

**1. Welcome, Call to Order**

Philip Augustin, Studies Subcommittee (StS) Chair, called the meeting to order at 1:00 p.m. MT on April 26, 2022. A quorum was present to conduct business. A list of attendees is attached as Exhibit A.

**2. Review WECC Antitrust Policy**

Mr. Jensen, read aloud the WECC Antitrust Policy statement. The meeting agenda included a link to the posted policy.

**3. Approve Agenda**

Mr. Augustin introduced the proposed meeting agenda.

**On a motion by David Le, the StS approved the agenda.**

**4. Review and Approve Previous Meeting Minutes**

Mr. Augustin introduced the minutes from the meeting on January 19, 2022, and March 23, 2022.

**On a motion by David Le, the StS approved the minutes from January 19, 2022, and March 23, 2022.**

**5. Review Previous Action Items**

Mr. Augustin reviewed action items carried over from the StS meeting on March 23, 2022.

Action items that are not closed and will be carried forward can be found [here](#).

**6. Outages**

Enoch Davies, System Stability Manager, discussed the Revelstoke plus Rush Creek generation, and the Palo Verde plus Rush Creek outages. There is a white paper on BAL-003 that assists with resource lost protection criteria.

## **7. Feedback addressed—Extreme Natural Events (ENE)**

Bhavana Katyal, Senior System Adequacy Engineer, presented an overview of how feedback was addressed for the Extreme natural Events assessment.

The presentation is posted to the [WECC website](#).

**On a motion by Peter Mackin, the StS approved the Extreme Natural Events Assessment.**

## **8. Annual Progress Report Summary**

Doug Tucker, Senior System Stability Engineer, presented an overview of the 2022 Annual Progress Report. The reports were compiled and posted on the WECC website.

The presentation is posted on the [WECC website](#).

**On a motion by Louis Vigil, the StS approved the 2022 Annual Progress Report.**

## **9. Public Path Rating Catalog Update**

Mr. Tucker gave an update on the survey results from the public path rating catalog. The StS held a discussion on if there is a need for a public path rating catalog. Mr. Tucker will create a mock version of what information it would contain and will look like. Mr. Tucker will present it during the next meeting.

## **10. EDTF Update**

Fred Heutte, Environmental Data Task Force (EDTF) chair gave presented an update on the EDTF. The next meeting will be held July 22, 2022, or July 29, 2022.

The presentation is posted on the [WECC website](#).

## **11. Status update on Long-Duration Storage Study**

Stan Holland, Senior System Adequacy Engineer, presented the status of the long duration Storage Study. The next meeting will be held April 13, 2022.

The presentation is posted on the [WECC website](#).

## **12. Lessons Learned and Recommendations from the 2020-2021 Assessments**

Ms. Katyal gave an update on the lessons learned and recommendations from the 2020-2021 Extreme Natural Events Study. The StS discussed the need to have quality data and more participation before continuing the project. The StS discussed that having a round trip power flow (PF) will be helpful along with easier access to find the study results.



Tyler Butikofer, System Adequacy Engineer, presented the lessons learned for the Variability in the Loads and Resources study. The entire study program ran great and there was a podcast recorded for every study.

The presentation is posted to the [WECC website](#).

Jon Jensen, System Adequacy Engineer, presented lessons learned for the Impact of High Distributed Energy Resources. The study brought up ideas of additional items to study in the future.

The presentation is posted to the [WECC website](#).

Mr. Tucker gave an update on the lessons learned for the Changes in System Inertia. Operating and planning cases were used. A follow up study will be done due to the low inertia.

Mike Bailey, Senior System Adequacy, presented the lessons learned for the 2040 Clean Energy Scenarios. The StS held a discussion about creating ensembles of loads and resources based on drivers of change.

The presentation is posted to the [WECC website](#).

Kirha Quick gave an update on the overall study planning and process. The information provided by WECC's liaisons will be reviewed and changes will be made to the study processes if needed.

### **13. SWG Update**

Amy Mignella, Scenario Work Group (SWG) chair gave a SWG update. The work for 2022 has not started yet. They will be regrouping July of 2022.

### **14. Ideas for next study cycle—Discussion**

The StS held an open discussion about ideas for the next study cycle. After the Anchor Data Set (ADS) is complete there will be a review on how to apply it to the reliability risks. The WECC Board is currently holding a reliability workshop that will head lead and prioritize the studies.

### **15. UFLSWG Update**

Hari Singh, Underfrequency Load Shedding Work Group (UFLSWG) Chair, presented an update on the UFLSWG. There will be an assessment done the middle of this year. A methodology document update based on comments was received. The redline version is available on the UFLWG will be on the WECC website by the end of this week. Mr. Singh will be stepping down as the UFLWG Chair by the end of this week.



## 16. Public Comment

No comments were offered.

## 17. Review New Action Items

- Present a test version of the public path rating catalog during the next StS meeting.
  - Assigned To: Doug Tucker
  - Due Date: July 12, 2022
- Find out how many people listened to the WECC study podcasts and give an update during the next StS meeting.
  - Assigned To: Jon Jensen
  - Due Date: July 12, 2022
- Provide the reliability risk list and find someone to report it during the July meeting.
  - Assigned To: Jon Jensen
  - Due Date: July 12, 2022
- Send poll to see who would like to attend in-person StS meetings.
  - Assigned To: Jon Jensen
  - Due Date: July 12, 2022

## 18. Upcoming Meetings

July 12-13, 2022 ..... Virtual\*

November 1-2, 2022 ..... Virtual\*

*\*Meeting may be virtual due to the COVID-19 pandemic.*

## 19. Adjourn

Mr. Augustin adjourned the meeting without objection at 5:00 p.m.



