**APPROVED**

**Minutes of the Technical Advisory Committee (TAC) Meeting**

**ERCOT Austin – 8000 Metropolis Drive (Building E), Suite 100– Austin, Texas 78744**

**Tuesday, October 24, 2023 – 9:30 a.m.**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| *TAC Representatives:* |  |  |
| Barnes, Bill | Reliant Energy Retail Services (Reliant) |  |
| Blakey, Eric | Pedernales Electric Cooperative (PEC) | Alt. Rep. for Christian Powell |
| Bonskowski, Ned | Luminant Generation (Luminant) |  |
| Carpenter, Jeremy | Tenaska Power Services (Tenaska) |  |
| Cochran, Seth | DC Energy | Via Teleconference |
| Dreyfus, Mark | City of Eastland |  |
| Fehrenbach, Nick | City of Dallas |  |
| Franklin, Russell | Garland Power and Light (GP&L) | Via Teleconference |
| Gaytan, Jose | Denton Municipal Electric (DME) | Via Teleconference |
| Goff, Eric | Residential Consumer |  |
| Hanson, Kevin | National Grid Renewables (NG Renewables) |  |
| Harpole, Jay | AP Gas & Electric (APG&E) | Via Teleconference |
| Helton, Bob | ENGIE |  |
| Hendrix, Chris | Demand Control 2 |  |
| Jolly, Emily | Lower Colorado River Authority (LCRA)  |  |
| Kee, David | CPS Energy |  |
| Kent, Garret | CMC Steel Texas (CMC Steel) |  |
| Loving, Alicia | Austin Energy | Via Teleconference |
| Martin, Collin | Oncor Electric Delivery (Oncor) |  |
| Mercado, David | CenterPoint Energy (CNP) |  |
| Nix, Keith | Texas-New Mexico Power Company (TNMP) | Via Teleconference |
| Packard, John | South Texas Electric Cooperative (STEC) | Alt. Rep. for Clif Lange Via Teleconference |
| Pokharel, Nabaraj | Office of Public Utility Counsel (OPUC) | Via Teleconference |
| Ross, Richard | AEP Service Corporation  |  |
| Sams, Bryan | Calpine Corporation (Calpine) |  |
| Schmitt, Jennifer | Rhythm Ops |  |
| Smith, Bill | Air Liquide | Via Teleconference |
| Smith, Caitlin | Jupiter Power |  |
| Surendran, Resmi | Shell Energy North America (SENA) | Via Teleconference |
| Whitehurst, Stacy | TNMP | Alt. Rep. for Keith Nix Via Teleconference |
| Wise, Mike | Golden Spread Electric Cooperative (GSEC) | Via Teleconference |
|  |  |  |
| *Guests:* |  |  |
| Aldridge, Ryan | AB Power Advisors | Via Teleconference |
| Allen, Thresa | Avangrid Renewables | Via Teleconference |
| Anderson, Connor | AB Power Advisors | Via Teleconference |
| Anderson, Kevin | CES  | Via Teleconference |
| Anderson, Lyrae | Akuo Energy | Via Teleconference |
| Azari, David | Invenergy | Via Teleconference |
| Berry, Danny | LCRA | Via Teleconference |
| Bezwada, Neelima | Potomac Economics | Via Teleconference |
| Bivens, Carrie | Potomac Economics |   |
| Blackburn, Don | Hunt Energy Network | Via Teleconference |
| Block, Laurie | L Block Consulting, LLC | Via Teleconference |
| Boggs, Callie | Eric Winters Goff LLC | Via Teleconference |
| Bunyan, Mike | ENGIE | Via Teleconference |
| Burkhead, Brett | Calpine | Via Teleconference |
| Callender, Hudson | CPS Energy | Via Teleconference |
| Campo, Curtis | Garland Power & Light | Via Teleconference |
| Carvalho, Raphael | Omega  | Via Teleconference |
| Caster, Andrew | Constellation | Via Teleconference |
| Chavez, Andrea |  | Via Teleconference |
| Chhajed, Pushkar | Enel | Via Teleconference |
| Chmiel, Gary | General Electric | Via Teleconference |
| Chwialkowski, Todd | EDF Renewable Energy | Via Teleconference |
| Childress, John | kWantix | Via Teleconference |
| Clark, Jack | NextEra Energy | Via Teleconference |
| Clifford, Brigid | PG Renewables | Via Teleconference |
| Coffee, Jennifer | Texas Pipeline Association (TPA) | Via Teleconference |
| Coleman, Diana | CPS Energy | Via Teleconference |
| Cook, Kristin | Southern Power | Via Teleconference |
| Cooksey, Matthew | OPUC | Via Teleconference |
