

1. Welcome, Call to Order

Song Wang, Modeling and Validation Subcommittee (MVS) Chair, called the meeting to order at 9:10 a.m. on November 30, 2020. A quorum was present to conduct business.

2. Review WECC Antitrust Policy

Doug Tucker, System Stability Engineer, read aloud the WECC Antitrust Policy statement. The meeting agenda included a link to the posted policy.

3. Approve Agenda

Mr. Wang introduced the proposed meeting agenda.

By consensus, the MVS approved the agenda.

4. Review and Approve Previous Meeting Minutes

Rachel Smith, Administrative Assistant, introduced the minutes from the meeting on August 24, 2020. The MVS discussed the difference between minutes and technical notes and requested additional technical detail in the record.

By consensus, the MVS approved the minutes from August 24, 2020.

5. Review of Previous Action Items

Rachel Smith, Administrative Assistant, reviewed action items carried over from the MVS meeting on August 24, 2020. Action items that are not closed and will be carried forward can be found [here](#).

6. Three Year Plans

The MVS reviewed the current MVS tasks listed on the RAC 2021–2023 three-year work plan. The MVS discussed the addition of EMT model specifications and guidelines, and whether the MVS should oversee relay modeling and power quality.

By consensus, the MVS approved the MVS language in the 2021–2023 three-year work plan.

7. Modeling Priorities

Mr. Wang reviewed the MVS activities of the past year and led a discussion on MVS modeling priorities, including renewable models, synchronous machine model, DC line model, unapproved models in the WECC case, and load modeling.

8. MOD-33 Update

Licheng Jin, RC West, gave an update on RC West, including the activities and timeline for RC West and MOD-033, and the RC West data request process.

9. RAS Modeling

Staci Saruwatari, SDGE, gave a presentation on RAS modeling, including RAS implementation in PSLF and TARA, fields in question, available documentation, results, and conclusions.

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

10. Program Updates

Juan Sanchez-Gasca, GE, gave an update on the PSLF program including the beta models in the January 2021 release, the EPRI test system, GENQEC implementation in PSLF, and voltage droop implementation.

Jay Senthil, PTI, gave a presentation on PSSE updates, including current and upcoming releases, steady state enhancements, droop modeling highlights, and dynamics enhancements.

Jamie Weber, PowerWorld, gave an update on PowerWorld activities including a remote access bug patch.

Pouya Zadehkhost, Powertech Labs, gave a presentation on TSAT updates including model development efforts, and v20 enhancements.

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

11. Load Modeling

Sameer Nakkaalu, Vijay Vittal, and John Undrill, ASU, gave a presentation on point on wave simulations of air conditioner contractor behavior in distribution feeders.

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

Bo Gong, SRP, gave a presentation on experience with power quality monitors and capabilities for dynamic performance monitoring.

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



Irina Green, CAISO, gave an update on transient voltage recovery. CAISO has not performed any new studies so Ms. Green reviewed the NERC TPL 001-4 Standard Transmission System Planning Performance Requirements.

The members discussed the criteria and concluded to continue using the voltage criteria and use the whitepaper to education others on the criteria.

Tony Faris, BPA, gave a presentation on load composition updates, including 2021 plans, NERC default data, WECC representative cities, software data flow, feeder composition, end use load distribution, and feeder compositions.

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

Bernie Lesieutre, WISC, gave a presentation on the three-phase induction motor model for system frequency response.

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

Jamie Weber, PowerWorld, gave a presentation on induction machines, including a comparison to induction machine and synchronous machine,

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

12. Renewable Energy Modeling

Shruti Rao, GE, gave a presentation on voltage droop implementation in PSLF, including the beta results, the voltage droop curve table and curve entries, and validation results for the benchmarking case.

Feng Dong, PTL, gave a presentation on power flow droop benchmarking in PSSE, including existing generator voltage control, control schemes, data record, and modeling highlights. Mr. Dong also demonstrated the benchmarking in PSSE.

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

Pouyan Pourbeik, PEACE, gave a presentation on second generation RES model updates and implementation including the models approval timeline.

Juan Sanchez-Gasca, GE, gave a presentation on proposed enhancements and modifications to the regc_b and reec_d models. The MVS discussed possible changes to the models to better effect converter blocking. The software vendors will work on this issue offline.

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

Mr. Tucker gave a presentation on the state of the first-generation renewable model in the WECC base case, including solar modeling in the 2020 HS3 base case, next steps,

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



George Zhou, PTI, gave a presentation on the static frequency converter (SFC) PSLF user written model, including the Sitras SFC plus static frequency converter, control block diagram limitations, user model implementation, and model response and performance. The MVS agreed that the new model captures most of the relevant data.

Jonathan LaSage, MathWorks, gave a presentation on fault ride-through model validation of renewable energy systems, including replay field measurements compared to the model data, manual and automatic parameter estimation, and common voltage frequency grid codes.

Deepak Ramasubramanian, EPRI, gave a presentation on modeling newer IBR controls and operations modes, including case studies with high IBR, grid forming controls (GFC), new forms of inverter controls,

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

13. Power Plant Modeling

Dmitry Kosterev, BPA, gave a presentation on model test requirements for generator models.

On a motion by Slavin Kincic, the MVS approved the GENQUEC model specification.

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

Mohamed Elkhatib gave a presentation on GENQEC model benchmarking.

John Undrill and Gregory Brooks, Independent Subject Matter Experts, presented the GENOPZ test results. The MVS discussed the results and whether one model is better than the other if the measurements are the same.

Steve Yang, BPA, gave a presentation on the PPMV case studies and demonstrated the event results.

Slaven Kincic, PNNL, gave a presentation on modeling gaps in hydro power plant system studies.

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

Jonathan LeSage, MathWorks, gave a presentation on model validation templates, including zero power factor load rejections, open circuit tests, and online AVR reference steps with different PSS gains.

14. Active Transmission System Modeling Update

Pouyan Pourbeik, PEACE, gave a presentation on the chvdc2 update and DC models in the WECC master dynamic files, including the VHVDC1 model update, and the first draft proposal for SCSMO4 (hybrid STATCOM).



On a motion by Chifong Thomas, the MVS approved the addition of the chvdc2 model to the WECC planning case.

15. Review Approved Dynamic Model List

Mr. Tucker reviewed the approved dynamic model list.

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

16. Review of New Action Items

- Update RAC three-year work plan with MVS language.
 - Assigned To: Rachel Smith
 - Due Date: April 5, 2021
- Track induction motor three phase models
 - Assigned To: Software vendors
 - Due Date: April 5, 2021
- Look at possible changes to regc_b and reec_d to better effect converter blocking.
 - Assigned To: Software vendors
 - Due Date: April 5, 2021
- Add GENQEC model to the approved model list
 - Assigned To: Doug Tucker
 - Due Date: April 5, 2021

17. Upcoming Meetings

April 5, 2021.....Webinar

18. Adjourn

Mr. Wang adjourned the meeting without objection at 12:01 p.m.

