**DRAFT**

**Minutes of the Wholesale Market Subcommittee (WMS) Meeting**

**ERCOT Austin – 7620 Metro Center Drive – Austin, Texas 78744**

**Wednesday, January 31, 2018 – 9:30 a.m.**

Attendance

*Members:*

|  |  |  |
| --- | --- | --- |
| Barnes, Bill | Reliant Energy Retail Services |  |
| Bierschbach, Erika | Austin Energy |  |
| Caraway, Shannon | Solar Prime |  |
| Carpenter, Jeremy | Tenaska Power Services |  |
| Coleman, Diana | OPUC |  |
| Downey, Marty | Electranet Power |  |
| Dumas, John | LCRA |  |
| Evans, Mike | Brazos Electric Cooperative |  |
| Goff, Eric | Citigroup Energy |  |
| Greer, Clayton | Morgan Stanley |  |
| Gross, Blake | AEP Service Corporation |  |
| Jones, Randy | Calpine Energy Solutions | Alt. Rep. for C. Sandidge |
| Kee, David | CPS Energy |  |
| Lange, Clif | South Texas Electric Cooperative |  |
| Lindberg, Ken | Bryan Texas Utilities |  |
| Mauldin, Jamie | City of Eastland |  |
| Moore, Sheri | CenterPoint Energy |  |
| Morris, Sandy | Direct Energy |  |
| Moss, Steven | E. ON | Alt. Rep. for C. Such |
| Schwarz, Brad | Sharyland Utilities |  |
| Shaw, Marka | Exelon | Via Teleconference |
| Smith, Mark | Nucor |  |
| Surendran, Resmi | Shell Energy |  |
| Selvester, Michael | Infinite Energy | Alt. Rep. for S. Madden  Via Teleconference |
| Wilson, Joe Dan | Golden Spread Electric Cooperative |  |
| Woodruff, Taylor | Oncor |  |

The following proxy was assigned:

* Russell Franklin to Ken Lindberg
* Franklin Maduzia to Mark Smith
* Marty Downey to Sandy Morris 1:30 p.m. to 2:30 p.m.

*Guests:*

|  |  |  |
| --- | --- | --- |
| Abbott, Kristin | PUCT | Via Teleconference |
| Agrawal, Puneet | Saracen Energy | Via Teleconference |
| Ainspan, Malcolm | NRG | Via Teleconference |
| Allen, Thresa | Avangrid Renewables | Via Teleconference |
| Anderson, Kevin | CES Energy |  |
| Arrigo, Garrett | Shell Energy | Via Teleconference |
| Blakey, Eric | Just Energy |  |
| Bruce, Mark | Cratylus Advisors | Via Teleconference |
| Bryant, Mark | PUCT | Via Teleconference |
| Bunch, Kevin | EDF Energy Services |  |
| Clemenhagen, Barbara | CES Energy |  |
| Cochran, Seth | DC Energy |  |
| Coleman, Katie | TIEC |  |
| Corona, Connie | PUCT | Via Teleconference |
| Cripe, Ramsey | Schneider Engineering |  |
| Daigneault, Ralph | Potomac Economics |  |
| Dawa, Vikas | Austin Energy |  |
| Detelich, David | CPS Energy | Via Teleconference |
| Eckhoff, Christina | Texas Reliability Entity | Via Teleconference |
| Elliott, Christopher | Bank of America | Via Teleconference |
| Falcey, Jonathan | LCRA | Via Teleconference |
| Firestone, Joel | LCRA | Via Teleconference |
| Galliguez, Percy | Brazos Electric Cooperative | Via Teleconference |
| Gomez, Gabe | CES Energy | Via Teleconference |
| Haley, Ian | Vistra Energy |  |
| Hardman, Devin | Morgan Stanley | Via Teleconference |
| Harvey, Julia | PUCT |  |
| Havemann, Steven | Austin Energy | Via Teleconference |
| Helton, Bob | Dynegy |  |
| Hourihan, Mike | CPower Energy | Via Teleconference |
| Hughes, Darren | LCRA | Via Teleconference |
| Huynh, Thuy | Potomac Economics | Via Teleconference |
| Kroskey, Tony | Brazos Electric Cooperative | Via Teleconference |
| Kueker, Dan | Brazos Electric Cooperative | Via Teleconference |
| Li, Young | Potomac Economics | Via Teleconference |
| Lindsey, Kenneth | Bryan Texas Utilities | Via Teleconference |
| Lloyd, Mona Tierney | EnerNOC | Via Teleconference |
| Mueller, Paula | Texas Reliability Entity | Via Teleconference |
| Norman, Kate | Constellation |  |
| Paff, Tom | Duke Energy |  |
| Plunkett, Derenda | CenterPoint Energy | Via Teleconference |
| Powell, Christian | LCRA |  |
| Reed, Cyrus | Sierra Club | Via Teleconference |
| Reedy, Steve | Potomac Economics |  |
| Reid, Walter | Wind Coalition |  |
| Romero, Lara | ACES | Via Teleconference |
| Roth, Werner | PUCT | Via Teleconference |
| Sheive, Perry | Direct Energy | Via Teleconference |
| Siddiqi, Shams | Crescent Power |  |
| Sithuraj, Murali | Austin Energy |  |
| Sivaprakasam, Paari | Austin Energy | Via Teleconference |
| Smith, Caitlin | Jewell and Associates |  |
| Stanfield, Leonard | Invenergy | Via Teleconference |
| Tessema, Biruk | Austin Energy |  |
| Thompson, David | PEC |  |
| Thurnher, Greg | Shell Energy | Via Teleconference |
| Turner, Lucas | South Texas Electric Cooperative |  |
| Wallin, Shane | DME |  |
| Wan, Josephine | Austin Energy | Via Teleconference |
| Watson, Markham | S and P Global | Via Teleconference |
| White, Lauri | AEP Services Corporation | Via Teleconference |
| Whittle, Brandon | Megawatt Analytics |  |
| Whitworth, Doug | Texas Reliability Entity | Via Teleconference |
| Wilson, Richard | Constellation | Via Teleconference |
| Wittmeyer, Bob | DME |  |

