to vote, an individual:
  - 1) Must be registered in the WECC Ballot Body, and
  - 2) May cast a vote in all SVSs in which the individual is registered.
  - 3) Only one vote may be cast per entity per SVS.
- iv. The nominee with the most votes in an SVS is elected as the representative for that SVS. If there is only one nominee for an SVS, balloting is waived, and the nominee is deemed elected.



- v. In the event of a tie ballot, the WSC chair will cast the deciding vote.
- vi. The names of elected representatives will be given to the Board for informational purposes.

#### d. Terms of Service

- i. Normal Term of Service
  - 1) Will be two years.
  - 2) Will be staggered so only half the terms expire coincidentally.
  - 3) Will begin and end at the closing of the WECC Annual meeting.
- ii. Interim Term of Service
  - 1) The WSC chair may decide not to fill an interim vacancy, in which case the vacancy would be filled during the next normal term of service.

#### iii. Removal

1) The WECC Board may remove a WSC member upon a joint finding by the WSC chair and the Board chair that the member's conduct on the WSC is inconsistent with membership eligibility.

#### 2. Leadership

- a. The Board chair will assign a Board member to serve as the WSC chair.
- b. The WSC chair will manage the committee and its meetings.
- c. The WSC will elect a vice chair to perform the duties of the chair in the chair's absence or in case of a vacancy in the office of chair.
- d. WECC Standards staff will serve as the steering committee assisting with meeting agendas and action recommendations.

#### 3. Meetings

- a. The WSC will determine the procedures for its meetings.
- b. A quorum for meetings will be a majority of the WSC's current membership. A meeting quorum is determined by a count of those present in-person and present by other real-time interactive communication media. Once a quorum is established it remains in place until the meeting is adjourned. If an SVS position is vacant, the number needed to establish a quorum is reduced accordingly.
- c. Action taken by the WSC requires a majority vote of those members present.
- d. WSC meetings may be in person or by conference call, as determined by the chair.



- e. The chair (or designee) will cause notice to be given of the time and place of all meetings and will cause notice of all meetings to be posted on the WECC website. Notice shall be given no less than three days before each meeting.
- f. An agenda, including the items for which action may be taken, will be posted to the associated calendar event.
- g. Any person who wants notice of WSC meetings may notify the WECC Standards staff or WECC administrative support.
- h. All meetings of the WSC under this section are open to the public, except that the chair of the WSC may call for a closed session—according to the Board Policy on Closed Sessions for Member Groups—to discuss confidential or non-public information, to receive attorney-client communications, or to discuss pending or anticipated litigation.

#### 4. Actions without a Meeting

- a. The WSC may act by ballot without holding a meeting as described above in Section 3— Meetings.
- b. A ballot to approve an action without a meeting (AWM) may be taken by any method the chair deems appropriate.
- c. A quorum is required, except that the WSC member need not be present in person or present by real-time interactive communication media.
- d. An action without a meeting may be convened at the request of the chair or any three SVS representatives.
- e. WECC will distribute notice of the proposed AWM to the Standard Email List and the WSC members, stating the nature of the business to be undertaken.
- f. Notice of the AWM will be given no less than three days in advance of the requested action.
- g. Results of the AWM will be distributed to the WSC members no less than five days after the close of the AWM.
- h. A report of all actions taken will be made at the next regularly scheduled WSC meeting.

#### **Proxies**

Each WSC member is authorized to designate a proxy for purposes of quorum and action items to be addressed by the WSC.

To assign a proxy, the assigning WSC member must notify WECC Standards staff and provide:

1. The reason for the request,



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- 2. The name of the proxy representative, and
- 3. The SVS represented.

The proxy will adhere to the voting member's expectations and responsibilities as described in this charter.

A WSC member cannot serve as a proxy for another WSC member.

# Reporting

The WSC will report to the Board on its activities and any recommendations.

The WSC will annually review each subcommittee, task force, or work group that reports to the WSC to determine whether that group is still necessary or should be dissolved.

# **Review and Changes to the Charter**

The WSC will annually review this charter and recommend any changes to the Board.

Approved by the WSC: December 6, 2022

Approved by the WECC Board of Directors: Targeted for December 2023





# WECC Standards Committee Charter

#### **Establishment and Authority**

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#### **Purpose and Responsibilities**

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The WSC will-

- 1. Maintain and administer the Procedures, including:
  - a. Due process,
  - b. Balloting,
  - c. Ensuring each project developed per the Procedures uses the NERC naming and numbering nomenclature, except that "WECC-CRT" will be used to designate a WECC Criterion.
  - d. Ensuring WECC Criteria do not duplicate a defined term maintained by either the North
     American Electric Reliability Corporation (NERC) or the North American Energy Standards
     Board (NAESB).

b.\_\_

- c. Annual review of the WECC Glossary of Terms and Naming Conventions, and
- d.e. Ensuring each project meets the Meeting the quality control attributes of FERC Order 672.
- 2. Administer each Standard Authorization Request (SAR) to ensure the requested project:
  - a. Is within WECC's authority to develop;
  - b. Is appropriate for development by WECC; and that it
  - c. Remains within the scope of the SAR, as may be changed by the WSC.
- 3. Monitor and manage <del>drafting teams, the development of projects created per the Procedures</del> including:

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<sup>&</sup>lt;sup>1</sup> The Procedures require approval by the Board, NERC, and FERC.

- a. TeamDrafting team selection, and
- Provision of general oversight and guidance to include a description and explanation of the project to be drafted, and time prioritization where needed.
- Monitor<u>Time</u> and manage the development of projects created per the Procedures, includingresource prioritization—where needed.
- 4. Perform other duties assigned by the Board.

#### **Committee Composition and Governance**

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- A request for WSC SVS nominations must be announced and remain open for no less than 14 days. Self-nominations are permitted. Each nominee's eligibility will be verified under the direction of the Director of Standards.
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- b. The WSC chair will manage the committee and its meetings.
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- d. WECC Standards staff will serve as the steering committee assisting with meeting agendas and action recommendations.

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- c. Action taken by the WSC requires a majority vote of those members present.
- d. WSC meetings may be in person or by conference call, as determined by the chair.
- e. The chair (or designee) will cause notice to be given through the Standards Email List of of the time and place of all meetings, and will cause notice of all meetings to be posted on the WECC website. Notice shall be given no less than three days before each meeting.
- f. An agenda, including the items for which action may be taken, will be included with the notice-posted to the associated calendar event.
- g. Any person who wants notice of WSC meetings may notify the WECC Standards staff or WECC administrative support.
- h. All meetings of the WSC under this section are open to the public, except that the chair of
  the WSC may call for a closed session—according to the Board Policy on Closed Sessions for
  Member Groups—to discuss confidential or non-public information, to receive attorneyclient communications, or to discuss pending or anticipated litigation.

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- e. WECC will distribute notice of the proposed AWM to the Standard Email List and the WSC members, stating the nature of the business to be undertaken.
- f. Notice of the AWM will be given no less than three days in advance of the requested action.
- g. Results of the AWM will be distributed to the WSC members no less than five days after the close of the AWM.



h. A report of all actions taken will be made at the next regularly scheduled WSC meeting.

#### **Proxies**

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- 1. The reason for the request,
- 2. The name of the proxy representative, and
- 3. The SVS represented.

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#### Reporting

The WSC will report to the Board on its activities and any recommendations.

The WSC will annually review each subcommittee, task force, or work group that reports to the WSC to determine whether that group is still necessary or should be dissolved.

#### **Review and Changes to the Charter**

The WSC will annually review this charter and recommend any changes to the Board.

Approved by the WSC: December 7, 2021 - No change from 20206, 2022

Approved by the WECC Board of Directors: Targeted for March 2022 December 2023





# WECC Board of Directors Review of September 14, 2023, Closed Session

Verbal Update

Ric Campbell, Chair

December 6, 2023

# Biography

#### WESTERN AREA POWER ADMINISTRATION





**TRACEY A. LEBEAU**Administrator and CEO
Western Area Power Administration

Tracey A. LeBeau is the Administrator and Chief Executive Officer of the Western Area Power Administration. WAPA markets and delivers federal hydropower from 57 federal hydroelectric plants to nearly 700 wholesale customers across its 15-state footprint. WAPA owns and operates over 17,000 circuit miles of high voltage transmission. WAPA customers provide electric service to more than 40 million Americans from Texas to the Dakotas, and from the lakes of Minnesota to the California coastline.

An accomplished executive with expansive clean infrastructure experience, LeBeau has more than 20 years of experience in management, energy development, public-private partnerships, utility business operations, federal policy and energy finance. She has served in executive capacities for numerous energy businesses, including an interstate pipeline, wind development company, energy trading business and energy advisory firms.

At WAPA, LeBeau has served in numerous leadership capacities, including leading the Transmission Infrastructure Program which manages WAPA's \$3.25 billion infrastructure fund, standing up and leading WAPA's Office of the Chief Administrative Officer and most recently served as Senior Vice President responsible for managing WAPA transmission system operations and maintenance as well as energy marketing in Arizona, Nevada and southern California.

Before joining WAPA in 2014, LeBeau was political appointee at the Department of Energy from 2011-2014. Just prior to joining the Obama Administration, LeBeau was a Principal at Dentons, a large international law firm, and founding chair of its Renewable Energy Practice.

LeBeau received her A.B. from Stanford University and her J.D. from the University of Iowa.

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Powering the energy frontier



# **Sue Kelly**

Susan (Sue) Kelly was elected to the NERC Board of Trustees in February 2021 and serves on the Compliance, Corporate Governance and Human Resources, and Finance and Audit Committees. Ms. Kelly also serves as the observer for the Standards Committee.

Ms. Kelly previously served as president and CEO of the American Public Power Association (APPA) from 2014 to 2019, where she led the national trade association serving public power utilities, having come to the organization in 2004 as its senior vice president of Policy Analysis and General Counsel responsible for APPA's energy policy formulation and policy advocacy before FERC, the federal courts, and other governmental and industry policy forums.

Ms. Kelly has served on a number committees, including the Steering Committee of the Electricity Subsector Coordinating Council (2014 to 2019), the Commodity Futures Trading Commission's Energy and Environmental Markets Advisory Committee (2015 to 2019), the U.S. Department of Energy's Electricity Advisory Committee (2008 to 2009 under the Bush Administration; 2012 to 2014 under the Obama Administration), and as the president of the Energy Bar Association (2010 to 2011). She was also a member of the E Source Advisory Board and served on the Board of Directors of the Center for Energy Workforce Development. She currently serves as chair of the Energy Bar Association Masters Council and has helped start a virtual mentoring program for Energy Bar Association members.

Ms. Kelly was named one of Washington's "Most Powerful Women" in the November 2015 issue of Washingtonian magazine in the "Business, Labor, and Lobbying" category. In March 2017, she was honored as Woman of the Year by the Women's Council on Energy and the Environment. In January 2020, she received Public Utility Fortnightly's Owen Young Award to honor her exceptional contributions to the electric utility industry.

Ms. Kelly earned her bachelor's degree in Honors Interdisciplinary Studies and Economics from the University of Missouri and her juris doctorate from George Washington University, both with high honors.



**CEO Report** 

December 6, 2023

Melanie Frye, President and CEO

# FERC, NERC, and Regional Headlines

## **FERC**

- NERC and Regional Entity budgets approved
- Joint FERC/NERC/Regional Entity Report on Winter Storm Elliott inquiry published
- Annual Reliability Technical Conference held

## **NERC**

- E-ISAC hosted GridEx VII, including executive table-top
- 2023 2024 Winter Reliability Assessment released

# Regional

- Western Transmission Expansion Coalition Steering Committee established
- Day Ahead Market developments are ongoing in CAISO (EDAM) and SPP (Markets +)

# Winter Reliability Assessment



Figure 1: Winter Reliability Risk Area Summary

Seasonal Risk Assessment Summary	
High	Potential for insufficient operating reserves in normal peak conditions
Elevated	Potential for insufficient operating reserves in above-normal conditions
Low	Sufficient operating reserves expected



# **International Updates**

# **British Columbia**

 WECC conducted seven virtual audits in 2023. WECC continues to work closely with the BCUC on various registration, compliance monitoring, and enforcement-related activities.

# **Alberta**

No scheduled audits in Alberta in 2023. The next audit will be conducted in 2024.

# Mexico

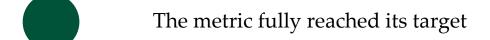
- Negotiation of a new agreement continues; resolution in 2023 is unlikely.
- Discussion of accounting treatment of past-due assessments will occur in 2024, dependent on resolution of contract negotiations.

