**Planning Working Group (PLWG)**

**Meeting Notes**

**November 14, 2023**

**In-Person and WebEx**

1. **Antitrust Admonition**
2. **Agenda Review**
3. **Review of PLWG Meeting Minutes from October 18, 2023**
   1. No changes were made to the meeting notes
4. **General Update**
   1. Alexandra Miller (EDF Renewables) discussed the PLWG leadership transition for next year. Alexandra will be not be continuing as chair. The current vice-chair, Dylan Preas (LCRA TSC), will likely serve as chair next year.
5. **SSWG Modeling Assumptions (Joshua Wichers, AEP)**
   1. <https://www.ercot.com/files/docs/2023/11/07/5%20-%20SSWG%20Assumptions%20Input.docx>
   2. Joshua is the chair of SSWG and asked for feedback to ensure that SSWG is publishing useful and accurate case.
   3. Joshua has identified several problem areas.
      1. **Forecasting Large (Flexible) Loads.** Currently, there is no procedure or rules for reducing the real and/or reactive power consumption of planned large loads. TSPs will often model a large load above its FAC-002 limits and without necessary transmission upgrades. Reactive power consumption is a particular area of concern.
      2. **Battery Generators.** Currently, the SSWG cases model nearly 9,000 MW of battery generators, all of which are assumed to be offline and generating no real power and providing no reactive power support.
      3. **SODG and DGR Generators.** Currently, the SSWG cases model 2,450 MW of SODG and DGR generators, all of which are assumed to be offline and generating no real power and providing no reactive power support.
      4. **Extraordinary Dispatch.** The SSWG Procedure Manual prescribes a series a steps to achieve generation-load balance called extraordinary dispatch. Joshua believes that these steps should dispatch SODG prior to scaling wind above CDR levels. Joshua also recommends incorporating steps to reduce the consumption of LFLs and to energize and dispatch battery generators; battery generators would be dispatched according to certain rules (e.g., real power generation that can be sustained for four hours if the battery is fully charged).
   4. Discussion around Large Flexible Loads included suggestions:
      1. many or all crypto loads have power factors greater than 0.99.
      2. SSWG cases should model all firm loads, including Large (Flexible) Loads.
      3. any load or case adjustments need to be documented.
      4. TNMP adds reactive power compensation (i.e., capacitor banks) at substations that serve crypto or datacenter loads.
      5. A recommendation to create two separate load categories: approved load, which is modeled in the case; and requested load, which is modeled in the case as out-of-service.
      6. TSPs should not model Large Loads unless they are also modeling transmission projects that will resolve problems caused by those loads, even if those projects have not undergone RPG review.
      7. loads should be modeled up to their FAC-002 limits until the corresponding upgrades are also modeled.
      8. It was noted that the load forecast in the 23SSWG 2026 summer on-peak case models nearly 16 GW more load than the 21SSWG 2026 summer on-peak case (116 GW versus 100 GW), approximately 35% of which is attributable to Large Flexible Loads. Similarly, in that two-year span, there is approximately 14 GW of new planned solar generation capacity; looking at modeled generation (not capacity), there was nearly as much solar generation added between the 2021 and 2023 case builds as there is total wind generation (11.3 GW added solar versus 12.5 GW total wind). Until load and generation modeling forecasts stabilize, and until planners can accurately model the system for the next 4 or 5 years, and until modeling assumptions are updated to reflect new realities like LFLs and battery generators, SSWG will have difficulty building and tuning its cases. The group was cautioned against modeling approaches that incorporate conceptual or fictitious transmission projects.
      9. there needs to be clear and transparent modeling deadlines and schedules related to the LLIS and modeling loads in the SSWG cases.
      10. SSWG needs to publish a stable base case so that all TSPs can model the same transmission system (load, generation, and topology) and coordinate upgrades. All load adjustments should be transparently documented.
   5. Given the need for additional input with the necessary experience to ensure compliance with NERC, PUC, and ERCOT rules and philosophies when updating major modeling assumptions the consensus was that SSWG did need support beyond their meetings but the scope of needed discussion is more detailed than PLWG broader meetings should cover.
   6. *Joshua will form a small group with SSWG and PLWG representation to discuss and potentially propose language to update the SSWG Procedure Manual.*
6. [**PGRR 109**](https://www.ercot.com/mktrules/issues/PGRR109) **Dynamic Model Review Process Improvement for IBR Modification**