*ERCOT Staff:*

|  |  |  |
| --- | --- | --- |
| Albracht, Brittney |  | Via Teleconference |
| Anderson, Conner |  |  |
| Billo, Jeff |  | Via Teleconference |
| Bivens, Carrie |  |  |
| Boswell, Bill |  | Via Teleconference |
| Butterfield, Lindsay |  | Via Teleconference |
| Chen, Jian |  | Via Teleconference |
| Clifton, Suzy |  |  |
| Du, Pengwei |  | Via Teleconference |
| Fohn, Douglas |  | Via Teleconference |
| Garcia, Freddy |  | Via Teleconference |
| Giarratano, Alex |  | Via Teleconference |
| Gonzalez, Ino |  |  |
| Guo, Jack |  | Via Teleconference |
| Holt, Blake |  | Via Teleconference |
| Hui, Hailong |  | Via Teleconference |
| Jiang, Grace |  | Via Teleconference |
| Jin, Julie |  | Via Teleconference |
| Jones, Dan |  |  |
| Kane, Erika |  | Via Teleconference |
| Krein, Steve |  | Via Teleconference |
| Landry, Kelly |  |  |
| Lasher, Warren |  |  |
| Lavi, Yamit |  | Via Teleconference |
| Lee, Alex |  | Via Teleconference |
| Levine, Jon |  |  |
| Li, Weifeng |  | Via Teleconference |
| Lightner, Debbie |  | Via Teleconference |
| Maggio, Dave |  |  |
| Mago, Nitika |  | Via Teleconference |
| Manning, Brian |  | Via Teleconference |
| Matevosyan, Julia |  | Via Teleconference |
| Matlock, Robert |  | Via Teleconference |
| Mele, Cheryl |  |  |
| Mereness, Matt |  | Via Teleconference |
| Mickey, Joel |  |  |
| Moorty, Sai |  | Via Teleconference |
| Morehead, Juliana |  | Via Teleconference |
| Moreno, Alfredo |  | Via Teleconference |
| Opheim, Calvin |  |  |
| Phillips, Cory |  | Via Teleconference |
| Prichard, Lloyd |  | Via Teleconference |
| Roberts, Randy |  | Via Teleconference |
| Rosel, Austin |  |  |
| Ruane, Mark |  |  |
| Sharma, Sandip |  |  |
| Shaw, Pam |  |  |
| Smith, Nathan |  | Via Teleconference |
| Steffan, Nick |  | Via Teleconference |
| Stice, Clayton |  |  |
| Townsend, Aaron |  | Via Teleconference |
| Warnken, Pete |  |  |
| Woodfin, Dan |  |  |
| Xiao, Hong |  | Via Teleconference |
| Zhang, Wen |  | Via Teleconference |

***Unless otherwise indicated, all Market Segments were present for a vote.***

Antitrust Admonition

David Kee directed attention to the Antitrust Admonition, which was displayed.