| Cortez, Sarai | Trailstone Group | Via Teleconference |
| Cotton, Ashley | General Electric US | Via Teleconference |
| Cox, Jason | EQ Energy Advisors | Via Teleconference |
| Cripe, Ramsey | Schneider Engineering | Via Teleconference |
| DeLeon, Seth | DME Power | Via Teleconference |
| De Man, Patrick | Geodesic Energy | Via Teleconference |
| Dernulc, Lawrence | Invenergy | Via Teleconference |
| Dharme, Neeraja | EDF Trading | Via Teleconference |
| Dollar, Zachary | PUCT | Via Teleconference |
| Duensing, Allison | Sarac Energy | Via Teleconference |
| Ellis, Jeff | AEP | Via Teleconference |
| Emery, Keith | Tenaska | Via Teleconference |
| Fleming, Jacki | Talen Energy | Via Teleconference |
| Frazier, Amanda | Treaty Oak Clean Energy |  |
| Gallagher, C | Up Time Solar | Via Teleconference |
| Garrett, Bob | Key Capture Energy | Via Teleconference |
| George, Sini | Got Rhythm | Via Teleconference |
| Ghoshal, Orijit | esVolta | Via Teleconference |
| Gregg, Aaron | Balch and Bingham | Via Teleconference |
| Grey, Bruce | Samsung | Via Teleconference |
| Grutter, Aaron | Calpine | Via Teleconference |
| Haley, Ian | Morgan Stanley |  |
| Hall, Matthew | Invenergy | Via Teleconference |
| Hamer, Neal | Invenergy | Via Teleconference |
| Harvey, Julia | Texas Electric Cooperatives | Via Teleconference |
| Headrick, Bridget | CES |  |
| Henson, Martha | Oncor |  |
| Hester, Doug | Talen Energy | Via Teleconference |
| Hohenshilt, Jennifer | Talen Energy | Via Teleconference |
| Holt, Blake | LCRA |  |
| Holloway, Ginny | Texas House Committee on State Affairs | Via Teleconference |
| Lindsey Hughes | Broad Reach Power | Via Teleconference |
| Huynh, Thuy | Potomac Economics | Via Teleconference |
| Jewell, Michael | Jewell and Associates | Via Teleconference |
| Johnson, Will | Adapt2 Solutions | Via Teleconference |
| Jones, Liz | Oncor |  |
| Jones, Randy | Mountaineer Market Advisors | Via Teleconference |
| Kauffman, Brian | Mainspring Energy |  |
| Keefer, Andrew | City of Denton | Via Teleconference |
| Keller, Jenna | Potomac Economics | Via Teleconference |
| Kelly, Matthew | Hatch Resources | Via Teleconference |
| Kemper, Jason | EDF Renewables | Via Teleconference |
| Kilroy, Taylor | Texas Public Power Association (TPPA) | Via Teleconference |
| Kopp, Casey | Broad Reach Power | Via Teleconference |
| Korde, Kshitij | National Grid Renewables | Via Teleconference |
| Koz, Brian |   | Via Teleconference |
| Kremling, Barry | Guadalupe Valley Electric Cooperative | Via Teleconference |
| Lacek, Mollie | Talen Energy | Via Teleconference |
| Lance, Jessie | PUCT | Via Teleconference |
| Lee, Jim | CenterPoint Energy |  |
| Lotter, Eric | GridMonitor | Via Teleconference |
| Lu, Bo | Broad Reach Power | Via Teleconference |
| Macaraeg, Tad | Stem | Via Teleconference |
| Macias, Jesse | American Electric Power Texas | Via Teleconference |
| Maxymillian, Kris | Morgan Lewis | Via Teleconference |
| McClellan, Suzi | Good Company Associates | Via Teleconference |
| McIntyre, Ken | Plus Power | Via Teleconference |
| Mickey, Joel | Broad Reach Power | Via Teleconference |
| Miller, Alexandra | EDF Renewables | Via Teleconference |
| Moore, Sylvain | Boralex Inc. | Via Teleconference |
| Morris, Sandy | WETT |  |
| Nease, Nelson | Cross Oak Group | Via Teleconference |
| Nigro, Andrew | Invenergy | Via Teleconference |
| Noyes, Theresa | LCRA | Via Teleconference |
| Nguyen, Andy | Constellation Energy Generation |  |
| Okenfuss, James | Shell | Via Teleconference |
| Oliver, Jon | PUCT | Via Teleconference |
| Orr, Rob | Lone Star Transmission | Via Teleconference |
| Palani, Ananth | Garland Power and Light | Via Teleconference |
| Pallarez, Eddie | ETT | Via Teleconference |
| Parker, Zoe | Wartsila | Via Teleconference |