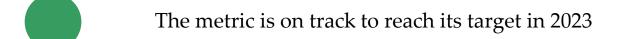


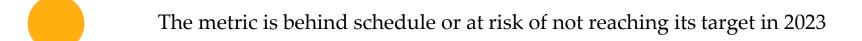
# 2023 Scorecard Dashboard

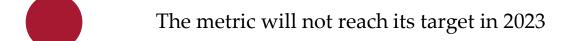


# **Metrics Legend**

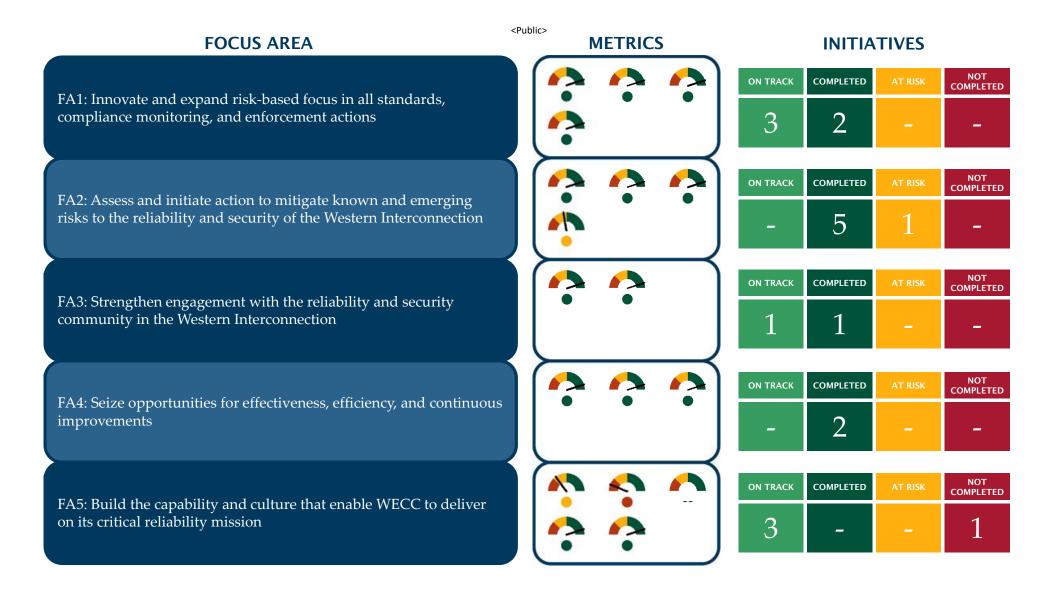








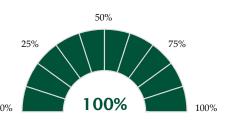




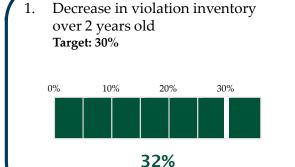
# Innovate and expand risk-based focus in all standards, compliance monitoring, and enforcement actions

**Outcome 1:** Western viewpoints represented and incorporated in standards development

1. Standards drafting teams that have Western representation Target: 100%



**Outcome 2:** Effective and efficient implementation of risk-based monitoring and enforcement activities



- 2. Standards under development on which WECC comments Target: 100%

  50%

  75%

  100%
- 2. COP refreshes completed within six months
  Target: 80%

  40%

  60%

  80%

#### **Initiatives**

#### Outcome 1

- Engage technical committees in standards development
- Educate staff and stakeholders on and promote use of SARs

#### Outcome 2

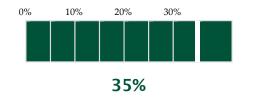
- Evaluate CMEP processes to enhance interconnections and stakeholder experience
- Implement outreach and training to increase enrollment in self-logging
- Further develop and track internal CMEP metrics

Assess and initiate action to mitigate known and emerging risks to the reliability and security of the Western Interconnection

**Outcome 1:** Clear understanding of emerging risks and mitigation strategies. High-precision information and models

Completion of vetted mitigation

strategies to address RRPs
Target: 35%

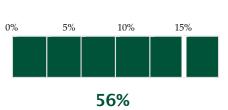


**Outcome 2:** Use of advanced tools, techniques, and industry subject matter experts to identify system performance trends and vulnerabilities

1. Best practices/guidelines created and risk forums held
Target: 12



 Power flow model shortcomings resolved vs. total identified Target: 15%



2. Reliability assessments performed Target: 12



#### **Initiatives**

#### Outcome 1

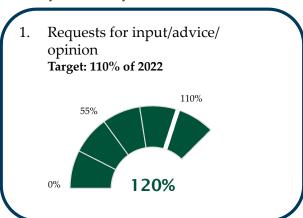
- Implement documented, coordinated, repeatable 2023 Study Program process
- Create organization-wide risk register to track reliability risks and mitigation
- Produce a 20-year Western transmission trends assessment

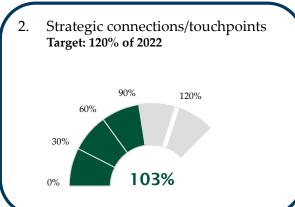
#### Outcome 2

- Host 2023 cyber/physical security conference
- Produce enhanced State of the Interconnection report
- Develop monitoring and performance indicators within PI system

Strengthen engagement with the reliability and security community in the Western Interconnection

**Outcome 1:** Effective relationships with industry, committees, ERO Enterprise, regulators, policy-and decision-makers, national labs and educational institutions, and the broader reliability and security community





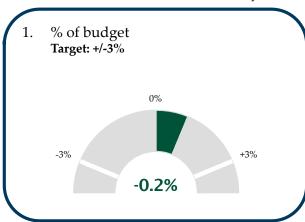
#### **Initiatives**

#### Outcome 1

- Establish structure to include stakeholder interactions in every major product
- Create targeted engagement strategies building on stakeholder mapping work

# Seize opportunities for effectiveness, efficiency, and continuous improvements

**Outcome 1:** Delivery of scorecard results, and development of methods/metrics for ongoing evaluation of effectiveness and efficiency



Outcome 2: Continuous improvement of organizational processes and tools to adapt to changes in the industry

1. New WECC products focused on current RRPs or emerging risks Target: 75%

#### **Initiatives**

#### Outcome 1

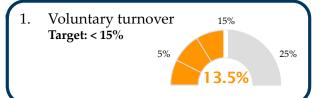
Increase effectiveness of future two years' budget forecasts

#### Outcome 2

Roll out organization-wide continuous improvement framework developed in 2022

# Build the capability and culture that enable WECC to deliver on its critical reliability mission

**Outcome 1:** WECC is employer of choice, with highly skilled, collaborative, and engaged employees committed to WECC's mission



2. Critical skills covered by staff expertise Target: 90%

81%

3. Successors and dev. plans for critical positions Target: 90%

**Outcome 2:** WECC respected as a partner and trusted to produce high-quality, credible, and influential work

1. New collaborative projects with external partners

Target: 5



2. External citations of or references to our technical work

Target: 6



#### **Initiatives**

#### Outcome 1

- Develop plan to bring transformation and leadership work into self-sustaining model
- Incorporate DEI into culture based on 2022 outcomes
- Develop and implement plans to improve three Denison indices

#### Outcome 2

Establish rotation program to increase training opportunities and build bench strength







# Reliability and Security Oversight Update

December 6, 2023

Steven Noess

Vice President, Reliability and Security Oversight

# **Trends Update**

- Q4 2023 update <u>available online</u>
- Highlights—
  - Increased self-reports for access management and revocation (CIP-004), generator frequency and voltage protection (PRC-024)
  - Enforcement inventory consolidation
  - Impact of Align on mitigation tracking



# **Top Standards and Risks**

Most Violated	Most Monitored		
1. CIP-004-6: Personnel & Training	1. CIP-008-6: Incident Reporting and		
2. CIP-007-6: System Security	Response Planning		
Management	2. CIP-009-6: Recovery Plans for Critical		
3. CIP-010-4: Configuration Change	Cyber Assets		
Management and Vulnerability	3. PRC-027-1: Coordination of		
Assessments	Protection Systems for Performance		
	During Faults		



# **Oversight Prioritization**

- Compliance Monitoring and Enforcement Program <u>Implementation</u>
   <u>Plan</u> communicates strategic oversight priorities
- Identifies "Risk Elements" for monitoring and enforcement emphasis
  - Considers mitigating factors that may reduce or eliminate impacts
  - Informed by compliance data, events, reliability assessments, and committee input (e.g., Reliability Issues Steering Committee)
- Risk Elements have "Areas of Focus" (Reliability Standards Requirements)
- Likelihood, frequency, severity, and progress matter



## **Risk Elements**

2023	2024
Remote Connectivity	Remote Connectivity
Supply Chain	Supply Chain
N/A	Physical Security
Incident Response	Incident Response
Stability Studies	Stability Studies
Inverter-based Resources	Inverter-based Resources
Facility Ratings	Facility Ratings
Cold Weather Response	Extreme Weather Response



## **Inverter-based Resources**

- ROP revisions proposed
  - GO-IBR
  - GOP-IBR
- FERC Order No. 901 (10/19/2023)
- ORCG outreach
- 2024 Standards Development Plan
- Internal collaboration and external outreach

#### **IBR Work Plan Milestones**

#### Months 1-12

Revise registration-related sections of ROP, including stakeholder feedback. Seek NERC Board and FERC approval.

#### Months 13-24

Identify and communicate with unregistered IBR owners and operators. Develop approach to establish applicable standards.

#### **Months 25-36**

Complete registration activities for IBR entities, including technology updates, training, and onboarding. Notify entities of registration and compliance responsibilities.



## **Cold Weather**

- Winter Storm Elliott Report (11/07/2023)
  - Near-term action: Identify high risk generators and verify cold weather capability
- Standards development
- Increased monitoring
- Outreach and engagement



# **Self-Logging**

- Participant growth
- October workshop outreach
- 2024 training

Quarter	Applications Received	Applications Reviewed	Active Participants
Q1 2023	1		7
Q2 2023	2	1	8
Q3 2023	1	2	10
Q4 2023 As of 11/17	3	1	11
Total	7	4	







<Limited-Disclosure>



### Member Advisory Committee Report to the WECC Board of Directors

Michele Beck, MAC Chair December 6, 2023 <Limited-Disclosure>

#### MAC Report to the Board—December 6, 2023

#### **Highlights**

- Implementation of work plan changes
- Discussion of anticipated issues for providing input to the Board in the upcoming year

#### **Purpose**

The Member Advisory Committee (MAC) advises the Board of Directors (Board) on any matters the Board requests the committee to evaluate or consider, and advises the Board on policy, business planning, and budgetary matters as the committee deems appropriate.

#### **WECC Board Action Items**

The MAC is not requesting Board approval of any items at this meeting.

#### **Current Year Goals**

- Conduct biennial BOD Effectiveness Survey
- Identify priorities from the work of the Standing Committees
- Review and provide insights on various industry reports
- Review and provide recommendations on the WECC budget
- Participate in the Nominating Committee

#### **Major Accomplishments and Planned Activities**

#### 1. Implementation of work plan changes

The posted 2024 Work Plan implements the changes discussed by the MAC earlier this calendar year and described to the Board at its last meeting. We have also implemented a new section on the MAC agenda with links to key WECC and NERC studies to facilitate individual MAC member review rather than having routine briefings as part of the work plan.

#### 2. Discussion of upcoming advice to Board

Board Chair Ric Campbell initiated a new process for anticipating key issues on which the Board would like MAC input and advice by sending an email to the MAC chair. At the last MAC meeting, the full MAC had a robust discussion considering how to best address these issues in the work plan for the upcoming year.

#### 3. December workshop / plans for contribution to development of risk priorities

In conjunction with this week's Board meetings, the MAC will hold its annual workshop with a return to a focus on team building and strategic planning. Some of the discussion is designed to lead into the MAC's participation in the risk priority process.



#### <Limited-Disclosure>

#### MAC Report to the Board—December 6, 2023

#### 4. Assessment stabilization

The MAC convened its Budget Subcommittee earlier than the typical schedule to begin working with Jillian Lessner and her team in giving feedback on their work addressing assessment stabilization. This work will be added to the MBS scope for the upcoming year.





