***Meeting structure: Closed***

***BUSINESS CASUAL ATTIRE***

**Wednesday, September 12, 2018 9:30 – 14:50 Room 206A - CONFIRMED**

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| 1. **9:30**

 **5 mins** | **ERCOT Antitrust Guidelines For Members of Committees, Sub Committees & Working Groups*** **Antitrust Admonition**

To avoid raising concerns about antitrust liability, participants in ERCOT activities should refrain from proposing any action or measure that would exceed ERCOT’s authority under federal or state law. For additional information, stakeholders should consult the Statement of Position on Antitrust Issues for Members of ERCOT Committees, Subcommittees, and Working Groups, which is posted on the ERCOT website.  Disclaimer All presentations and materials submitted by Market Participants or any other Entity to ERCOT staff for this meeting are received and posted with the acknowledgement that the information will be considered public in accordance with the ERCOT Websites Content Management Operating Procedure.**Confidentiality of Data and Information in Closed Session requires Non-Disclosure Agreement.** * **Introduction of members.**
* **Attendance**
* **Agenda Review**
* **Other items**
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|  | **OPEN Meeting Item 2 and 3** |  |
| 1. **9:35**

 **60 mins** | **SCT DC Tie Directive 9 – MSSC Whitepaper and Ancillary Service Requirements available via WebEx. See ERCOT Calendar for details and presentation material** | **ERCOT/ALL** |
| 1. **10:35**

**15 mins** | **ERCOT 2019 Ancillary Service Methodology** | **ERCOT** |
|  | **Closed Meeting Items 3-17** |  |
| 1. **10:50**

 **15 mins** | **Review/Approval of April/May/Jun/July Meeting Minutes emailed to PDCWG** | **Percy Galliguez/Chad Mulholland** |
| 1. **11:05**

**15 mins** | **Review PDCWG Scope and Goals(Attached with item removed by PDCWG chair)** | **Percy Galliguez/All** |
| 1. **11:20**

**10 mins** | **VPWG, QMWG and PDCWG Joint Meeting-September 11 available via WebEx** | **Percy Galliguez/All** |
| 1. **11:30**

 **25 mins** | **ERCOT Metrics review, CPS1, CPS2, RMS1, Time Error Correction, Frequency Profile etc. SCR-795 Intra-hour Forecast into SCED in October.** | **Jose Luis Hinojosa/Alex Giarratano** |
| 1. **11:55**

**60 mins** | **Lunch** | **ALL** |
| 1. **12:55**

 **20 mins** | **ERCOT Regulation Report*** **Regulation Analysis Report**
 | **Jose Luis Hinojosa** |
| 1. **13:15**

 **10 mins** | **Texas RE Report** | **David Penney** |
| 1. **13:25**

 **20 mins** | **BAL-001-TRE-01 SAR Update, BAL-001-TRE-01 R9.3 and R10.3 and Possible Changes to attachment(document attached for info)** | **David Penney/Joseph Bezzam/ALL** |
| 1. **13:45**

**40 mins** | **Analysis of QSE Performance during ERCOT Disturbances(FME Red Text and Italicized:**

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| **Date and Time** | **Lost MW** | **IMFR (MW/0.1Hz)** | **Failed PUPFR(%)** | **Failed PUSPFR(%)** |
| ***8/13/2018 10:59:57*** | ***1198*** | ***1443*** | ***16.07*** | ***16.07*** |
| ***8/16//2018 12:59:57*** | ***443*** | ***887*** | ***22.00*** | ***20.00*** |

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 | **Percy Galliguez/ALL** |
| 1. **14:25**

**15 mins** | **ERCOT/TexasRE Workshop/Meetings*** [Technical Workshop on IMM and ERCOT Reports Concerning Impacts of Real-Time Co-Optimization and Marginal Losses](http://www.ercot.com/calendar/2018/9/6/161639)  **September 6(ERCOT, Austin)**
* [ERCOT and Texas RE Generator Winter Weatherization Workshop](http://www.ercot.com/calendar/2018/9/6/159723) September 6 (ERCOT,Taylor)
* Strategic Planning Reviews: Industrial, Commercial, Municipal, Cooperative, IOU, Independent Generator, Independent Retail, Independent Power Marketer(See ERCOT Calendar)
 | **ALL** |
| 1. **14:40**