| Pietrucha, Doug | Texas Advanced Energy | Via Teleconference |
| Promubol, Jimmy | Shell | Via Teleconference |
| Pyka, Greg | Schneider Engineering | Via Teleconference |
| Reasor, Deidra | Guadalupe Valley Electric Cooperative | Via Teleconference |
| Rich, Katie | GSEC | Via Teleconference |
| Roberts, G | Power Advisory LLC | Via Teleconference |
| Sager, Brenden | Austin Energy | Via Teleconference |
| Scott, Kathy | CenterPoint Energy |  |
| Sersen, Juliana | Baker Botts | Via Teleconference |
| Siddiqi, Shams | Crescent Power Consulting | Via Teleconference |
| Slaughter, Jeff | Just Energy | Via Teleconference |
| Smith, Bill | Air Liquide | Via Teleconference |
| Smith, Chase | Southern Power | Via Teleconference |
| Smith, Mark | Steel Mills |  |
| Smith, Stephanie | Eolian Energy | Via Teleconference |
| Snyder, Bill | AEP | Via Teleconference |
| Startsev, Danielle | Aurora Energy Research | Via Teleconference |
| Stephenson, Zach | Texas Electric Cooperatives | Via Teleconference |
| Striedel, James | GDS Associates | Via Teleconference |
| True, Roy | ACES  | Via Teleconference |
| Uy, Manny | Hunt Energy | Via Teleconference |
| Valencia, Stacey | Enervision Inc. | Via Teleconference |
| Velasquez, Ivan | Oncor | Via Teleconference |
| Walcavich, Colin | National Grid Renewables | Via Teleconference |
| Wall, Perrin | CenterPoint Energy | Via Teleconference |
| Watson, Mark | S&P Global | Via Teleconference |
| White, Jennifer | PUCT | Via Teleconference |
| Whitehurst, Stacy | Texas New Mexico Power | Via Teleconference |
| Whitworth, Doug | WETT | Via Teleconference |
| Williams, Wes | Bryan Texas Utilities | Via Teleconference |
| Withrow, David | AEP | Via Teleconference |
| Wittmeyer, Bob | Longhorn Power |  |
| Wyman, Constance  | AEP | Via Teleconference |
| Xie, Fei | Austin Energy | Via Teleconference |
| Zang, Hailing | TC Energy | Via Teleconference |
|  |  |  |
|  |  |  |
| *ERCOT Staff:* |  |  |
| Albracht, Brittney |  |  |
| Anderson, Troy |  |  |
| Angele, Leo |  |  |
| Arth, Matt |  |  |
| Azeredo, Chris |  | Via Teleconference |
| Badri, Sreenivas |  | Via Teleconference |
| Ballew, Aaron |  | Via Teleconference |
| Berlin, Anna |  | Via Teleconference |
| Bigbee, Nathan |  | Via Teleconference |
| Billo, Jeff |  |  |
| Blevins, Bill |  | Via Teleconference |
| Boren, Ann |  |  |
| Castillo, Leo |  | Via Teleconference |
| Clifton, Suzy |  |  |
| Day, Betty |  | Via Teleconference |
| Du, Pengwei |  | Via Teleconference |
| Dwyer, Davida |  | Via Teleconference |
| El-Madhoun, Mohamed |  | Via Teleconference |
| Fabricant, Samuel |  | Via Teleconference |
| Findley, Samantha |  | Via Teleconference |
| Fohn, Doug |  | Via Teleconference |
| Frosch, Colleen |  | Via Teleconference |
| Garcia, Freddy |  | Via Teleconference |
| Gonzales, Ino |  |  |
| Gross, Katherine |  | Via Teleconference |
| Hanson, Pamela |  |  |
| Herrera, Shane |  | Via Teleconference |
| King, Ryan |  | Via Teleconference |
| Levine, Jonathan |  |  |
| Magarinos, Marcelo |  | Via Teleconference |
| Maggio, Dave |  | Via Teleconference |
| Mago, Nitika |  |  |
| Moore, Ava |  | Via Teleconference |
| Moreno, Alfredo |  | Via Teleconference |
| Ögelman, Kenan |  |  |
| Parakkuth, Jayapal |  | Via Teleconference |
| Patterson, Mark |  | Via Teleconference |
| Phillips, Cory |  |  |
| Rickerson, Woody |  | Via Teleconference |
| Shanks, Magie |  | Via Teleconference |
| Shaw, Pamela |  |  |
| Solis, Stephen |  | Via Teleconference |
| Stice, Clayton |  | Via Teleconference |
| Thomas, Shane |  |  |
| Thompson, Chad |  | Via Teleconference |
| Tirupat, Venkat |  | Via Teleconference |
| Troublefield, Jordan |  |  |
| Wasik-Gutierrez, Erin |  |  |
| Woodfin, Dan |  |  |
| You, Haibo |  | Via Teleconference |