Member Advisory Committee Report

December 6, 2023

Michele Beck, MAC Chair

# **Accomplishments and Planned Activities**

### Recent Accomplishments

- Implemented changes to work plan, including new agenda section with links to recent reports
- In response to new process initiated by Board Chair Campbell, the MAC discussed how to best incorporate into this year's work plan the key issues anticipated for MAC input and advice to the Board
- MBS seated early and scope expanded to include review of assessment stabilization analysis

#### Planned Activities

- Annual workshop today—goals include team building and strategic discussions that will springboard into the risk priority process
- Upcoming work includes participation on the Nominating Committee, the work of the Budget Subcommittee, and contribution to the risk priority process







# **WIRAB Report to the WECC Board of Directors**

#### **Eric Baran**

Program Manager –
Electric System Reliability
Western Interstate Energy Board

December 6, 2023



## **Outline**



### WIRAB Activities:

- FERC Reliability Technical Conference
- WIRAB Webinar Series: Inverter-based Resources and Grid Reliability
- 2023 Accomplishments
- 2024 Strategic Initiatives

### Upcoming WIRAB Meetings

**Western Interconnection Regional Advisory Body** 

# WIRAB Participation at FERC Reliability Technical Conference



- Commissioner Mary Throne, WIRAB Chair, invited to speak on Reliability Implications of EPA's Proposed Rule on "Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants"
- Overview of remarks:
  - Policy and long-term study of impacts
    - WECC is well-positioned in the Western region to lead studies
  - Resource adequacy programs and markets
    - Coordination among programs is critical
  - Transmission optimization and expansion
    - Long-term analysis and assessment of west-wide transmission needs



Western Interconnection Regional Advisory Body

# WIRAB Webinar Series: Inverter-Based Resources and Grid Reliability



#### Webinar #1: Overview of Inverter Based Resources and Grid Reliability

- Thursday, October 19 at 2:30 PM MT (4:30 PM ET)
- Speakers:
  - Nick Miller, HickoryLedge;
  - Debbie Lew, ESIG

# Webinar #2: Inverter Based Resource Standards and Rules to Maintain Reliability

- Thursday, Nov 16 at 2:30 PM MT (4:30 PM ET)
- Speakers:
  - Julia Matevosyan, ESIG;
  - Ryan Quint, NERC;
  - Debbie Lew, ESIG

# Webinar #3: Grid Forming Inverter Based Resources and Supporting Reliability

- Thursday, November 30 at 2:30 PM MT (4:30 PM ET)
- Speakers:
  - Julia Matevosyan, ESIG;
  - Debbie Lew, ESIG

Slides and recording available: <a href="https://www.westernenergyboard.org/category/webinars/">https://www.westernenergyboard.org/category/webinars/</a>

Western Interconnection Regional Advisory Body

# WIRAB 2023 Accomplishments



#### **Resource Adequacy:**

- Engaged with WECC in its series on Resource Adequacy in the West.
- Effectively encouraged WECC to evaluate how past resource plans have been implemented and the potential implications to resource adequacy and reliability
  - Achieved a 2023 WIRAB Strategic Initiative

#### **WECC Reliability Assessments:**

- Engaged with the WECC Studies Program to include studies on extreme heat and cold events
- Effectively encouraged WECC to work with PNNL on integration of climate forecasts in BPS Studies
  - Advanced a 2023 WIRAB Strategic Initiative
- Contracted with Strategen Consulting to help Advise how Long Duration Energy Storage is incorporated into WECC Models
  - Achieved a 2022 WIRAB Strategic Initiative

Western Interconnection Regional Advisory Body

# WIRAB 2023 Accomplishments



#### **Inverter-Based Resources:**

- Contracted with the Energy Systems Integration Group (ESIG) to educate and advance policy options to improve reliability impacts from inverter-based resources.
- Sessions to occur at Fall Joint CREPC-WIRAB Meeting and webinars to follow.
  - Advanced a 2023 WIRAB Initiative

#### **WECC's Transmission Assessments:**

- Effectively advised WECC to add value to transmission planning by:
  - Collecting and distributing data
  - Creating the Interconnection-Wide Transmission Trends Assessment
  - Advanced a 2023 WIRAB Strategic Initiative
- NERC and Regional Entity interregional transfer capability study (ITCS)

Western Interconnection Regional Advisory Body

## **2024 Strategic Initiatives**



#### **Initiative 1:**

 Advise WECC to continue to serve as an unbiased source of interconnection-wide information regarding the resource adequacy of the Western Interconnection and work collaboratively with the regional resource adequacy programs in the West.

#### **Initiative 2:**

 Advise WECC to add value to transmission planning in the West by conducting reliability assessments on long-term transmission trends and disseminating transmission planning information to stakeholders in the Western Interconnection.

#### **Initiative 3:**

 Advise WECC to work with WIRAB to engage state and provincial regulators and policymakers in the West to better understand the reliability impacts of energy policymaking in the Western Interconnection from diverse stakeholders.

Western Interconnection Regional Advisory Body

# **Upcoming Meetings**



### **WIRAB Monthly Meeting**

First Thursday of the Month

Next Meeting: January 11, 2023 at 11:00 AM MT

### **Spring 2024 Joint CREPC-WIRAB Meeting**

April 24-26 in Denver, CO

www.westernenergyboard.org

**Western Interconnection Regional Advisory Body** 

# Thank You!

Eric Baran

ebaran@westernenergyboard.org





# Western Interconnection Compliance Forum (WICF)

Layna McVay, WICF Chair Compliance Officer Douglas PUD layna.mcvay@dcpud.org

**WWW.WICF.BIZ** 



- WICF's purpose
  - Encourage registered entities within the Western Interconnection to share knowledge, share lessons learned, and develop compliance best practices
- Outreach to members
  - Workshops, in conjunction with WECC Reliability & Security Workshops
  - Focus Groups
  - Peer Share events, virtual and in-person
- Ongoing collaboration with WECC

**WWW.WICF.BIZ** 







# Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott

FERC, NERC and Regional Entity Joint Staff Report
October 2023





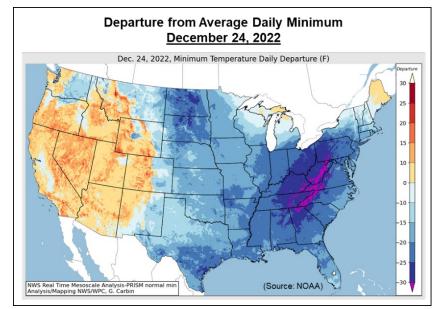




This report was prepared by the staff of the Federal Energy Regulatory Commission in consultation with staff from the North American Electric Reliability Corporation and its Regional Entities. This report does not necessarily reflect the views of the Commission.

### Winter Storm Elliott's Effects on Grid Reliability

- Unprecedented unplanned electric generation outages of 90,500 MW, which occurred during winter peak electricity demands (i.e., winter peak loads)
- Including generation already on outage, 18 percent of the U.S. portion of the anticipated resources in the Eastern Interconnection were unavailable at the worst point
- Several Balancing Authorities (BAs) in the Eastern U.S. declared Energy Emergencies, and to maintain electric grid reliability, some in the southeastern U.S. ordered <u>firm load shed</u> at different times, in total exceeding 5,400 MW during the extreme cold weather
- Largest ever controlled firm load shed recorded in the history of the Eastern Interconnection



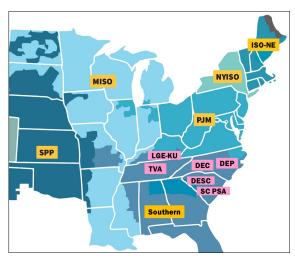








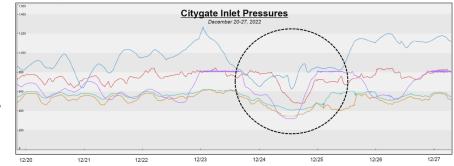
### **BA Operators Order Firm Load Shed and Internal Gas System Emergency Declared**



- Tennessee Valley Authority (TVA) BA: nearly eight hours total and at worst point, 3,000 MW
- Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP) BAs: approximately three hours total and at worst points totaled over 1,900 MW
- Louisville Gas and Electric Kentucky Utilities (LGE-KU) BA: approximately four hours total and at their worst point, over 300 MW
- Dominion Energy South Carolina (DESC) and South Carolina Public Service Administration/Santee Cooper (SC PSA) BAs: at worst point totaling 94 MW (DESC) and 86 MW (Santee Cooper), for 9 and 17 minutes, respectively

PJM, Southern, MISO, SPP, and ISO-NE BAs also declared Energy Emergencies, but conditions improved, sparing them from the need to order firm load shed.

Consolidated Edison (NY) Gas Operations - On December 24, 2022, experienced reliability-threatening delivery pressure decreases across all the interstate pipelines that served its citygate, which were not improving, and declared an internal Gas System Emergency









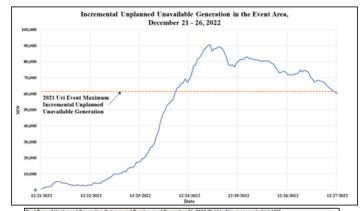


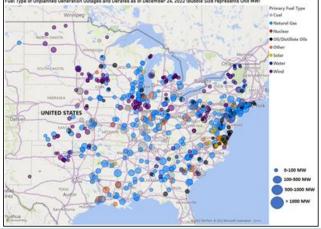
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### **Electric Generation Outages Rapidly Escalated**

- The Event is the FIFTH in the past 11 years in which unplanned cold weather-related generation outages jeopardized bulk-power system reliability:
  - 2011 29,700 MW
  - 2014 19,500 MW
  - 2018 15,800 MW
  - o 2021 61,300 MW
  - o 2022 90,500 MW

The 90,500 MW of incremental coincident unplanned outages during Winter Storm Elliott represented 13% of the U.S. portion of the anticipated resources in the Eastern Interconnection and approximately 150% of unplanned generation outages seen in Winter Storm URI







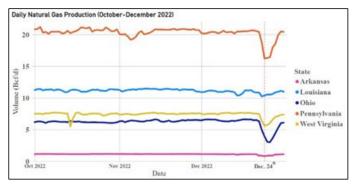


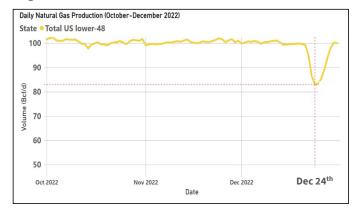


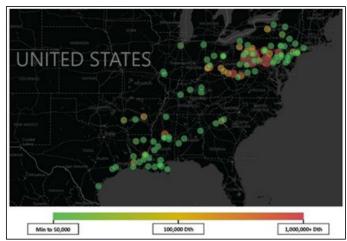


### **Natural Gas Production Rapidly Declined**

- "Dry natural gas production in the Lower 48 states dropped to a low of 82.5 Bcf on December 24, a 16 percent decrease (16.1 Bcf/d) from December 21..." (EIA)
- Gas production experienced the greatest declines in the Marcellus and Utica Shale formations, where it dropped by 23-54 percent during the Event. (S&P)
  - "In 2022, the Appalachia region in the Northeast produced more natural gas than any other U.S. region, accounting for 29% of U.S. gross natural gas withdrawals (or 34.6 Bcf/d)." (EIA)















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### **Similarities to Past Extreme Cold Weather Events**

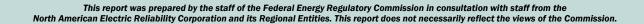
	2011 Event	2014 Event	2018 Event	2021 Event	2022 Event
Significant levels of incremental unplanned electric generating unit losses with top causes found to be mechanical/electrical, freezing, and fuel issues.	✓	✓	✓	✓	<b>✓</b>
Significant natural gas production decreases occurred, with some areas of the country more severely affected.	✓			✓	<b>✓</b>
Short-range forecasts of peak electricity demands were less than actual demands for some BAs in event area.	/		/	<b>✓</b>	<b>✓</b>
Significant natural gas LDC outages or near miss	1				<b>✓</b>





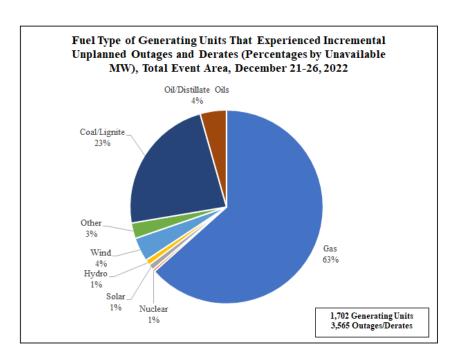


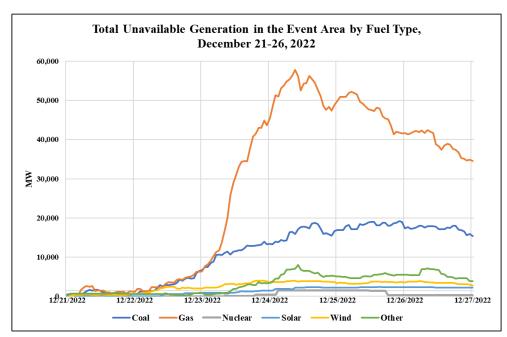




### **Electric Generation Outages During Extreme Cold Weather**

• 1,702 individual generating units experienced 3,565 outages, derates, or failures to start, of which 825 units were natural gas-fired generators.







