

1. Welcome, Call to Order

Philip Augustin, Studies Subcommittee (StS) Chair, called the meeting to order at 1:01 p.m. on July 12, 2022 MT. A quorum was present to conduct business. A list of attendees is attached as Exhibit A.

2. Review WECC Antitrust Policy

Mr. Jensen, System Adequacy Engineer, 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 Peter Mackin, the StS approved the agenda.

4. Review and Approve Previous Meeting Minutes

Mr. Augustin introduced the minutes from the meeting on April 26, 2022.

On a motion by David Le the StS approved the minutes from April 26, 2022.

5. Review Previous Action Items

Mr. Augustin reviewed action items carried over from the StS meeting on April 26, 2022. Action items that are not closed and will be carried forward can be found [here](#).

6. Review recommendations from 2020-2021 Study Program

Mr. Jensen presented the Changes in System Inertia Study and recommendations for future studies. Three cases were studied to prevent a large outage. The observations included a underfrequency load shedding plan, rate change of frequency and localized voltage instability followed by load tripping. It was recommended to monitor the inertia system. The StS discussed measuring the amount of inertia and future study areas.

Mr. Jensen presented the Impact of High Distributed Energy Resources Study. The DER was looked at as behind the meter (BTM) rooftop solar.

Nick Hatton, System Stability Engineer, presented the future study recommendations. The StS discussed the DER and the composite load model.

Enoch Davies, Systems Stability Manager, presented the Extreme Natural Events Study. A heavy load was combined with a drought and fire which affected the solar output. Mr. Davies presented the study conclusions and recommendations. The StS discussed that inertia was not directly calculated into the study. It might be added as a future metric if there is a similar study done in the future.

Tyler Butikofer, System Adequacy Engineer, presented the Variability in Loads and Resources study. The study ran for two weeks during a peak week. It showed that if there was an adverse heat wave that caused unversed loads in all of the areas. Mr. Butikofer presented the observations and recommendations. A full year study will need to be ran for battery storage instead of two weeks.

Stan Holland, Senior System Adequacy Engineer, presented the 2040 Clean Energy Sensitivities Study. The study was a product of the Scenarios Work Group (SWG). SWG does a twenty-year outlook.

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

7. 2022-2023 Study Program Assessment and Reliability Risk Priority Review

Byron Woertz, System Adequacy Manager, presented the 2022-2023 Study program assessment and reliability risk priority review. The priorities were selected during June's Board of directors meeting. The work plans are being developed. The top four will be cybersecurity, extreme natural events, resource adequacy and impact of enhancing resources and customer loads on the bulk power system (BPS). The StS discussed using the priorities to help select future studies.

The presentation is posted to the WECC website.

8. 2022-2023 Study Program Structure/Schedule

Mr. Woertz, presented the 2022-2023 study program structure schedule and approach. The presentation included the study program development timeline. The study process will be documented.

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

9. Update on Future UFLS Assessment Approach

Mr. Davies provided an update for the future underfrequency load shedding (UFLS) assessment approval approach. WECC will not be doing future assessments and reports due to



a conflict with WECC doing the assessments and the audits. WECC will continue to work on data collection and will make the data available. The current assessment will be finished but the results might require continued work.

10. Preview of the Public Path Rating Catalog

Mr. Davies presented the Public Path Rating Catalog. A sample of the public version is posted on the WECC website. The map is public but not publicly available on the website and requires credentials to view. The StS discussed if it would be resourceful. A notification will be sent out when it is posted.

On a motion made by Peter Mackin, the StS approved the public Path Rating Catalog public.

The presentation is posted to the WECC website.

11. Project Coordination, Path Rating and Progress Report Processes Update

Peter Mackin, GridBright (GBRT), presented the project coordination, path rating and progress report process update. The path rating process was revised to accommodate changes to ratings caused by criteria changes. There are three paths going through the path rerate process. A path being rerated doesn't change the criteria process. If the criteria changes, the contingency can be more severe, and the impact of the rating increase will be reduced. The StS discussed that the process is currently working, and concern was expressed about not seeing a reason to make the changes.

On a motion by, Patrick Montplaisir, the SRS voted. By majority, the StS approved the project coordination path rating new language for section 5.5.7 Step 8.

TransCanyon objected and would like it recorded.

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

12. Long Duration Energy Storage update

Due to time constraints encouragement was made to view the Long Duration Energy Storage study. Contact Mr. Woertz with questions.

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

13. EDTF Update

Fred Heutte, the Environmental Data Task Force (EDTF) chair provided encouragement to attend the upcoming EDTF meeting Friday, July 29, 2022.



14. SWG Update

The Work Group (SWG) update was moved to the next meeting.

15. Public Comment

Mr. Jensen led the discussion on podcasts. The least number of full podcasts listed to were 59 and the highest was 105.

16. Review New Action Items

There were no new action items created during this meeting.

17. Upcoming Meetings

September 14, 2022..... Virtual

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

18. Adjourn

Mr. Augustin adjourned the meeting without objection at 5:01 p.m.



Exhibit A: Attendance List

Members in Attendance

Brenna Andrews.....NorthWestern Energy
Philip Augustin.....Salt River Project
Scott Beyer.....Western Power Pool (formerly Northwest Power Pool Corporation)
Ron Calvert.....Utility System Efficiencies, Inc.
Thomas Carr.....Western Interstate Energy Board
David Cathcart.....Bonneville Power Administration—Transmission
Ken Che.....Public Utility District No. 1 of Snohomish County
Tuan Dang.....Public Utility District No. 1 of Snohomish County
Jeff Hanson.....Colorado Springs Utilities
Fred Heutte.....NW Energy Coalition
Jon Jensen.....WECC
David Le.....California Independent System Operator
Todd Lichtas.....Tucson Electric Power
Peter Mackin.....GridBright, Inc.
Jake Maxfield.....PacifiCorp
Patrick MontPlaisir.....Western Area Power Administration
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
Erik Schellenberg.....Idaho Power Company
Khanh Thai.....Tacoma Power
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.
Aseem Bhatia..... California Department of Water Resources
Shawn Carlson..... Basin Electric Power Cooperative
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
Chris Gilden..... Tri-State Generation and Transmission—Reliability
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
Lesley Kayser-Sprouse..... Hetch Hetchy Water and Power
Christopher Kulink..... Portland General Electric Company
May Le..... Public Utility District No. 2 of Grant County
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



Mitchell Miller.....NorthWestern Energy
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
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
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

Jamie Austin.....Pacifocorp
Simrit Basrai..... Pacific Gas and Electric Company
Lindsay Briggs..... Black Hills Corporation
Layne Brown..... WECC
Tyler Butikofer..... WECC
Chris Corral..... El Paso Electric Company



Enoch Davies..... WECC
Mark EthertonTransCo Energy
Gary Farmer Western Area Power Administration
Ben Green.....Pacifocorp
Mensur Haskovic..... Western Area Power Administration
Nicholas Hatton..... WECC
Richard Jensen.....California Energy Commission
Nicole Lee WECC
John Liang.....Public Utility District No. 1 of Snohomish County
Ron Markham..... Portland General Electric Company
Christopher Mclean..... California Energy Commission
Rafael Molano..... Bonneville Power Administration
Tim Schiemeyer..... Transmission Agency of Northern California
Rikin Shah.....PacifiCorp
Bob Smith..... TransCanyon Inc.
Diwakar Tewari..... ISO New England
Byron Woertz WECC
Cole Youngers.....Avista Corporation