*Unless otherwise indicated, all Market Segments participated in the votes.*

Caitlin Smith called the October 24, 2023 meeting to order at 9:30 a.m.

Antitrust Admonition

Ms. Smith directed attention to the displayed Antitrust Admonition.

Approval of TAC Meeting Minutes (see Key Documents)[[1]](#footnote-2)

*September 26, 2023*

Ms. Smith noted this item could be considered in the [Combined Ballot](#CombinedBallot).

Meeting Updates

*October Board Meetings*

*October Public Utility Commission of Texas (PUCT) Meetings*

Ms. Smith presented highlights of the October 16, 2023 ERCOT Board (Board) Committee meetings and October 17, 2023 Board meeting; and reviewed the disposition of items considered at the October 17, 2023 Board meeting and October 12, 2023 Public Utility Commission of Texas (PUCT) meeting. Ann Boren noted that the Board directed ERCOT to file one or more Board Priority Nodal Protocol Revision Requests (NPRRs) to strengthen compliance and financial penalties to mitigate the reliability risk from NPRR1186, Improvements Prior to the RTC+B Project for Better ESR State of Charge Awareness.

TAC Structural and Procedural Review (see Key Documents)

Ms. Smith discussed that all the existing subcommittees, working groups, and task forces were found to continue to be necessary and that none are duplicative. Ms. Smith discussed changes made in the past year to subcommittees and working groups, noted the current structure of TAC supporting groups, and referred to the information posted regarding meetings attendance and efficiency. Ms. Boren reviewed the TAC goals, alignment of approved Revision Requests, meeting attendance, and proposed changes to subcommittee and working group scopes. Participants discussed TAC goals and pending Open Action Items. Ms. Smith noted the findings of the TAC Structural and Procedural Review could be considered for inclusion in the [Combined Ballot.](#CombinedBallot)

Review of ERCOT Market Impact Statements/Opinions and Independent Market Monitor (IMM) Opinion (see Key Documents)

Ms. Boren presented the ERCOT Market Impact Statements and ERCOT Opinions for Revision Requests to be considered by TAC. Carrie Bivens presented the IMM opinions for Revision Requests to be considered by TAC.

Protocol Revision Subcommittee (PRS) Report (see Key Documents)

Martha Henson reviewed PRS activities and presented Revision Requests for TAC consideration.