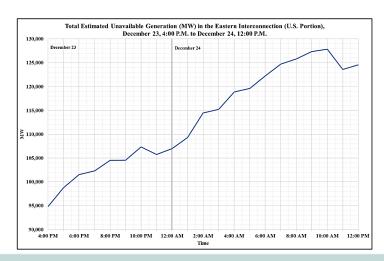


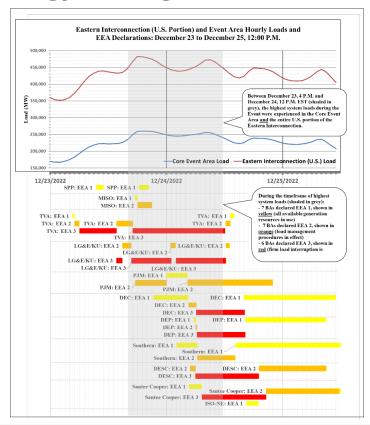




## Generation Outages Led to Decreased Reserves During Winter Peak Load Conditions, Leading to Energy Emergencies

- At worst point, over 127,000 MW of generation was unavailable by 10:00 a.m. on December 24
- Widespread and simultaneous energy emergency conditions greatly reduced the BAs' ability to obtain power from neighboring entities









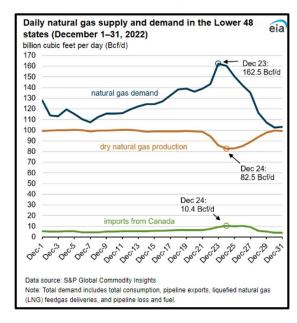


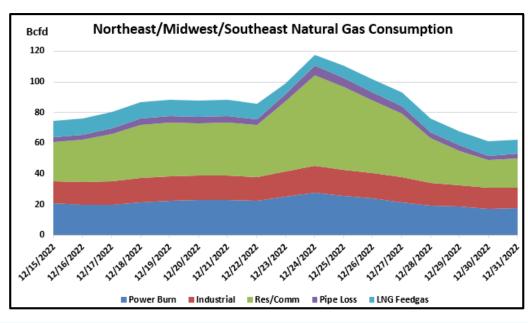


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### **Gas Production and Consumption During Winter Storm Elliott**

- Demand peaked close in time to when production reached its low point
- Residential/commercial sector had the greatest increase in demand
- Demand excludes natural gas that generators would have consumed had they not experienced an outage, derate, or failure to start







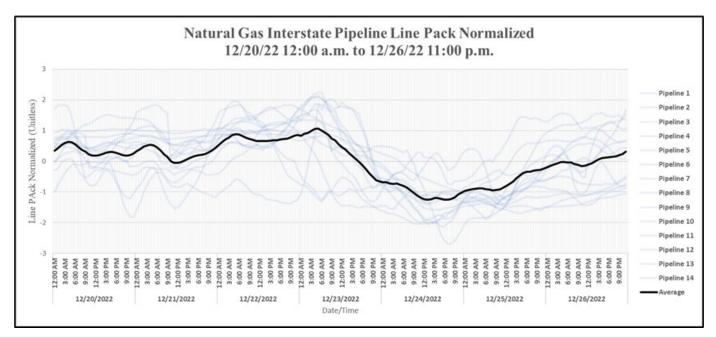






### **Natural Gas Production Declines and Delivery Facility Disruptions**

 Natural gas pipeline operators managed system line pack and storage to maintain system integrity despite decreasing receipts on multiple pipelines and increased demand.











# ConEd Natural Gas Operations - 12/24/22 Reliability Threatening Delivery Pressure Decreases Across all Pipelines

- Pipeline pressures at the city gate for ConEd of NY, the natural gas Local Distribution Company for Manhattan, declined precipitously during the morning of December 24. At noon on 12/24/22, ConEd learned on a call with the four interstate gas pipeline companies serving its city gate that their "storage withdrawals were at maximum, line-pack had been expended across the entire transportation system, and low inlet pressures at area meter stations would not recover until demand decreased."
- ConEd declared a Gas System Emergency. It was able to maintain necessary pressure on its system by, among other things, activating its LNG facility.
- Had ConEd's city gate pressures continued to decline, it was in danger of losing pressure below the level needed to operate the system resulting in loss of service to all or portions of its system.
- Loss of natural gas service to its system would not only have left many customers in the life-threatening
  position of being without heat during extreme cold; but would likely have caused extensive property
  damage due to damaged water pipes. Restoring service to impacted customers would have required
  entering each customer site and manually re-lighting gas appliance pilots. Even with assistance of
  mutual assistance resources, this process could have taken several months.



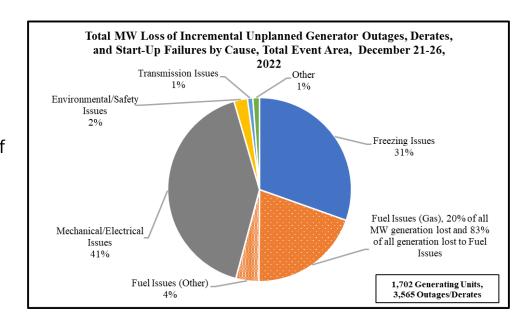






## **Unplanned Generation Losses Cause Analysis**

- 55 percent of the generating unit outages, derates, and failures to start, were caused by:
  - Freezing Issues (31 percent)
  - Fuel Issues (24 percent)
    - Natural Gas Fuel Issues were 20 percent of all causes and other fuels were 4 percent)
- 41 percent indicated by Generator
   Owners to be caused by
   Mechanical/Electrical Issues, but the team found them to be correlated with subfreezing temperatures







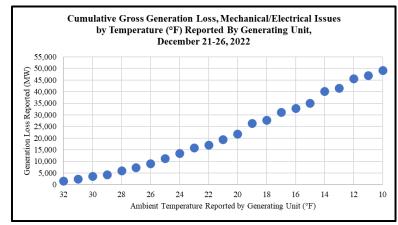


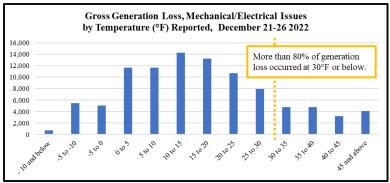


## **Unplanned Generation Losses Cause Analysis**

## **Mechanical/Electrical Issues**

- Those that were attributed to having "Mechanical/Electrical Issues" increased with decreasing ambient temperatures
- Same pattern seen in 2018 and 2021 cold weather events
- 80 percent of generation lost from this cause occurred at or below 30 degrees Fahrenheit
- More than 49,000 MW lost between 32 and 10 degrees
- 87 percent of generation losses occurred above documented operating temperature for the generating unit









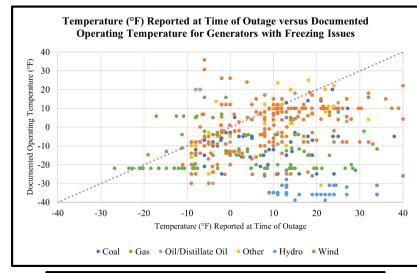




## **Unplanned Generation Losses Cause Analysis**

## **Freezing Issues**

- Of those generating unit outages, derates, and failures to start that were attributed to "<u>Freezing Issues</u>" nearly 80% occurred at ambient temperatures that were above their documented minimum operating temperatures.
- Frozen transmitters, sensing lines and instrumentation continue to dominate, combined for 41.8 percent of all outages by MW attributed to Freezing Issues
- Next-largest single sub-cause was frozen valves, at 10.7 percent
- Wind turbine blade icing was not as predominant as in Winter Storm Uri



Approximate U.S. Geographic Region	Unplanned Unavailable Generation Due to Freezing Issues (Percent of MW)
New York	5%
MidAtlantic/Midwest	27%
Central/South Central	33%
Southeast	43%
Total Event Area	31%









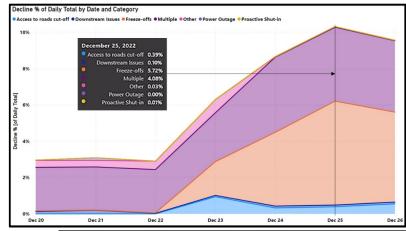
## Natural Gas System Cause Analysis Production and Processing

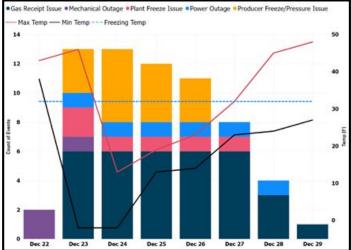
#### Production Infrastructure

- Wellhead freeze-offs, other equipment freezing (ranged from 16 to 55 percent of the production event causes for December 23 through December 25)
- Poor road conditions due to storm/cold weather, preventing maintenance

### Processing Facility Operating Issues

- Reduction in receipt (production) volume (ranged from 71 to 84 percent of the processing facility event causes for December 22 through December 26)
- Processing plant disruptions and outages caused by freezing and mechanical issues (up to 16.6 percent)









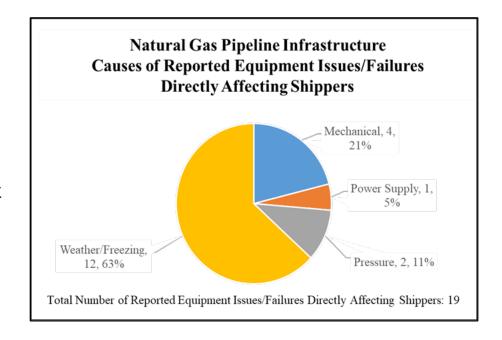




# Natural Gas System Cause Analysis Pipelines

### Pipeline Infrastructure

- Equipment issues directly affecting shippers (e.g., end-users such as generating units, LDCs):
  - Weather/freezing issues (majority)
  - Mechanical issues
- Interstate pipelines mitigated other equipment issues to avoid impacts to shippers.
- 63 natural gas-fired generating unit outages/derates, totaling 10,038 MW, were due to firm gas transportation curtailments during the Event.







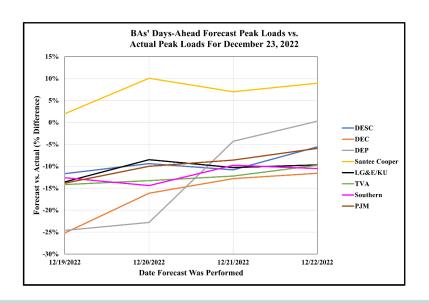


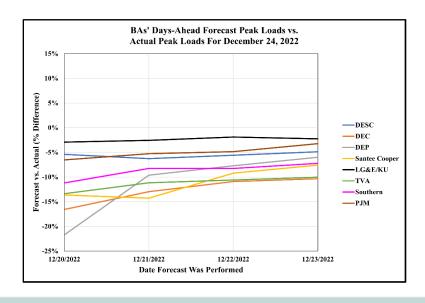


## **Electric Grid Operations Analysis**

### **BA Short-Term Load Forecasts**

 Although BAs projected higher electricity demands for the impending winter storm, most core BAs significantly underestimated the peak loads in advance of December 23 and 24, the most extreme cold weather days of the Event













### **Selected Recommendations:**

## **Generator Cold Weather Reliability**

<u>Recommendation 1(a)</u>: Findings support the need for prompt development and implementation of the remaining recommended revisions to the Reliability Standards from 2021 Report Key Recommendation 1 to strengthen generators' ability to maintain extreme cold weather performance.

Recommendation 1(b): Findings from the Report support the need for robust monitoring by NERC and the Regional Entities of compliance with the currently effective and approved generator cold weather Reliability Standards, to determine if reliability gaps exist. NERC should identify the generating units that are at the highest risk during extreme cold weather and work with the Regional Entities (and Balancing Authorities, if applicable) to perform cold weather verifications of those generating units until all of the extreme cold weather Standards proposed by the 2021 Report are approved and effective.

<u>Recommendation 1(c)</u>: Generator Owners/Operators should assess their own freeze protection measure vulnerability, and NERC or the Regional Entities should perform targeted cold weather verifications pursuant to a risk-based approach.









# Selected Recommendations: **Generator Cold Weather Reliability**

Recommendation 2: NERC should initiate a technical review of the individual causes of cold-weather-related unplanned generation outages caused by Mechanical/ Electrical Issues during the Event to identify the root causes of these failures with the goal of determining what can be done to reduce the frequency of these outages during extreme cold weather events. The study should also consider whether additional Reliability Standards are appropriate to address the root causes of these issues. The study should be conducted by either an independent subject-matter expert such as the Electric Power Research Institute or an academic institution, with participation by Generation Owners/ Generation Operators on scoping and providing generating-unit-specific technical expertise.