Agenda Review

There were no changes to the agenda.

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

*January 10, 2018*

**Jeremy Carpenter moved to approve the January 10, 2018 WMS meeting minutes as submitted. Clif Lange seconded the motion. The motion carried unanimously.**

Technical Advisory Committee (TAC) Update and Assignments see (Key Documents)

Mr. Kee reviewed the disposition of items considered at the January 25, 2018 TAC meeting.

*TAC Subcommittee Restructuring Discussion*

Mr. Kee stated that TAC formed the TAC Subcommittee Restructuring Task Force and requested it vet various proposals to maximize meeting efficiencies for the Commercial Operations Subcommittee (COPS) and Retail Market Subcommittee (RMS), including moving wholesale market settlements to WMS and encouraged Market Participants to attend the February 5, 2018 TAC Subcommittee Restructuring Task Force Meeting. Mr. Kee stated that TAC further requested review of the scope of the Credit Work Group (Credit WG) and Market Credit Working Group (MCWG) for consideration of meeting efficiencies. Some Market Participants opined that the continuation of a working group to address credit related issues reporting to WMS allows for a broader market review of these issues and is necessary considering of the voting structure at the Credit WG. Mr. Kee referred the issue to MCWG.

*Day-Ahead Market (DAM) Operating Day January 22, 2018 Event*

Carrie Bivens reviewed the DAM Operating Day January 22, 2018 event and stated that the root cause was a software issue generated by a very large increase in binding constraints. Ms. Bivens stated that ERCOT recognized the data was corrupt in the first solution and restarted the DAM engine with a reduced contingency set, confirmed that the second run was normal and completed the price validation, and issued a formal Market Notice. Ms. Bivens further stated that after a detailed post event analysis, ERCOT determined the increase in constraints developed due to Point-to-Point (PTP) bids sinking at a particular Resource Node located on the low side of certain Generator Step-Up (GSU) transformers in an area with significant transmission Outages. Ms. Bivens noted that specific operator actions could help avoid the software issue until implementation of a longer term solution. ERCOT Staff and Market Participants further discussed the risks of various solutions and the frequency of occurrence, and requested additional review of the issues. Mr. Kee requested the Congestion Management Working Group (CMWG) consider the following issues:

* Should the Resource Node behind GSU transformers be secured; should ERCOT ignore a specific value; how should ERCOT communicated this to the market
* What set of contingencies should be deselected if there is potential issue
* How can the Pre-Contingency Action Plan (PCAP) and contingencies with less than 2% Shift Factor modeled in DAM simulate Real-Time congestion
* Review model of Private Use Networks and constraints and consider if ERCOT should ignore GSU transformers behind the Private Use Network

*Pricing Event January 23, 2018*

Dave Maggio presented the analysis of the January 23, 2018 Real-Time pricing event. In response to Market Participant questions, Mr. Maggio stated that, without the Power Balance Penalty Curve, Real-Time prices would have reached the $9,000 price cap during three Security Constrained Economic Dispatch (SCED) intervals instead of the two that occurred due to ramping issues. Some Market Participants expressed a concern for the shape of the Power Balance Penalty Curve and if it accurately reflects the price of using Ancillary Services to make up energy service. Market Participants requested additional review of the issue by the Qualified Scheduling Entity (QSE) Managers Working Group (QMWG). Market Participants further requested that ERCOT provide a history of the changes to the initial design, including implementation of the Operating Reserve Demand Curve (ORDC), at the February 12, 2018 QMWG meeting.

2018 WMS Working Group Leadership (see Key Documents)

**Bill Barnes moved to approve the 2018 WMS working group leadership as submitted. Randy Jones seconded the motion. The motion carried unanimously.**

Mr. Kee expressed appreciation for the 2018 WMS working group leadership and requested they review the Open Action Items list and their landing page content, including scope, procedures and key documents and provide revisions or recommendations at the February 28, 2018 WMS meeting.

Review Open Action Items/2017 WMS Goals

Market Participants and ERCOT Staff discussed the Open Action Items list. Due to the limited time for this agenda item, Mr. Kee requested that Resmi Surendran, WMS Vice Chair, review the Open Action Items list with ERCOT Staff and QMWG Leadership and propose revisions and comments for consideration at the February 28, 2018 WMS meeting.