*NPRR1172, Fuel Adder Definition, Mitigated Offer Caps, and RUC Clawback*

Ned Bonskowski summarized the 10/23/23 Joint Commenters comments to NPRR1172. Market Participants expressed concerns regarding operation and maintenance (O&M) cost recovery and the ability to opt-out of Reliability Unit Commitments (RUCs) when committed in another market. Ino Gonzalez noted that NPRR1172 does not impact Switchable Generation Resources (SWGRs). Market Participants reviewed the 10/17/23 Revised Impact Analysis for NPRR1172.

**Eric Goff moved to recommend approval of NPRR1172 as recommended by PRS in the 10/12/23 PRS Report and the 10/17/23 Revised Impact Analysis. Kevin Hanson seconded the motion. The motion carried with five objections from the Cooperative (2) (GSEC, STEC) and Independent Generator (3) (Calpine, ENGIE, Luminant) Market Segments and two abstentions from the Independent Generator (Jupiter Power) and Independent Power Marketer (IPM) (Tenaska) Market Segments.** *(Please see ballot posted with Key Documents.)*

*NPRR1192, Move OBD to Section 22 – Requirements for Aggregate Load Resource Participation in the ERCOT Markets*

Ms. Henson reviewed NPRR1192. Ms. Smith noted this item could be considered for inclusion in the [Combined Ballot](#CombinedBallot).

*NPRR1193, Related to SMOGRR027, Move OBD to Settlement Metering Operating Guide – EPS Metering Design Proposal*

Market Participants requested tabling NPRR1193 to await Settlement Metering Operating Guide Revision Request (SMOGRR) 027. Ms. Smith noted this item could be considered for inclusion in the [Combined Ballot](#CombinedBallot).

*NPRR1196, Correction of NCLR Ancillary Service Failed Quantity Calculations under NPRR1149*

Ms. Smith noted this item could be considered for inclusion in the [Combined Ballot](#CombinedBallot).

*NPRR1203, Implementation of Dispatchable Reliability Reserve Service*

Market Participants discussed the potential risks to meeting both the statutory delivery date for Dispatchable Reliability Reserve Service (DRRS) and the implementation timetable for Real-Time Co-optimization (RTC) under NPRR1203 verses a standalone Ancillary Service. Kenan Ögelman suggested that NPRR1203; Other Binding Document Revision Request (OBDRR) 049, ORDC Changes Related to NPRR1203, Implementation of Dispatchable Reliability Reserve Service; and OBDRR050, Non-Spin Changes Related to NPRR1203, Implementation of Dispatchable Reliability Reserve Service; be tabled at TAC to allow to allow for additional discussion at upcoming Open PUCT Meetings ahead of the December 4, 2023 TAC meeting, Ms. Smith noted this item could be considered for inclusion in the [Combined Ballot](#CombinedBallot).

Revision Requests Tabled at TAC (See Key Documents)

*OBDRR046, Related to NPRR1188, Implement Nodal Dispatch and Energy Settlement for Controllable Load Resources*

TAC took no action on this item.

*NOGRR245, Inverter-Based Resource (IBR) Ride-Through Requirements – URGENT*

Ms. Smith noted the submission of 9/29/23 ERCOT comments, 10/16/23 Tesla comments, 10/23/23 ERCOT comments, and 10/23/23 Advanced Power Alliance comments to NOGRR245. Steven Solis stated NOGRR245 addresses an urgent reliability matter. Bob Helton noted that the request for information (RFI) is due November 7, 2023. Ms. Smith noted that a vote at the December 4, 2023 TAC meeting will be needed to advance NOGRR245 to the December Board. TAC took no action on this item.

*Planning Guide Revision Request (PGRR105, Deliverability Criteria for DC Ties Imports*

TAC took no action on this item.

OBDRR) (see Key Documents)

*OBDRR049, ORDC Changes Related to NPRR1203, Implementation of Dispatchable Reliability Reserve Service*

*OBDRR050, Non-Spin Changes Related to NPRR1203, Implementation of Dispatchable Reliability Reserve Service*

These items were discussed with NPRR1203. Ms. Smith noted these items could be considered in the [Combined Ballot](#CombinedBallot).