# Selected Recommendations: Natural Gas Infrastructure Cold Weather Reliability

<u>Recommendation 4</u>: Legislation by Congress and state legislatures (and/or regulation by entities with jurisdiction over natural gas infrastructure reliability) is needed to establish reliability rules for natural gas infrastructure necessary to support the grid and natural gas local distribution companies that address the needs described in 4(a), (b) and (c).

Recommendation 4(a): Because extreme cold weather events have repeatedly impaired the production, gathering, processing, and transportation of natural gas, the reliability rules suggested in Recommendation 4 should address, among other topics, the need for natural gas infrastructure reliability rules, from wellhead through pipeline, requiring cold weather preparedness plans, freeze protection measures, and operating measures for when extreme cold weather periods are forecast, and during the extreme cold weather periods.









### **Recommendations:**

## **Natural Gas Infrastructure Cold Weather Reliability**

<u>Recommendation 4(b)</u>: The reliability rules suggested in Recommendation 4 should address, among other topics, the need for regional natural gas communications coordinators, with situational awareness of the natural gas infrastructure similar to the grid's Reliability Coordinators, that can share timely operational communications throughout the natural gas infrastructure chain and communicate potential issues to, and receive grid reliability information from, grid reliability entities.

<u>Recommendation 4(c)</u>: The reliability rules suggested in Recommendation 4 should address, among other topics, the need to require natural gas infrastructure entities to identify those natural gas infrastructure loads that should be designated as critical for priority treatment during load shed and provide criteria for identifying such critical loads.









### **Selected Recommendations:**

## **Natural Gas – Electric Coordination for Cold Weather Reliability**

<u>Recommendation 5</u>: The North American Energy Standards Board should convene natural gas infrastructure entities, electric grid operators, and LDCs to identify improvements in communication during extreme cold weather events to enhance situational awareness.

Recommendation 7: An independent research group (e.g., selected National Laboratories from the Department of Energy), should perform one or more studies to analyze whether additional natural gas infrastructure, including interstate pipelines and storage, is needed to support the reliability of the electric grid and meet the needs of natural gas Local Distribution Companies. The study should include information about the cost of the infrastructure buildout.















## The full report can be found at:

https://www.ferc.gov/news-events/news/ferc-nerc-release-final-report-lessons-winter-storm-elliott

or

https://www.nerc.com/news/Headlines%20DL/Elliott%20report%20final.pdf









This report was prepared by the staff of the Federal Energy Regulatory Commission in consultation with staff from the North American Electric Reliability Corporation and its Regional Entities. This report does not necessarily reflect the views of the Commission.



## WECC Board of Directors Finance and Audit Committee

Verbal Update

Gary Leidich, Chair

December 6, 2023



## **WECC Board of Directors Governance Committee**

Verbal Update Felicia Marcus, Chair December 6, 2023



Board and Committee Self-Evaluation Survey

Board of Directors

December 6, 2023

#### Resolution

Resolved, that the Board of Directors, at its meeting on December 6, 2023, acting on the recommendation of the Governance Committee, hereby approves the Board and Board Committee evaluation questions as presented herein.

#### **Background**

The Governance Committee (GC) Charter and the Board of Directors Principles of Corporate Governance provide that the GC is responsible for periodically evaluating the effectiveness of the Board of Directors (Board) self-evaluation process. The Board's self-evaluation process evaluates the effectiveness of the Board and its committees and may also result in recommendations on education and development for Board members.

#### **Board and Committee Self-Evaluation**

The GC, in accordance with the Board of Directors Principles of Corporate Governance—Section 2.3, has reviewed the self-evaluation process and questions and has recommended that the Board adopt the following evaluation:

The evaluation covers areas of the Board's role as outlined in the Principles of Corporate Governance. The format is comment and Likert-Scale based. Please provide comments on each question and, if rated a 2 or less, include feedback on potential areas of improvement. Included in each survey is an additional question for the Board committees. You will see a committee question for each committee you serve on.

Most of the questions are phrased as positive statements that demonstrate good practices in the following areas:

- Independent, Mission Driven, and Transparent;
- Strategic Focus;
- Commitment to Continual Professional Improvement; and
- Enterprise Risk Management.

Rate the Board on a five-point Likert Scale:

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#### **Board and Committee Self-Evaluation**

- 1 Strongly Disagree
- 2 Disagree
- 3 Neither Agree nor Disagree
- 4 Agree
- 5 Strongly Agree

Boa	rd Role	Statement	Rate 1-5 (if rated 2 or less you MUST provide comments)	Comment
1.	Independent, mission driven, and transparent	The Board demonstrates, through its actions, compliance with the "Principles of Corporate Governance," a full understanding of the roles and responsibilities of an independent board and awareness of the organization's mission, and acknowledges that WECC is fulfilling its mission and all delegated authorities and responsibilities.		
2.	Strategic focus	The Board oversees development and communication of clear goals, regularly monitors and evaluates progress of strategic goals, and is fully informed of progress by staff.		
3.	Commitment to continual professional improvement	The Board has defined and communicated its expectations and conducts regular evaluations of the CEO. The Board is prepared, interested, and engaged.		
4.	Enterprise Risk Management	The Board oversees and monitors WECC's enterprise risk management program.		
5.	Board committee evaluation	The committee chair leads effective meetings, materials are provided in advance, and members are prepared and have insightful discussions.		
6.	Miscellaneous	Are there additional areas on which you would like to give feedback?		



#### **Board and Committee Self-Evaluation**

7. Closed Session Comments	Are there comments that need to be raised in a closed session (Board or committee level)? Directors may mark these comments as "confidential remarks."	
8. Board chair evaluation	The Board chair effectively plans and coordinates the business of the Board, as an unbiased peer, including seeking and sharing stakeholder input, identifying important topics, leading effective meetings, and fostering meaningful discussions, as contemplated by WECC's Principles of Corporate Governance Section 2.6.	

#### **Process**

The Board and Board Committee self-evaluation questions identified above will be sent to Board Directors and responses collected in Q1. The Board and Board Committees will review the survey responses to identify any necessary actions during Q2.





Board and Committee Self-Evaluation Survey

Board of Directors

December 6, 2023

#### Resolution

Resolved, that the WECC Board of Directors, at its meeting on December 6, 2023, acting on the recommendation of the Governance Committee, at its meeting on September 8, 2021, hereby recommends that the WECC Board of Directors (Board) approve approves the Board and Board Committee evaluation questions as presented and attached heretoherein.

#### **Background**

The Governance Committee (GC), at <u>)</u> Charter and the request of Ian McKay, Board Chair, assessed the current of Directors Principles of Corporate Governance provide that the GC is responsible for periodically evaluating the effectiveness of the Board of Directors (Board) self-evaluation process and subsequently made the recommendation at the March 2021 Board meeting that the evaluations be administered biennially, with the next to be in 2022. The GC has reviewed the Board's self-evaluation questions process evaluates the effectiveness of the Board and proposes the following: its committees and may also result in recommendations on education and development for Board members.

#### **Board and Committee Self-Evaluation**

Among the Governance Committee (GC) responsibilities identified by the GC charter and the Board The GC, in accordance with the Board of Directors Principles of Corporate Governance are periodic reviews of the Board of Directors (Board) for evaluating effectiveness and recommending education and development for Board members. The GC developed an evaluation for the Board in 2015, which Section 2.3, has been administered annually. In 2021 the GC reviewed the self-evaluation process and questions and administration process and moved to a biennial evaluation. The has recommended that the Board adopt the following evaluation is the product of that review.:

The evaluation covers areas of the Board's role as outlined in the Principles of Corporate Governance. The format is comment and Likert-Scale based. Please provide comments on each question and, if rated a 2 or less, include feedback on potential areas of improvement. Included in each survey is an additional question for the Board committees. You will see a committee question for each committee you serve on.

Most of the questions are phrased as positive statements that demonstrate good practices in the following areas:

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#### **Board and Committee Self-Evaluation**

- Independent, Mission Driven, and Transparent;
- Strategic Focus;
- Commitment to Continual Professional Improvement; and
- Enterprise Risk Management.

Rate the Board on a five-point Likert Scale:

- 1 Strongly Disagree
- 2 Disagree
- 3 Neither Agree nor Disagree
- 4 Agree
- 5 Strongly Agree

Boa	rd Role	Statement	Rate 1-5 (if rated 2 or less you MUST provide comments)	Comment
1.	Independent, mission driven, and transparent	The Board demonstrates, through its actions, compliance with the "Principles of Corporate Governance," a full understanding of the roles and responsibilities of an independent board, and awareness of the organization's mission, and acknowledges that WECC is fulfilling its mission and all delegated authorities and responsibilities.		
2.	Strategic focus	The Board oversees development and communication of clear goals, regularly monitors and evaluates progress of strategic goals, and is fully informed of progress by staff.		
3.	Commitment to continual professional improvement	The Board has defined and communicated its expectations and conducts regular evaluations of the CEO. The Board is prepared, interested, and engaged.		
4.	Enterprise Risk Management	The Board oversees and monitors WECC's enterprise risk management program.		



#### **Board and Committee Self-Evaluation**

5.	Board committee evaluation	The committee chair leads effective meetings; materials are provided in advance; and members are prepared and have insightful discussions.	
6.	Miscellaneous	Are there additional areas on which you would like to give feedback?	
7.	Closed Session Comments	Are there comments that need to be raised in a closed session? (Board or committee level)? Directors may mark these comments as "confidential remarks."	
<u>8.</u>	Board chair evaluation	The Board chair effectively plans and coordinates the business of the Board, as an unbiased peer, including seeking and sharing stakeholder input, identifying important topics, leading effective meetings, and fostering meaningful discussions, as contemplated by WECC's Principles of Corporate Governance Section 2.6.	

#### **Process**

The Board and Board Committee self-evaluation questions identified above will be sent to Board Directors and responses collected in Q1. The Board and Board Committees will review the survey responses to identify any necessary actions during Q2.





## WECC Board of Directors Human Resources and Compensation Committee

Verbal Update Shelley Longmuir, Chair December 6, 2023



Board of Directors
Approval Item
2024 Corporate Scorecard
December 6, 2023

#### **Board Resolution**

*Resolved,* that the WECC Board of Directors (Board), acting upon the recommendation of the Human Resources and Compensation Committee (HRCC), at the meeting of the Board on December 6, 2023, approves the 2024 Corporate Scorecard, as presented and attached.

#### **Background**

WECC's 2024 Corporate Scorecard sets annual corporate goals for achieving outcomes in five areas of focus with corresponding metrics, targets, and initiatives. The scorecard aligns business performance with the achievement of WECC's mission, vision, and strategy. Board approval of the Corporate Scorecard demonstrates corporate governance and Board oversight.

#### Recommendation

The HRCC recommends the approval of the 2024 Corporate Scorecard as presented in the meeting on December 6, 2023, and attached.

#### **Issues and Risks**

Board approval of the Corporate Scorecard demonstrates Board oversight of organizational performance. The scorecard gives the Board visibility into WECC's achievement of its delegated responsibilities, sound business practices, impact on industry, effective and efficient processes, and successes in the organization through quarterly and annual reporting.