2018 WMS Goals

Ms. Surendran offered to propose draft 2018 WMS goals for consideration at the February 28, 2018 WMS meeting.

ERCOT Operations and Market Items (see Key Documents)

*Unregistered Distributed Generation (DG) Report 2017 Q3 and Q4 Update*

Conner Anderson presented the 3rd and 4th Quarter 2017 Unregistered DG Report.

New Protocol Revision Subcommittee (PRS) Referrals

*Nodal Protocol Revision Request (NPRR) 858, Provide Complete Current Operating Plan (COP) Data*

Market Participants and ERCOT Staff discussed the merits of NPRR858. Some Market Participants expressed a concern for the significant file size, usability of the data, and the delivery format and requested additional time to review. Mr. Maggio stated that ERCOT could provide the data in the COP report format with the inclusion of two additional columns. Other Market Participants expressed support for NPRR858 depending on the cost.

**Clayton Greer moved to endorse NPRR858 as submitted. Eric Goff seconded the motion. The motion carried with four objections from the Independent Generator (Calpine) and Cooperative (3) (LCRA, STEC, GSEC) Market Segments; and five abstentions from the Independent Retail Electric Provider (IREP) (Reliant), Investor Owned Utility (IOU) (2) (AEP, CenterPoint Energy) and Municipal (2) (BTU, GPL) Market Segments.**

*NPRR862, Updates to Address Revisions under PUCT Project 46369*

Austin Rosel reviewed NPRR862 and stated the intent was to codify the related Public Utility Commission of Texas (PUCT) directives into the Protocols. Market Participants requested additional vetting to confirm the compliance directives were captured in NPRR862 and requested QMWG review the issue and provide recommendations to WMS.

**Mr. Greer moved to request PRS continue to table NPRR862 to allow additional time for review by QMWG. Mr. Barnes seconded the motion. The motion carried unanimously.**

*NPRR863, Creation of Primary Frequency Response Service Product and Revisions to Responsive Reserve*

Mr. Lange reviewed NPRR863 and stated it was similar to NPRR828, Include Fast Frequency Response as a Subset of Responsive Reserve, in that the intent was to reduce barriers to new Market Participant entry and appropriately compensate Resources. Mr. Lange asserted that the difference was that NPRR863 separates Primary Frequency Response functions from Responsive Reserve (RRS) and establishes two discrete Ancillary Services: Primary Frequency Response Service (PFRS) and RRS. Market Participants debated the issues, including PFRS characteristics and quantities, barriers to entry, compensation needed to incentivize new technology, elimination of the Governor-in-service requirement and compliance challenges in the current bundling of Ancillary Services. Dan Woodfin stated that although ERCOT supports the concept of additional Ancillary Services solutions, ERCOT does not support NPRR863 and reviewed the 1/29/18 ERCOT comments. Market Participants further debated the issues and requested additional review by the Demand Side Working Group (DSWG) and QMWG. Mr. Kee requested QMWG consider joint meetings for related issues if the Reliability Operations Subcommittee (ROS) requests additional review of NPRR863 by the Performance, Disturbance, Compliance Working Group (PDCWG).

**Shannon Caraway moved to request PRS continue to table NPRR863 to allow additional time for review by DSWG and QMWG. Mr. Greer seconded the motion. The motion carried with two objections from the Consumer (Nucor, Dow) Market Segment.**

*NPRR864, RUC Modifications to Consider Market-Based Solutions*

Market Participants and ERCOT Staff discussed NPRR864 and the 1/30/18 ERCOT comments, and offered additional clarifications.

**Mr. Barnes moved to endorse NPRR864 as amended by the 1/30/18 ERCOT comments and as revised by WMS. Mr. Greer seconded the motion. The motion carried with two abstentions from the Consumer (Nucor, Dow) Market Segments.**

Revision Requests Tabled at PRS, Referred to WMS (see Key Documents)

*NPRR832, Disallow PTP Obligation Bids and DAM Energy Bids that Sink at Private Use Network Settlement Points Without a Load Distribution Factor - Urgent*

*NPRR837, Regional Planning Group (RPG) Process Reform*

*NPRR838, Updated O&M Cost for RMR Resources*

*NPRR845, RMR Process and Agreement Revisions*

*NPRR847, Exceptional Fuel Cost Included in the Mitigated Offer Cap*

*NPRR848, Separate Clearing Prices for RRS*

*NPRR850, Market Suspension and Restart*

*NPRR856, Treatment of OFFQS Status in Day-Ahead Make Whole and RUC Settlements*

*NPRR857, Creation of Direct Current Tie Operator Market Participant Role*

*SCR795, Addition of Intra-Hour Wind Forecast to GTBD Calculation*

WMS took no action on these items.