Reliability and Operations Subcommittee (ROS) Report (see Key Documents)

Chase Smith reviewed ROS activities and presented Revision Requests for TAC consideration. Mr. Smith summarized ROS activity on the TAC Assigned Action Item regarding ERCOT Contingency Reserve Service (ECRS) and noted the item was complete. There were no objections to removing the below item from the TAC Action Item list:

* ECRS Follow Up: Setting appropriate volumes for ECRS; duration concerns and battery participation; reasoning for ECRS deployments in operations communications; providing data on aggregate basis prior to 60 day deployment

*PGRR110, Revision to Accommodate Steady-State Node-Breaker Modeling*

Ms. Smith noted this item could be considered in the [Combined Ballot](#CombinedBallot).

*NOGRR257, Removal of Redundant ERS Reporting Requirement*

Ms. Smith noted this item could be considered in the [Combined Ballot](#CombinedBallot).

Wholesale Market Subcommittee (WMS) Report (see Key Documents)

Jim Lee reviewed WMS activities.

Credit Finance Sub Group (CFSG) Report (see Key Documents)

Brenden Sager reviewed CFSG activities.

Large Flexible Load Task Force (LFLTF) Report

Bill Blevins reviewed LFLTF activities and noted ERCOT rules related to large Load ramp rate limitations would be the topic of the November 20, 2023 LFLTF meeting.

Real-Time Co-optimization plus Batteries Task Force (RTCBTF) (see Key Documents)

David Kee reviewed RTCBTF activities including the State of Charge (SOC) whitepaper and encouraged interested parties to submit comments.

ERCOT Reports (see Key Documents)

*Market Participant Identity Management Update*

Troy Anderson reported that ERCOT is planning a series of projects to update Market Participant identity management and that stakeholders should anticipate relevant discussions and Revision Requests in 2024.

Other Business (see Key Documents)

*Proposed NPRR – Market Restart Approval Process Modifications*

Jon Levine reviewed paragraph (6) of Section 25.3, Market Restart Process, noted considerations for revising the language, proposed solutions, and invited comments.

*December ERCOT Annual Membership Meeting*

Mr. Levine noted that the Board requested TAC representatives speak at the ERCOT Annual Membership meeting

*2024 ERCOT Membership/Segment Representative Elections*

Suzy Clifton reminded Market Participants that the Membership record date is Friday, November 17, 2023 and noted Membership Services Market Notice M-C100923-01 General, ERCOT Membership Application for 2024 Membership Year Now Available Online, was sent October 9, 2023. Ms. Clifton stated that 2024 Segment Representative Elections for TAC and Subcommittees would begin the week after the record date, noted that a TAC Qualification Affirmation and Letter of Employment/Agency would be required with the nomination, and responded to Market Participant questions and concerns.

*October 22, 2023 Market Submissions Issue*

Mr. Ogelman summarized market submissions failures on Operating Day October 22, 2023 that impacted submissions to both the Real Time Market (RTM) and Day-Ahead Market (DAM), responded to Market Participant questions and concerns, and stated that the event is under investigation.

Combined Ballot

**Mr. Goff moved to approve the Combined Ballot as follows:**

* **To approve the September 26, 2023 TAC Meeting Minutes as presented**
* **To endorse the findings presented in the 2023 TAC Structural Procedural Review**
* **To recommend approval of NPRR1192 as recommended by PRS in the 10/12/23 PRS Report**
* **To table NPRR1193**
* **To recommend approval of NPRR1196 as recommended by PRS in the 10/12/23 PRS Report**
* **To table NPRR1203**
* **To table OBDRR049**
* **To table OBDRR050**
* **To recommend approval of PGRR110 as recommended by ROS in the 10/5/23 ROS Report**
* **To recommend approval of NOGRR257 as recommended by ROS in the 10/5/23 ROS Report**

**Garret Kent seconded the motion. The motion carried unanimously.** *(Please see ballot posted with Key Documents.)*

Ms. Smith adjourned the October 24, 2023 TAC meeting at 1:01 p.m.

1. Key Documents referenced in these minutes may be accessed on the ERCOT website at:

<https://www.ercot.com/calendar/10242023-TAC-Meeting>

 [↑](#footnote-ref-2)