WECC

<Public>

WECC 2024 Draft
Corporate Scorecard

December 6, 2023

Melanie Frye, President and CEO

# FA1: Innovate and expand risk-based focus in all standards, compliance monitoring, and enforcement actions

Outcome	Metrics	2024 Targets	2024 Initiatives
Western viewpoints represented and incorporated in the development of NERC Reliability Standards, regional standards, and regional variances to NERC Reliability Standards	<ol> <li>% of standards drafting teams that have Western representation</li> <li>% of standards under development on which WECC comments</li> </ol>	<ol> <li>1. 100%</li> <li>2. 100%</li> </ol>	1. Develop a data-driven process based on feedback from CMEP activities for evaluating effectiveness of Standards and as a mechanism to submit feedback on Standards that may be ineffective, inadequate to risk, unclear, unenforceable, or unnecessary.
Effective and efficient implementation of risk-based monitoring and enforcement activities	<ol> <li>% change in violation inventory that is over two years old as of 1/1/24</li> <li>% of Compliance Oversight Plans created within 6 months following new registrations.</li> </ol>	<ol> <li>-40%</li> <li>80%</li> </ol>	<ol> <li>Enhance CMEP oversight strategies to deliver a more holistic oversight approach across all registered entity types, informed by NERC's Appendix 4A audit consolidated recommendations, with ongoing and tailored outreach and assurance activities.</li> <li>Implement strategies to promote self-logging that results in at least 10 new applicants to the program in 2024.</li> <li>Develop and implement an outreach and engagement strategy with initial registration and compliance expectations for newly identified GO IBR and GOP IBR registrants.</li> </ol>



## FA2: Assess and initiate action to mitigate known and emerging risks to the reliability and security of the Western Interconnection

Outcome	Metrics	2024 Targets	2024 Initiatives
Clear understanding of emerging risks to the BPS and associated mitigation strategies, particularly for WECC Reliability Risk Priorities (RRP). High precision of information and models used to assess the reliability of the BPS	<ol> <li>% completion of vetted mitigation strategies identified during the year to address RRPs</li> <li>% of power flow model shortcomings resolved versus total number of identified power flow model shortcomings</li> </ol>	<ol> <li>80%</li> <li>20%</li> </ol>	<ol> <li>Publish a Risk Report developed by WECC staff with review and input from the RRC</li> <li>Develop data requirements, reporting procedures, and a roadmap for creating datasets and models for use in long-term transmission planning</li> <li>Implement a data management software solution to increase the security of our data and modernize how we collect, manage, store, and report it.</li> </ol>
Use of advanced tools, techniques, and industry subject matter experts to identify system performance trends and vulnerabilities	<ol> <li># of best practices/guidelines created and reliability and security risk events held</li> <li># of reliability assessments performed</li> </ol>	<ol> <li>1. 15</li> <li>2. 6</li> </ol>	<ol> <li>Develop and publish the revised System Performance Data Portal including stakeholder feedback</li> <li>Implement improvements in resource adequacy assessments by enhancing tools and techniques used for resource adequacy analysis and include an assessment of transmission impacts</li> <li>Enhance in-house capacity to perform transfer capability reliability assessments.</li> </ol>



# FA3: Strengthen engagement with the reliability and security community in the Western Interconnection

Outcome	Metrics	2024 Targets	2024 Initiatives
Effective relationships with industry groups, WECC technical committees; ERO Enterprise; federal, state, and provincial regulators; policy- and decision-makers; national labs and educational institution; and the broader reliability and security community	<ol> <li># of strategic connections/touchpoints</li> <li># of requests for input/advice/opinion</li> </ol>	<ol> <li>+20%</li> <li>+10%</li> </ol>	<ol> <li>Implement engagement strategies based on 2023 stakeholder mapping work, including knowledge gained through the 2023 Annual Meeting interactive session.</li> <li>Improve products on wecc.org by creating digitally dynamic experiences with enhanced user interactions.</li> <li>Develop an outreach and engagement strategy targeted specifically for new state officials.</li> <li>Enhance the development of the Reliability Risk Priorities by incorporating the risk work from the RRC and WECC's Risk Analysis Department.</li> </ol>



# FA4: Seize opportunities for effectiveness, efficiency, and continuous improvements

Outcome	Metrics	2024 Targets	2024 Initiatives
Delivery of quantitative and qualitative results for WECC scorecard items, and development of methods and metrics for ongoing evaluation of effectiveness and efficiency	1. % of statutory budgeted expenditures	1. +/-3%	<ol> <li>Increase effectiveness of future two years' budget forecasts for the 2025 budget planning process via the continuation of the three-year resource planning project.</li> <li>a) Refinement of forecasting process for tools and systems for the future two years.</li> </ol>
Continuous improvement of organizational processes and tools to adapt to changes in the industry	<ol> <li>% of new WECC products focused on current RRPs or emerging risks</li> <li># of processes improved (e.g., # of days to produce reports/work products (from issue identification to issuance of reports/work products))</li> </ol>	<ol> <li>75%</li> <li>20</li> </ol>	<ol> <li>Further the work on improving clarity and alignment on the Denison Organizational Learning index scores; build upon WECC's continuous improvement framework to help foster an innovative mindset that helps us address our response to industry changes and increases the effectiveness of our work.</li> <li>Evaluate current human capital management system and determine effectiveness based on our needs; identify areas for improvement; determine if a new system will better meet needs, and if so, develop a needs analysis for a new system, issue an RFP, evaluate responses, and select a new software solution with a target implementation of 2025.</li> </ol>



5

# FA5: Build the capability and culture that enable WECC to deliver on its critical reliability mission

Outcome	Metrics	2024 Targets	2024 Initiatives
WECC is considered an employer of choice, with highly skilled, collaborative, and engaged employees who are committed to WECC's mission	<ol> <li>Voluntary employee turnover</li> <li>% of critical skills covered by staff expertise</li> <li>% of the critical positions that have successors identified and development plans are in place</li> </ol>	<ol> <li>1. &lt;15%</li> <li>2. 75%</li> <li>3. 40%</li> </ol>	<ol> <li>Develop and implement a dispersed workforce engagement strategy and program to align with the new workforce model introduced in 2023. Program will include components such as: management tools for accountability and engagement, productivity measures, work recognition, inspirational moments, and leadership tools.</li> <li>Evolve the work begun with the Knowledge Transfer Program and KAM charts by creating formalized and structured competency-based career planning. This program will create strong analytics and robust learning and development opportunities to help employees gain new skills in a reasonable timeframe</li> </ol>
WECC is respected as a partner and trusted by stakeholders, NERC, and FERC to produce high-quality, credible, and influential work	<ol> <li># of new collaborative projects with external partners</li> <li># of external citations of or references to our technical work (recognition)</li> </ol>	<ol> <li>7</li> <li>7</li> </ol>	1. Establish an organization-wide rotation program to provide increased internal training and development opportunities and build bench strength. Done in conjunction with Outcome 1, Initiative 2.





### WECC Standards Committee Report to the WECC Board of Directors

Ian McKay, Chair Steve Rueckert, Director of Standards December 5, 2023

#### WSC Report to the Board—December 5, 2023

#### Highlights

Project WECC-0147 BAL-004-WECC-4, Automatic Time Error Correction (ATEC) was approved by the WSC for ballot—page 3.

Project WECC-0150 PRC-001-WECC-CRT, Governor Droop was approved by the WSC for ballot—page 3.

Project WECC-0148 VAR-501-WECC-4 Power System Stabilizer has been forwarded to NERC—page 3.

Project WECC-0149 Major WECC Transfer Paths in the Bulk Electric System Path List Revision Process has been forwarded to NERC—page 3.

#### Strategic Purpose

The purpose of the WECC Standards Committee (WSC) is to oversee the implementation of the WECC Reliability Standards Development Procedures (Procedures).

The WSC will-

- 1. Maintain and administer the Procedures, including:
  - a. Due process,
  - b. Balloting,
  - c. Annual review of the WECC Glossary of Terms and Naming Conventions, and
  - d. Meeting the quality control attributes of FERC Order 672.
- 2. Administer each Standard Authorization Request (SAR) to ensure the project:
  - a. Is within WECC's authority to develop,
  - b. Is appropriate for development by WECC, and that it,
  - c. Remains within the scope of the SAR, as may be changed by the WSC.
- 3. Monitor and manage drafting teams, including:
  - a. Team selection, and
  - b. Provision of general oversight and guidance to include a description and explanation of the project to be drafted and time prioritization where needed.
- 4. Monitor and manage the development of projects created per the Procedures, including prioritization.
- 5. Perform other duties assigned by the Board of Directors (Board).

#### **WECC Board Action Items**

The WSC seeks approval of its revised charter and is included on the consent agenda. The revisions include minor changes to provide clarity and to accommodate the actions under project WECC-0153, which consolidates all 11 INT WECC Regional Criteria documents and allows for the retirement of the WECC Glossary of Terms and Naming Conventions. The WECC Glossary of Terms and Naming

2

#### WSC Report to the Board—December 5, 2023

Conventions will be retired for two reasons. The first is that much of the information included in the document is duplicated in other documents or the WSC Charter. The second is that all but one term included in the document is included in one of the INT WECC Regional Criteria and will be moved to the document of merged INT Criteria.

#### **Current Year Goals**

- Keep the WECC Standards Development Process moving forward by overseeing the drafting teams.
- Act on requests and recommendations from the drafting teams.
- Review the WSC Charter and WECC Procedures to revise and improve them.

#### Major Accomplishments and Planned Activities

#### 1. Project WECC-0147—BAL-004-WECC-4 Automatic Time Error Correction (ATEC).

The purpose of this project was a required five-year review of the WECC Regional Reliability Standard and to address a concern identified by the WECC Compliance Monitoring and Enforcement team. At its meeting on August 10, 2023, the WSC approved the WECC-0147 drafting team's request to move the project to ballot. A ballot was conducted, and the proposed revisions passed with a 100% weighted approval. The revisions will be presented to the Board of Directors (Board) for approval in March 2024.

#### 2. Project WECC-0150—PRC-001-WECC-CRT-3 Governor Droop.

The purpose of this project was a required five-year review of the WECC Regional Criterion. At its meeting on August 10, 2023, the WSC approved the WECC-0150 drafting team's request to move the project to ballot. A ballot was conducted, and the proposed revisions passed with a 100% weighted approval. The revisions will be presented to the Board for approval in March 2024.

#### 3. Project WECC-0148-VAR-501-WECC-4 Power System Stabilizer

The purpose of this project was a required five-year review of the WECC Regional Reliability Standard. The review concluded that no substantive changes were required. On July 26, 2023, the necessary documents were forwarded to NERC for a required 45-day comment period. If no issues are identified during the posting, an informational filing will be made with FERC.

## 4. Project WECC-0149—Major WECC Transfer Paths in the Bulk Electric System Path List Revision Process.

The purpose of this project was to develop an alternative process for revising the Paths included in the Major WECC Transfer Paths Table 2, which identifies the applicability for FAC-501-WECC-3 Transmission Maintenance WECC Regional Standard. The Board approved this

#### WSC Report to the Board—December 5, 2023

alternative process at the June 14, 2023, Board meeting. The necessary materials were forwarded to NERC and will be posted for a required 45-day comment period. If no issues are identified during the posting, a filing will be made with FERC for approval.



## Technical Activities Update to the WECC Board of Directors

Branden Sudduth, VP of Reliability Planning and Performance Analysis and JGC Co-chair

Kris Raper, VP of Strategic Engagement and External Affairs

Jonathan Aust, JGC Co-chair

Philip Augustin and Chelsea Loomis, RAC Co-chairs

Dede Subakti and Margaret Albright, RRC Co-chairs

December 6, 2023

#### Technical Activities Report to the Board—September 14, 2023

#### Introduction

This report is a compilation of activities being undertaken by the Reliability Planning and Performance Analysis department, the Strategic Engagement and External Affairs department, and the WECC technical committees.

Activities related to WECC's Reliability Risk Priorities (RRP) and activities and tools being supported by Peak Donation funds are identified with the following symbols:

- Peak Donation Items,
- RRP: Cybersecurity,
- RRP: Resource Adequacy,
- RRP: Extreme Natural Events, and
- RRP: Impacts of Changing Resources and Customer Loads on the BPS.

#### **New Initiatives and Recent Activity Highlights**

#### **Interregional Transfer Capability Study**

In June, Congress passed the Fiscal Responsibility Act of 2023, which included a provision for NERC to perform a study "in consultation with each Regional Entity and each transmitting utility … to perform an Inter-regional Transfer Capability Study" (ITCS), to be delivered to FERC by December 2024, with a public comment period to follow. There has been much progress on several fronts since the September Board report:

- NERC released a <u>webpage for the ITCS</u> on its public website. The ITCS webpage contains an overview of the project as well as key documents and quarterly updates.
- An ERO-wide task force developed a strategy and has since formed a few teams composed of staff from NERC, each region, and contractors to address the technical details in the study.
   Some of this work includes determining the source-sink areas and technical methods for studying transfers, defining specific scenarios to be analyzed, and establishing strategies for determining "prudent additions" to transfer capability.
- PowerGEM's Transmission Adequacy and Reliability Assessment (<u>TARA</u>) software will be the
  primary tool used for the ITCS transfer analysis. WECC has purchased and installed TARA and
  is gaining experience with the tool. PowerGEM held a training session on this software at
  WECC's office the last week of November, which was attended by representatives from NERC
  and most of the regions.
- NERC formed the ITCS Stakeholder Advisory Group (ITCSAG) to ensure adequate consultation
  with industry throughout design and execution of the ITCS. The ITCSAG will consist of
  members representing different planning areas to provide insights, expertise, and inputs to the



#### Technical Activities Report to the Board—September 14, 2023

- study scope, approach, results, and recommendations. The ITCSAG held its first meeting on October 31. See the ITCS webpage for more information.
- In parallel, WECC formed a Stakeholder Advisory Group from leaders and subject matter
  experts in the Western Interconnection to work together on some of the technical specifics
  throughout the project. WECC staff is meeting with this advisory group regularly, with a
  current focus on finalizing the technical details on source-sink transfers.
- For more information, please see the ITCS Framework document on NERC's ITCS webpage.