   1. PGRR 109 introduces a new requirement for IEs associated with IBRs to undergo a dynamic model review process prior to resource commissioning and before implementing changes to settings or equipment that would affect the generator dynamic model.
   2. Kristin Cook (Southern Power) and Jason Kemper (EDF Renewables), on behalf of Joint Commenters, submitted [reply comments](https://www.ercot.com/files/docs/2023/10/17/109PGRR-07%20Joint%20Commenters%20Comments%20101723.docx) on October 17.
   3. Sun Wook Kang (ERCOT) submitted [reply comments](https://www.ercot.com/files/docs/2023/11/07/109PGRR-08%20ERCOT%20Comments%20110723.docx) on November 7. Sun Wook [summarized these comments](https://www.ercot.com/files/docs/2023/11/10/PGRR%20109_ERCOT_Response_PLWG_11142023.pdf) for PLWG.
   4. Market Rules clarified that the timeline on Slide 9 will need to be extended out since PGRR 109 is tabled at ROS.
   5. It was noted that model review processes could affect the commercial viability of generation facilities by delaying commercial operation.
   6. Several people commented that language allowing changes to be temporarily implemented “prior to completion” was ambiguous as to whether the process must be started before the change could be temporarily implemented, which would require REs to submit complete model packages. Sun Wook that ERCOT has the discretion to temporarily allow modifications before the PGRR 109 review process begins; he agreed to delete the “prior to completion” language and said that ERCOT will file comments and a revised PGRR. This language will not eliminate the requirement that REs go through the PGRR 109 review process before any proposed modifications to settings or equipment are officially accepted or implemented.
   7. *Sun Wook Kang (ERCOT) submitted a* [*revised version of PGRR 109*](https://www.ercot.com/files/docs/2023/11/17/109PGRR-09%20ERCOT%20Comments%20111723.docx) *with minor updates; the revised language says, “ERCOT, in consultation with the interconnecting TSP, may allow the proposed changes to be temporarily implemented prior to the ~~completion of the~~ above review process in order to address any identified performance deficiency”. PLWG agreed to send the revised PGRR 109 to ROS for consideration.*
7. [**PGRR 112**](https://www.ercot.com/mktrules/issues/PGRR112#keydocs) **Dynamic Data Model and Full Interconnection Study (FIS) Deadline for Quarterly Stability Assessment (Jenifer Fernandes, ERCOT)**
   1. A participant said they would prefer that the timeline reference the submission of the draft FIS study rather than the completion of the final FIS study, which is approved by ERCOT. They believe that this change will help TSPs communicate to IEs when they need to provide necessary modeling information to meet the QSA deadline.
   2. Jenifer agrees with the 45-day timeline proposed in the LCRA TSC comments but disagrees with changing “final” to “draft”, saying that ERCOT needs to actually review the submitted modeling information. It was asked if the deadline could be extended beyond 45 days; Jennifer said that she is not comfortable with that idea. It was noted and agreed by others that it is difficult for TSPs to submit a final FIS study when ERCOT is the entity that has full control over its approval.
   3. Jenifer said that ERCOT will submit comments in response to the LCRA TSC comments.
   4. *PLWG will table PGRR 112 for further discussion at the December meeting.*
8. [**PGRR 113**](https://www.ercot.com/mktrules/issues/PGRR113#summary) **Related to NPRR 1198 – Congestion Mitigation Using Topology Reconfigurations (Ping Yan, ERCOT)**
   1. PGRR 113 clarifies that ERCOT will not use CMPs to resolve performance deficiencies in the RTP unless ERCOT expects that system conditions will change such that the CMP will no longer be needed within the next five years.
   2. It was asked whether this language applies to contingencies that allow load shed (e.g., NERC Category P6). Ping said that it only applies to contingencies that do not allow load shed (e.g., N-1, ERCOT 2/3).
   3. It was commented that EAPs in the network operations model may flow into the SSWG model cases and would need to be reversed. Ping said that temporary settings affected by an EAP would be reverted before being modeled in the SSWG base cases. It was noted that this may need to be clarified in the Planning Guide or SSWG Procedure Manual.
   4. *ROS will consider PGRR 113 at a future meeting. PLWG expects ROS to refer PGRR 113 to PLWG for further discussion at the December meeting.*
9. **Review Open Action Items**
   1. **FAC-002-4 Qualified Change.** (No updates)
   2. **ERCOT Congestion Cost Savings Test.** Ping Yan (ERCOT) said in October that this item will be on the PLWG agenda at the December meeting.
   3. [**NPRR 1070**](https://www.ercot.com/mktrules/issues/NPRR1070) **– Planning Criteria for GTC Exit Solutions.** Remains tabled while alternative revisions are drafted.
10. **Other Business**
    1. (None)
11. **Adjourn**