## Exhibit A: Attendance List

### Members in Attendance

Philip Augustin.....Salt River Project  
Scott Beyer.....Western Power Pool (formerly Northwest Power Pool Corporation)  
Thomas Carr.....Western Interstate Energy Board  
Ken Che.....Public Utility District No. 1 of Snohomish County  
Chris Gilden.....Tri-State Generation and Transmission—Reliability  
Jeff Hanson.....Colorado Springs Utilities  
Fred Heutte .....NW Energy Coalition  
Jon Jensen.....WECC  
Lesley Kayser-Sprouse.....Hetch Hetchy Water and Power  
David Le.....California Independent System Operator  
Peter Mackin.....GridBright, Inc.  
Jake Maxfield.....PacifiCorp  
Bradley Postovoit.....Southern California Edison Company  
Eepsita Priye.....Puget Sound Energy, Inc.  
Dipendra Rai.....British Columbia Hydro and Power Authority  
Karen Reedy.....Public Service Company of New Mexico  
Chifong Thomas.....Thomas Grid Advisor  
Louis Vigil.....El Paso Electric Company  
Janice Zewe .....Sacramento Municipal Utility District

### Members not in Attendance

Nayeem Mohammad Abdullah.....Metropolitan Water District of Southern California  
Robby Anderst.....Puget Sound Energy, Inc.  
Waseem Arif.....FortisBC, Inc.  
Eric Bahr.....NorthWestern Energy  
Aseem Bhatia.....California Department of Water Resources  
Ben Brownlee.....Energy Strategies



Ron Calvert ..... Utility System Efficiencies, Inc.

Shawn Carlson.....Basin Electric Power Cooperative

David Cathcart ..... Bonneville Power Administration—Transmission

Desmond Chan.....Seattle City Light

Tom Christensen.....Basin Electric Power Cooperative

Patrick Corrigan .....Public Service Company of Colorado (Xcel Energy)

Thomas Duane ..... Public Service Company of New Mexico

Jonathon Flores..... Los Angeles Department of Water and Power

Thomas Flynn..... California Energy Commission

Alex Fratkin..... NV Energy

Jennifer Galaway ..... Portland General Electric Company

William Gibson.....Hetch Hetchy Water and Power

Laurie Hammack.....Seattle City Light

Scott Harding ..... Black Hills Corporation

Kody Heppner..... Turlock Irrigation District

Bryant Hicks.....Salt River Project

Bill Hosie..... PSI Power System Innovation Corp.

Robert Jackson..... Burns & McDonnell

Christopher Kulink..... Portland General Electric Company

May Le..... Public Utility District No. 2 of Grant County

John Liang.....Public Utility District No. 1 of Snohomish County

Todd Lichtas.....Tucson Electric Power

Chelsea Loomis..... Western Power Pool (formerly Northwest Power Pool Corporation)

Richard Maguire..... Public Utility District No. 2 of Grant County

Daniel McGuire .....Salt River Project

Pete Mensonides..... Turlock Irrigation District

Patrick MontPlaisir ..... Western Area Power Administration

Valeriy Jr. Oleshko..... Western Area Power Administration



Mark Pigman..... Tacoma Power  
Ebrahim Rahimi..... California Independent System Operator  
Daniel Ramirez..... Energy Strategies  
Faranak Sarbaz..... Los Angeles Department of Water and Power  
Erik Schellenberg..... Idaho Power Company  
Masoud Shafa..... California Department of Water Resources  
Amy Sopinka..... British Columbia Ministry of Energy and Mines  
April Spacek..... Avista Corporation  
Jan Strack ..... San Diego Gas and Electric  
Spencer Tacke..... Auriga Corporation  
Angela Tanghetti..... California Energy Commission  
Khanh Thai..... Tacoma Power  
David Tovar ..... El Paso Electric Company  
Patrick Truong..... Sacramento Municipal Utility District  
Yu (David) Wang..... San Diego Gas and Electric  
Curtis Westhoff..... Idaho Power Company  
Di Xiao..... Southern California Edison Company  
Xiaofei (Sophie) Xu..... Pacific Gas and Electric Company  
Dennis Yegorov..... PacifiCorp  
Kevin Zhang..... British Columbia Hydro and Power Authority  
Wenjuan (Wendy) Zhang..... Pacific Gas and Electric Company

**Others in Attendance**

Logan Affleck..... WECC  
Michael Bailey..... WECC  
Kent Bolton..... WECC  
Tyler Butikofer..... WECC  
Jyotsna Chatrati..... NV Energy  
Chris Corral..... El Paso Electric Company



Enoch Davies..... WECC

Alex Ford ..... NV Energy

Stan Holland..... WECC

Bhavana Katyal..... WECC

BK Ketineni ..... WECC

Nicole Lee ..... WECC

Shruti Maken..... British Columbis Ministry of Energy and Mines

Amy Mignella..... Tribal Energy Policy Consultant

Rafael Molano..... Bonneville Power Administration

Kirha Quick..... WECC

Mohammadall Rostami..... Portland General Electric Company

Hari Singh..... Public Service Company of Colorado (Xcel Energy)

Khanh Thai..... City of Tacoma

Doug Tucker..... WECC

Byron Woertz ..... WECC

Jonathon Young..... Bonneville Power Administration

Sohpie ..... Portland General Electric Company