#### FERC Order 881 (Ambient Adjusted Ratings) Webinar

WECC hosted an information session about FERC Order 881 on October 18 in response to a discussion from Class 1 members in September's Annual Member Meeting. FERC Order 881 addresses requirements for implementing ambient adjusted ratings on all transmission lines. There were three potential reliability risk areas discussed during this webinar: planning, real-time operations, and system protection including Remedial Action Schemes. WECC was able to work on these topics with SMEs from CAISO, SPP RC, the North American Transmission Forum, and the chairs of WECC technical committees for the Protection and Control Subcommittee and the Remedial Action Scheme Review Subcommittee. The session was moderated by Jon Aust, co-chair of the Joint Guidance Committee. WECC was pleased with the willingness of presenters to participate in this important outreach. Over 400 participants attended the webinar to hear from the SMEs. Continued discussions will take place within appropriate committee meetings to answer questions, discuss implementation of the order, and decide whether WECC should further address any reliability risks.

#### **System Performance Data and Metrics**

#### **Event Analysis**

The Operations Analysis team at WECC maintains situation awareness through various means. One source of system events is mandatory reporting through the Department of Energy's OE-417 and the NERC Reliability Standard EOP-004-4 process. A few items are worth noting:

Physical attacks and damage to facilities make up the highest number of events. The number of physical security events has already exceeded the number for last year with nearly two months of the year remaining. While most of these events are prompted by theft of grounding wire or other material, some are more severe and are cause for industry to be more vigilant in physical security approaches. WECC coordinates with NERC and E-ISAC on these events, as well as with WECC's Physical Security Forum.

There have been more system separation events in the Western Interconnection this year. These are all referring to Alberta separating from the rest of the interconnection. There was a time this year when one main line connecting BCHA and AESO was under maintenance. Storms and fires in the area



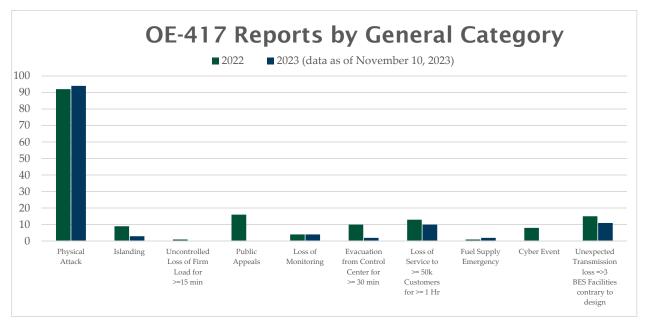
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#### Technical Activities Report to the Board—September 14, 2023

affected the remaining lines in service, forcing AESO to separate and operate in an island. AESO operators are trained on operating in this configuration and it poses little risk to the rest of the interconnection.

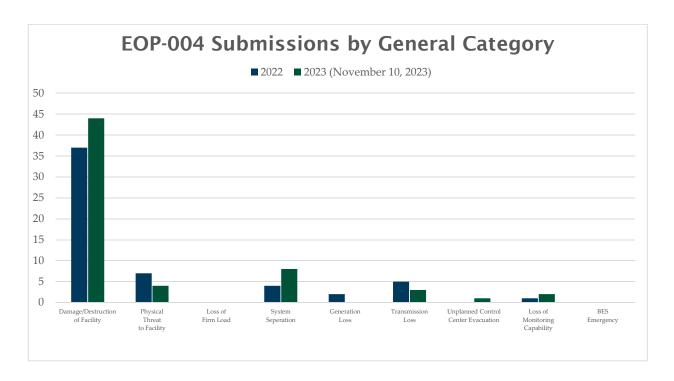
Last year, there were high loading times throughout the interconnection, and entities had to make public appeals for customers to reduce electrical use to help make it through critical parts of the day. We did not see any of these appeals in 2023. Two factors played into this:

- 1. We did not see extended periods of high temperatures throughout the entire interconnection this year. This allowed surplus generation to be transferred to areas with higher loading.
- 2. Efforts such as the WECC Summer Readiness Workshop highlighted best practices and other approaches to help get through these challenging operating periods. Entities are implementing some practices, which is making them better prepared for high loading periods.

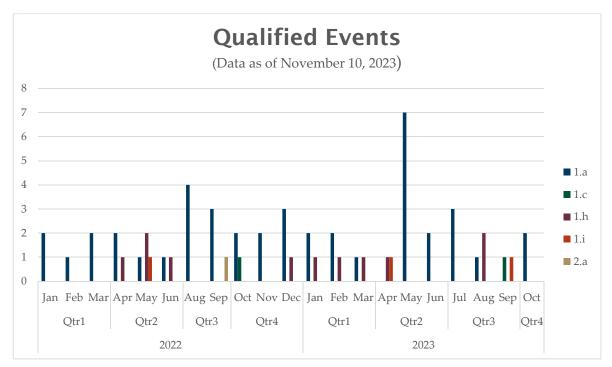




#### Technical Activities Report to the Board—September 14, 2023



There have been 29 qualified events in 2023. All of them were designated Category 1, the least severe category in the NERC Event Analysis Process. The number of qualified events this year is similar to 2022.



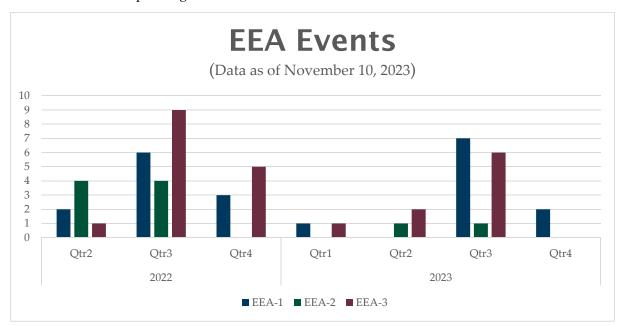


#### Technical Activities Report to the Board—September 14, 2023

One event of note is a Category 1i event in September, the non-consequential loss of over 500 MW of inverter resources. This event affected some of the same plants in southwestern Utah as a Category 1i event that took place in April. While the faults that initiated this loss of solar were very similar, the impact was considerably smaller (929 MW loss in April compared with 537 MW in September). It appears discussions our team had with the operators of the plants led to ride-through improvements. Analysis of the data is taking place now, and there will be more details to follow. The Technical Session for this Board meeting will focus more broadly on the risk that unexpected behavior of inverter-based resources poses to the interconnection and several activities that are underway to address this risk.

#### **Energy Emergency Alerts**

As of November 10, 2023, there have been 21 Energy Emergency Alert (EEA) events this year, compared to 28 for the same time frame in 2022. Nearly half of the EEAs involve the same entity. This entity is located on a part of the system with limited import capability. High loads and forced generation outages lead to concerns with this entity's operating reserves. In these cases, the entity armed firm load as operating reserves.



### **Status of Ongoing Activities**

#### **ADS** development

The 2034 Anchor Data Set (ADS) is under development; the Production Cost Data Subcommittee (PCDS) is evaluating and updating the information included. Some considerations being discussed are changes in transmission utilization and ways models can better align.



#### Technical Activities Report to the Board—September 14, 2023

#### **Modeling Assumption Enhancements**

Planned transmission projects are inconsistently included in the power flow and dynamics base case model and ADS datasets. Another gap in data submission is projects being developed by independent developers currently not in any Planning Coordinator area. Such projects are not represented in the base cases and, therefore, could affect reliability assessments. The System Review Subcommittee (SRS) has assigned an action item to several members of the subcommittee to develop and propose a recommendation to ensure major transmission projects are appropriately and consistently included in base cases and the ADS.

#### **Base Case Development**

Base Case Activity (as of 11/10/2023)		
Dataset Name	Status	Date Posted
2024 Heavy Spring 2	In Review	8/21/2023
2024 Heavy Summer 3	Final	9/11/2023
2033-34 Heavy Winter 1	Final	9/20/2023
2024 Light Summer 1	Final	9/29/2023
2034 Heavy Summer 1	Final	10/25/2023

#### **Base Case Data Quality**

WECC, in coordination with the base case data submitters, is constantly looking for ways to enhance the data quality of the base cases. In cooperation with stakeholders, five priority areas of data quality shortcomings were identified. Within these five areas, WECC identified 2,724 data issues. WECC has resolved 56% (1,533) of the power flow model shortcomings in the reference case, the 2024 Heavy Summer 3 base case. Some of the resolved shortcomings have resulted in changes in the case development process ensuring that the changes are applied to all future cases. Some do rely on the data submitter to carry forward. To ensure that happens, the SRS holds a workshop annually, and the case quality is the main topic, which includes how to make sure data changes are propagated. In addition, each year the priority issues are reevaluated to improve the data quality as much as possible.

### 2023 Reliability Assessments 🏸 🌢 🦍



WECC's Study Program is carried out with stakeholder advisory groups and the Studies Subcommittee. Work on the studies continues. WECC began releasing studies in November and will continue into January. The 2023 WECC Study Program consists of the following studies:

Impact of grid-forming inverters on spring conditions with low inertia;



#### Technical Activities Report to the Board—September 14, 2023

- Year 10: Extreme cold weather event;
- Year 20: Foundational case;
- Year 20: Extreme hot weather event:
- Year 20: Extreme cold weather event;
- Year 20: Impacts of compound changes in loads/electrification;
- Impact of changes in generation resources using short-circuit ratio.

To complete the Year 20 assessments, WECC developed the Year 20 Foundational Case that was used as the base system model. The Year 20 Foundational Case is complete, and a report highlighting the assumptions and takeaways of this case will be published soon. As these assessments wrap up, the RAC will communicate emerging reliability risks identified in the studies to the RRC and more broadly with stakeholders through the Member Advisory Committee and WIRAB.

WECC is working with NERC on the release of the NERC Long-term Reliability Assessment that is expected to be published mid-December. The NERC Winter Reliability Assessment was published November 8.

#### Resource Adequacy 🧎



Over the last quarter, WECC continued stakeholder engagement on resource adequacy through the monthly Resource Adequacy Webinar Series. WECC canceled the October event to allow attendees to participate in the WIRAB/CREPC meeting that occurred at the same time. The November discussion centered on loads-forecasting, electrification, data centers, rate design, etc. The series will continue in 2024 and expand to include topics beyond resource adequacy.

The 2023 Western Assessment of Resource Adequacy was released at the end of November. WECC has established a Resource Adequacy Advisory Group (RAAG) under the RAC, primarily to provide input to and guidance on the Western Assessment. This RAAG has begun meeting and establishing its goals.

#### Reliability and Security Risks Update

WECC staff and the RRC continue to develop and maintain an ongoing, prioritized list of known and emerging reliability and security risks to the Western Interconnection. In the October RRC meeting, WECC staff reviewed the updated list of risks and presented the initial results of the analysis and evaluation done for each risk. Because the results are significant—they help prioritize the risk—they were also sent to stakeholders (RRC, RAC, WECC staff, etc.) for feedback. WECC staff will collect and incorporate the feedback according to the <u>RRC Risk Management</u> Process.

RRC and RAC leadership are working to ensure that the list of risks is coordinated between the two committees.



#### Technical Activities Report to the Board—September 14, 2023

### **Additional Technical Committee Highlights and Approval Items**

#### Joint Guidance Committee

The JGC will host its annual committee leadership training on December 13. This year the training will be open to all stakeholders who are holding or are interested in holding a leadership role in WECC's technical committees.

The JGC will hold a strategic alignment meeting on December 14 to discuss the technical committee three-year work plans and how they align with WECC's mission, vision, and current risks to the reliability and security of the Western Interconnection.

# Technical Committee Work Plans



The technical committees updated their annual three-year work plans for the end of 2023. A strategic alignment meeting is scheduled for December 14 in which leaders from the technical committees and the JGC will review and align the three-year work plans with WECC Reliability Risk Priorities and strategic objectives.

The RRC work plan can be found here, and the RAC work plan can be found here.

#### **RRC Extreme Natural Events Strike Team**

Last year, a strike team was organized to address an item in the Reliability Risk Committee Three-year Work Plan to identify risks associated with "extreme natural events" that affect the reliability of the Western Interconnection. The team was asked to prioritize these risks and determine how they were being addressed. The team is finishing a paper that will be available to the RRC in early 2024. The risks will then be evaluated for potential inclusion in the RRC Risk Register.

#### **Modeled Ratings**

During the October RAC meeting, a discussion about the transmission system ratings represented in the base cases was raised during the SRS report. The discussion focused on the ratings being provided in the base cases. The main concern raised was about the temperature assumptions being used to set the ratings for the heavy summer case. The discussion was that, generally, 30°C (86°F) is used for the summer ratings in a summer case when the actual high temperatures as seen in the figure below are above 40°C (104°F). The discussion resulted in the submission of a risk for the risk register, SRS is planning to develop a proposal about how this can be adjusted for in the base cases.