**Attendees (In-Person)**

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| |  |  | | --- | --- | | **Name** | **Company** | | Dylan Preas | LCRA TSC | | Erin Wasik-Gutierrez | ERCOT | | Bob Wittmeyer | Longhorn Power | | Brad Bell | Solar Proponent | | Brad Schwarz | Sharyland | | Bridget Headrick | Customized Energy Solutions | | Charles DeWitt | PEC | | Constance McDaniel Wyman | ETT | | Doug Evans | AEP | | Ping Yan | ERCOT | | Robert Golan | ERCOT | | Sun Wook Kang | ERCOT | | Prabhu Gnanam | ERCOT | | Ivan Velasquez | Oncor | | Ken Donohoo | OwlERC LLC/APA | | Andrew Hamann | LCRA TSC | | Mark Dreyufus | MD Energy Consulting | | Martha Henson | Oncor | | Harsh Naik | Oncor | |  |

**Attendees (Webex)**

Attendees (Webex) – Combined list with RPG and PLWG attendees:

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| 098427-Kenneth Bowen/CPS Energy |
| AEP Doug Evans |
| AEP Joshua Wichers PE |
| Alex Lau - IntelliQuest |
| Alexandra Miller - EDFR |
| Amanda Frazier |
| Andres |
| Anusha Papasani |
| Barry Kremling -GVEC |
| Bell, Paul |
| Bhargavi Devarajan |
| Bob Wittmeyer - Longhorn Power |
| Brad Bell, Solar Proponent |
| Brad Schwarz - Sharyland |
| Brad Woods |
| Brandon Cogan |
| Brian Hithersay - BEPC |
| Brian Johnson AEP |
| Brian Koz |
| Bridget Headrick - Customized Energy Solutions |
| Cathey Carter - GridAxon |
| Charles Aleman Sharyland |
| Charles DeWitt - PEC |
| Chris |
| Chris DeRidder |
| Cloninger, Ross |
| Cody Phillips |
| Cole Dietert |
| Connor Anderson - AB Power Advisors |
| Craig Wolf - RES |
| Dan Jones |
| David Kee - CPS Energy |
| Dhruv Gupta - Solar Proponent |
| Donna Cavaliere |
| Dwight Beckmann |
| ERCOT - Alex Lee |
| ERCOT - Erin Wasik-Gutierrez |
| ERCOT - Jay Teixeira |
| ERCOT - John Schmall |
| ERCOT - Megan Miller |
| ERCOT - Ping Yan |
| ERCOT - Prabhu Gnanam |
| ERCOT - Raul Balderas |
| ERCOT - Robert Golen |
| ERCOT - Shun-Hsien (Fred) Huang |
| ERCOT - Tanzila Ahmed |
| ERCOT - Ying Li |
| ERCOT-Haibo You |
| ERCOT-Jenifer Fernandes |
| ERCOT-Pengwei Du |
| Eduardo Martinez |
| Edward Wen |
| Eithar Nashawati / Oncor |
| Eric Lotter - GridMonitor |
| Evan Mickelson |
| Frank Horak |
| GP&L - K. Sills |
| Glen Reed AEP |
| Viraj |
| Gurley, Jared |
| Henrique |
| Hudson Callender / CPS Energy |
| Hudson Callender/ CPS Energy |
| James MacPherson Avantus |
| Jason Hastings |
| Jason Kemper- EDFR |
| Jeff Ellis AEP |
| Jeremy McConnell - Oncor |
| Jiahong Yan |
| Jianhui Zhang |
| Jill Kawakami |
| Jillian Huweart - Apex |
| Jim Lee / CenterPoint Energy |
| Joel Davis |
| John Childress - kWantix |
| John Ritch |
| John Vara - GSEC |
| Joshua Rivers - PEC |
| Juan Gomez |
| Justin Freeman |
| Kaustubh Deshmukh |
| Kathy Z |
| KathyZ |
| Ken Donohoo, OwlERC LLC |
| Kiran Kota Sunraycer Renewables |
| Kristy Ashley - CES |
| LCRA TSC - Andrew Hamann |
| LCRA TSC - Dylan Preas |
| LCRA TSC - Mohammad Mokhayeri |
| LCRA TSC - Nicholas Oberski |
| Larisa Loyferman |
| Lauri White AEP Texas |
| Laurie Block, L Block Consulting |
| Li Zhang Calpine Corporation |
| Ling Luo |
| Lloyd Will |
| Long Tran |
| Malik Chavez |
| Manny Uy - Hunt Energy |
| Mareesh / ZEG |
| Maribel Khayat |
| Martha Henson - Oncor |
| Marty Downey / Luminant Corporation |
| Matthew Hall |
| Melvin Joseph - Black & Veatch |
| Mike Tabrizi/Zero-Emission Grid, LLC |
| Mina Y Turner |
| Murillo, Maribel |
| Nabaraj Pokharel |
| Nashawati, Eithar |
| Neeraj Vijay Bedmutha |
| Neeraja Dharme - EDFT |
| Olawunmi, Ola |
| Oncor - Sirius Ahn |
| Parvathaneni, Sirisha |
| Pranil Walke Calpine |
| Raja Kakarla CNP |
| Regan Fink |
| Ryan Aldridge - AB Power |
| SPC - Joshua Garner |
| Sam Senanayake |
| Sandeep Borkar - LCRA TSC |
| Sandra Morris |
| Seth Cochran / DC Energy |
| Shams Siddiqi - Crescent Power Consulting |
| Sidart Deb - LCG Consulting |
| Sony Dhaliwal |
| Steven Havemann |
| Suzi McClellan |
| Teddi Flessner- STEC |
| Terrazas Marcos |
| Thuy Huynh |
| Todd Chwialkowski EDF |
| Tong Wang |
| Travis Leverett - WETT |
| Varsha Chatlani, BETM |
| Velasquez, Ivan |
| Viraj |
| Walker, Zachary |
| Ward Jablonski MEPPI |
| Wes Woitt |
| Xia, Tao |
| Xiaojie Zhou |
| Yong Cheng |
| Zane Zwanenburg - ERCOT |
| Zhi Qu |
| orijit ghoshal, esVolta |
| yang zhang |