*NPRR807, Day-Ahead Market Price Correction*

Mr. Goff reviewed NPRR807 and the 1/17/18 ERCOT comments. Market Participants and ERCOT Staff discussed options for the Settlement of individual Market Participants in the event of an ERCOT error in processing Settlement data and whether individual Market Participants should be required to file an individual Alternative Dispute Resolution (ADR), whether the entire DAM should be resettled, or whether some other compensation mechanism should be employed. Market Participants discussed the impacts of these options on price certainty. Some Market Participants opposed the 1/17/18 ERCOT comments on the basis that the existing ADR process is insufficient to provide Market Participants with full relief in all of the circumstances contemplated by NPRR807. Other Market Participants supported the 1/17/18 ERCOT comments on the basis that published prices and awards should be final to provide market certainty.

**Mr. Goff moved to endorse NPRR807 as amended by the 1/17/18 ERCOT comments. Ms. Surendran seconded the motion. The motion carried with one objection from the IREP (Infinite Energy) Market Segment; and six abstentions from the Cooperative (2) (STEC, LCRA), Consumer (2) (Nucor, Dow), Independent Power Marketer (IPM) (Morgan Stanley) and IOU (CenterPoint) Market Segments.**

*NPRR851, Procedure for Managing Disconnections for Bidirectional Electrical Connections at Transmission Level Voltages*

Taylor Woodruff stated that additional clarifications on NPRR851 were anticipated and requested Market Participants allow additional time for review.

**Mr. Woodruff moved to request PRS continue to table NPRR851 for one month to allow additional time for review by WMS. Mr. Greer seconded the motion. The motion carried unanimously.**

MCWG (see Key Documents)

Mr. Barnes reviewed recent MCWG activities including 2018 MCWG goals. Mr. Barnes provided updates on the ERCOT Credit Exposure and Letter of Credit Concentration Reports and the Credit Training Workshop.

Resource Cost Working Group (RCWG) (see Key Documents)

Bob Helton reviewed RCWG activities and requested WMS provide direction on the long-term solution to the coal Fuel Index Price (FIP). Mr. Helton reminded Market Participants that Verifiable Cost Manual Revision Request (VCMRR) 014, Revise Fuel Adder Factor for Coal and Lignite Resources, sunsets on June 1, 2018 and that the implementation costs for an automated long term solution are expected to be significant. Mr. Helton then reviewed an alternate solution to the issue. Market Participants requested RCWG draft Revision Request language to maintain the current fuel adder for coal-fired and lignite-fired Resources at $1.10/Million British Thermal Units (MMBtu) for two years, and review this value annually. Mr. Helton stated that RCWG recommends WMS endorse NPRR847, Exceptional Fuel Cost Included in the Mitigated Offer Cap, as amended by the 1/30/18 ERCOT comments and that there is no need for additional RCWG review.

Real-Time Co-optimization training

Dan Jones reviewed the procedural history of Real-Time co-optimization. Steve Reedy described the proposed methodology to evaluate Real-Time co-optimization performance and stated that the data will be published so that Market Participants can run their own scenarios. Mr. Jones reviewed a Real-Time co-optimization scenario.

Sai Moorty discussed the impacts of Ancillary Service capacity on Locational Marginal Prices (LMPs) and explained the benefits of Real-Time co-optimization, including: enabling the lowest cost Resources to provide energy and Ancillary Service, improving reliability and potentially reducing Reliability Unit Commitment (RUC) and Supplemental Ancillary Services Market (SASM) activity, reducing risk, creating increased opportunity for Resources, and reducing manual processes by ERCOT. Mr. Moorty reviewed the challenges of implementing Real-Time co-optimization, including: consideration of locational reserve requirements, regulatory changes, increased costs to ERCOT and Market Participants, and potential changes to longer-term market policy objectives.

Other Business

There was no Other Business.

*No Report*

* CMWG
* DSWG
* Emerging Technologies Working Group (ETWG)
* Metering Working Group (MWG)
* QMWG
* Supply Analysis Working Group (SAWG)

Adjournment

Mr. Kee adjourned the January 31, 2018 WMS meeting at 3:55 p.m.

1. <http://www.ercot.com/calendar/2018/1/31/138524-WMS>

   [↑](#footnote-ref-1)