#### Technical Activities Report to the Board—September 14, 2023



### Transmission Flow Changes

The RAC reviewed analysis of the transmission path flows and how they have been changing over the last decade. There are significant changes that have been observed. The RAC is going to monitor this and develop a process that will ensure operational changes are being accounted for in the analysis and models. This topic will be discussed collaboratively between the RAC and RRC.

#### **RAC-RRC** coordination

Coordination and collaboration between the RRC and the RAC are important aspects of WECC's technical committee work, and committee leadership is intentionally creating strong ties between the two groups. The RRC and RAC leadership collaboration group developed a coordination strategy and reviewed the RRC and RAC three-year work plans. This group will continue to meet in 2024 to further coordinate between the RRC and the RAC.

### **Building Capabilities**

#### **Performance Analysis**

In June, WECC formed a strike team of members from WECC's RRC, NERC, Regional staff, and a national lab to evaluate existing performance analysis products and recommend improvements. The strike team completed its review of two external Performance Analysis (PA) work products, the System Performance Data Portal (formerly the SOTI Data Portal) and the Reliability and Security Indicators.



#### Technical Activities Report to the Board—September 14, 2023

The input from the strike team's review will help revise these work products. This work is anticipated to be complete in 2024.

### Data Management Solution Project \$ 🆍

To ensure its data is well-managed and reliable, WECC is developing a data management system. The initial focus of the project is data collection processes, with emphasis on the consistency of data formats and reduction of processing time for WECC staff. Another area of focus is accessibility of the data to WECC's stakeholders.

Due to resource constraints and vendor challenges, the project has been paused. WECC will revisit this project in 2024 to ensure that it best meets the needs of the organization.

### MAVRIC Tool Validation \$ \*\*



WECC developed the Multi-area Variable Resource Integration Convolution (MAVRIC) tool to carry out probabilistic analysis for its resource adequacy assessments. To ensure the continued quality of its analyses and to prepare for more expanded use of the tool, WECC contracted with the Electric Power Research Institute (EPRI) to provide a peer review of the MAVRIC modeling approach. WECC has received the report back from EPRI and is evaluating how best to respond to the recommended enhancements.

## Plexos Trial \$ 🏔

After conducting a trial of the Plexos production cost model in 2023, the decision was made to extend the license into 2024. The intent is to integrate Plexos into the reliability assessments with the GridView tool currently being used. A report-out of the trial results and general 2024 goals was provided at the October RAC meeting.

### **Looking Forward**

# RRP Development Process





In 2024, WECC will refresh its RRPs. Staff started planning for the 2024 RRP development process in October. The process will use the initial list of risks developed by WECC staff and the Reliability Risk Committee as a starting point. From there, the RRP development process will include broad stakeholder input to prioritize the risks and identify WECC's 2024 RRPs, to be presented to the Board next year for approval. This approach is expected to enhance the efficiency, inclusiveness, and analytical rigor of the development process.

Below is the preliminary timeline for the development process. It will be finalized in December:



#### Technical Activities Report to the Board—September 14, 2023

- January 2024: Socialize the top 7 to 10 risks from the RRC Risk Register in preparation for the stakeholder discussion.
- February 27–29, 2024: Opportunity for stakeholder input—virtual (discuss risks during technical committee meetings).
- March: WECC Board meeting—presentation of stakeholder discussion (from February) and opportunity for the Board to respond (60% presentation to the Board).
- First Friday in April: JGC meeting—discuss and identify what work WECC could do in each of the top 7 to 10 risks identified.
- Second week in April: Post draft RRPs for public comment.
- Late April or first of May: Comment deadline.
- May: Board workshop: 90% presentation and allow the Board to comment and respond to the priority of the risks and the work WECC could do.
- June: Board of Directors approval of the staff recommended 2024 RRPs.





# Technical Activities Update

December 6, 2023

Branden Sudduth, VP RPPA

Kris Raper, VP Strategic Engagement

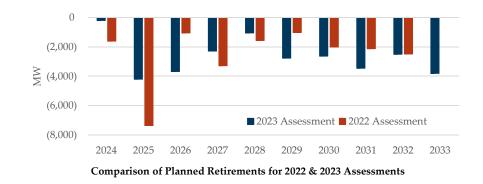
Jonathan Aust, JGC Co-chair

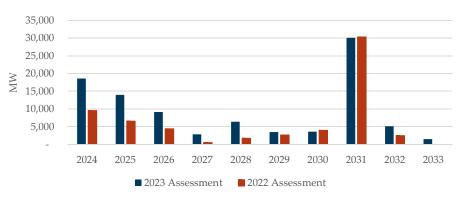
Margaret Albright, RRC Co-chair

Chelsea Loomis, RAC Co-chair

# 2023 Western Assessment of Resource Adequacy

- Changes in resource retirements and construction
- Risks to planned resource additions
- Increasing variability

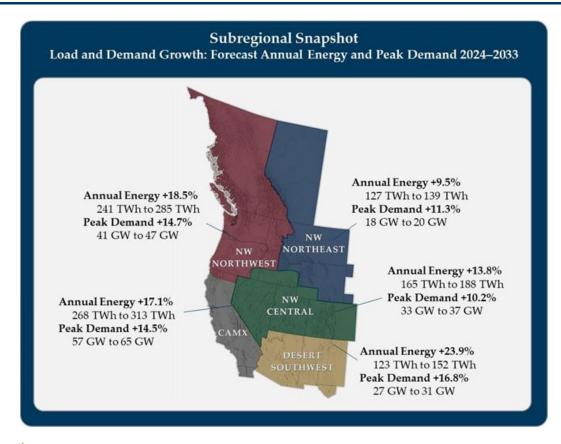




Comparison of Planned Resources for 2022 & 2023 Assessments



# 2023 Western Assessment of Resource Adequacy (cont.)

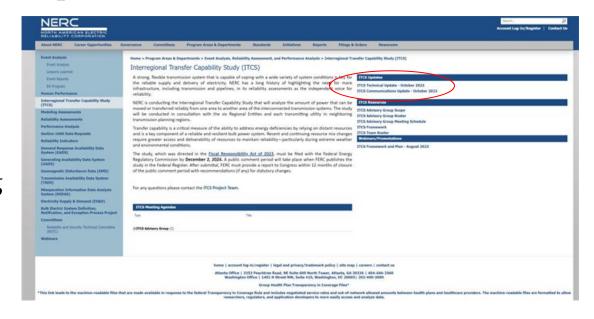


- Load growth
  - Electrification
  - Data centers
  - Annual energy demand
- Demand-at-Risk analysis
- Incremental analysis



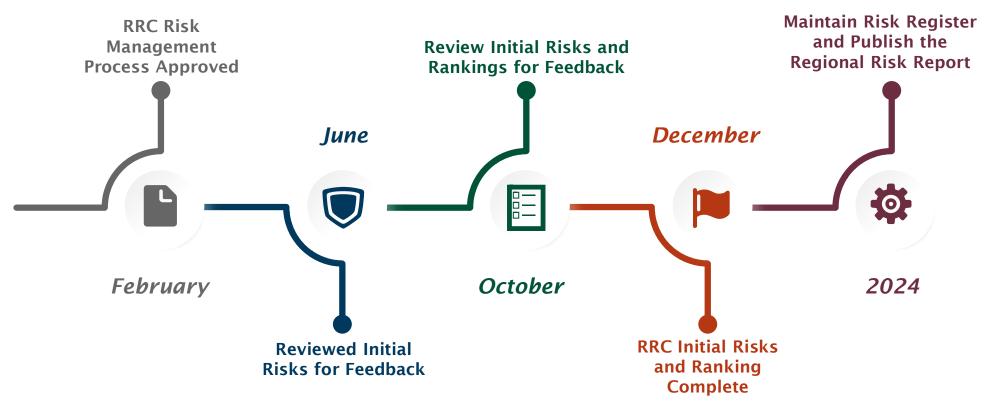
# Interregional Transfer Capability Study Update

- ERO and WECC Stakeholder Advisory Groups have begun meeting
- NERC ITCS webpage developed
- WECC staff training on PowerGEM TARA
- Phase 0 activity:
  - Study assumptions being developed
  - Data request issued



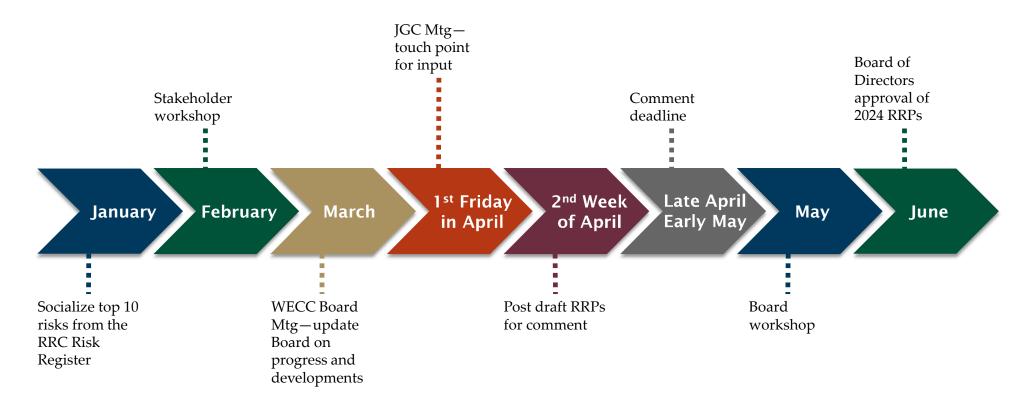


# **RRC Risk Management Process**





# 2024 Risk Priorities Development Process





# **Accounting for Change**



Every state and province has seen temperatures above 100°F (38°C)

86°F (30°C) has been used for rating transmission lines



The flows on the transmission system are changing

In July COI flows at 5:00 p.m. ranged from 2,000 MW N->S to 2,800 MW S->N

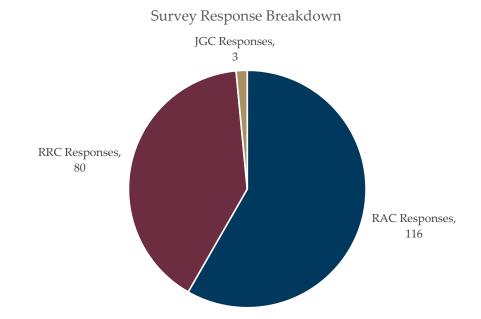


MVS has approved the first generic grid-forming inverter model



# **JGC Engagement Survey**

- Part of JGC metrics
- September 15–November 17, 2023
  - Engagement: electronic announcement, in-meeting presentations, and personal email invites
- 199 responses
  - From 21 of 27 committees
  - 8 RAC groups, 12 RRC groups
- Over 450 written comments





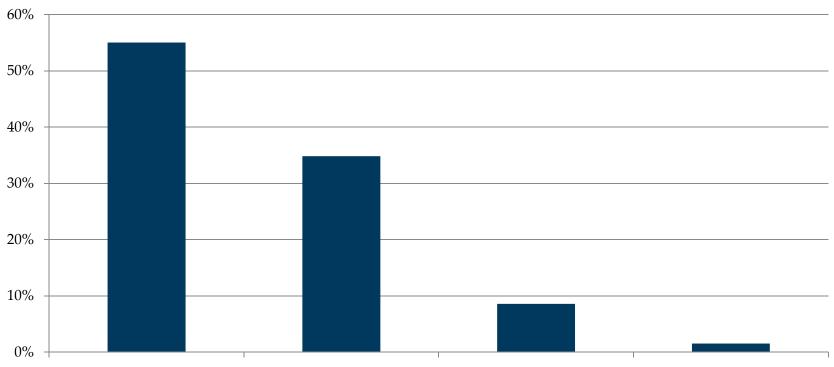
# JGC Engagement Survey Response Summary

# Most respondents...

- Understand the connection between their group's work and the work of their parent committee
- Believe their committee work is related to the subject matter they focus on in their job, and in some cases the work is very similar
- Know how their committee's work supports reliability
- Look forward to their committee's meetings



### What is your current level of enthusiasm about your committee?



enjoy my group's meetings. the meetings, but not always.

I look forward to and mostly I sometimes look forward to I am not very excited about I dread attending my group's attending the meetings. meetings.



# **Comment Highlights**

- Improve meeting content and agendas, and allow for less structured discussion of key issues. More actionable issues.
- Participation is very low, getting volunteers and chairs is very hard.
- Desire to stop changing the structure and governance of the committees.
- Would like clearer link between WECC's mission and the work of the committees.
- The committee structure is engaging and highly educational.
- Interest in more in-person, though not all in-person. Once a year.