 **5 min** | **PDCWG Future Assignments/Action Items( New items Italicized)*** **TexasRE BAL-001-TRE-01 Workshop Task Items**
* **DER Discussion-IEEE and NERC DERWG.**
* ***Solar Generation Inverter Issues***
* ***SCR795 for Intra-Hour Wind Forecast.***
* **Time Error Correction and NERC Standard Retirement**
* **Synchronous Inertia and Primary Frequency Response**
* **Solar and Wind effects on Primary Frequency Response**
* ***~~BAL-001-TRE-01 Frequency Deadbands/Resource Exclusion~~***
* ***~~SCR for Wind generation into GTDB~~***
* ***Impact of Generation Resource Retirements on Primary Frequency Response-Track in Disturbance Reports***
* ***BAL-001-TRE-01 SAR for Droop for Combined Cycle Steam Turbine-~~LCRA Joel Firestone~~ ERCOT Assignment***
* **PDCWG Scope and Goals**
* ***LBNL Report from ROS Meeting May 3(ERCOT to evaluate first)***
 | **ALL** |
| 1. **14:45**

 **5 min** | **Review action items & PDCWG priority list; 2018 ROS Meeting dates available. Determine PDCWG meeting calendar.****Future Meetings 2018 Room 206A on Wednesdays unless noted:** * **~~January 12, 2018(Friday)~~**
* **~~February 14, 2018(Rm 206B)~~**
* **~~March 7, 2018~~**
* **~~April 11, 2018~~**
* **~~May 9, 2018~~**
* **~~June 13,2018~~**
* **~~July 17,2018(Tu-Rm168)~~**
* **~~August 23,2018(Th-Rm206A)~~**
* **September 12,2018**
* **October 22, 2018(M)**
* **November 9, 2018(F)**
* **December 17, 2018(M)**
 | **ALL** |

# ERCOT ROS Performance, Disturbance, Compliance Working Group (PDCWG)

### Scope

The Performance, Disturbance, Compliance Working Group (PDCWG) reports to the Reliability and Operations Subcommittee (ROS) and is responsible for reviewing, analyzing, and evaluating the frequency control performance of the ERCOT Region, QSEs with Resources and Resource Entities for the purpose of ensuring conformance to the Protocols, Operating Guides, Other Binding Documents, North American Electric Reliability Corporation (NERC) Reliability Standards, and other appropriate engineering and operating criteria. The PDCWG will report its activities to the ROS on a regular basis or as otherwise directed by ROS.

The PDCWG is responsible for coordinating with ERCOT, ~~the Operations Working Group (OWG)~~, and other ERCOT working groups as appropriate to identify and recommend measures to support the Protocols, Operating Guides, Other Binding Documents, NERC Reliability Standards and performance criteria. The PDCWG will also investigate and recommend solutions to frequency control problems including those that may lead to stability issues that should be analyzed with DWG.

Membership shall consist of representatives from Qualified Scheduling Entities (QSEs) representing Resources, including, but not limited to those that deploy Ancillary Services and Resource Entities. Representation by ERCOT and the Texas Reliability Entity (Texas RE) is required. Public Utility Commission of Texas (PUCT), NERC and any other appropriate governing agency may be represented.

Any prospective member must sign the appropriate ERCOT Non-Disclosure Agreement (NDA) and receive approval from ERCOT. To facilitate this process, you may email the ERCOT Legal department at NDA@ercot.com. Any prospective member must also agree to the terms of the Antitrust Admonition.

Management of the membership list shall be the responsibility of ERCOT and coordinated with the PDCWG chair. Once approved, members shall be permitted access to the email distribution list, appropriate ERCOT Secure Documents Library, and to attend PDCWG meetings.

The ROS Chair, with ROS approval, affirms the PDCWG designee for chair and vice chair.

## Functions of the PDCWG are assigned by ROS and include:

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* Complete assignments or review events as directed by ROS.
* Review and analyze ERCOT Region response to frequency disturbance events utilizing data prepared by ERCOT or designee. This data summarizes Governor response, ERCOT deployments, response to ERCOT deployments, and Resource performance.
* Provide feedback to DWG when there may be gaps in generator modeling for stability issues.
* Perform analysis for system events that are determined by ERCOT to be a Frequency Measurable Event(FME) or as deemed necessary by the PDCWG.~~of 450 MW or greater.~~
* ~~Perform analysis for system events of +/- 0.1 Hz or greater.~~
* Evaluate strategies for improving Governor and Automatic Generator Control (AGC) performance.
* Review NERC Control Performance Standard and Disturbance Control Standard performance for the ERCOT single control area.
* Review Resource Generation Resource Energy Deployment Performance (GREDP) results.
* Review and critique changes to NERC Reliability Standards as related to control performance.
* Review Protocols, Operating Guides, and Other Binding Documents relating to control performance.
* Assist ERCOT with other technical aspects of generation control.
* Evaluate the impact of all technologies and programs to implement these technologies on system wide control performance.

When consensus cannot be achieved on an issue, it is presented to the ROS for disposition.

The chair of the PDCWG schedules meetings as required to discharge its responsibilities.

**Items resulting from BAL-001-TRE-01 Workship in September 2017 summarized from TexasRE-David Penney**

Possible changes to the Standard.

1.       Revise R6 and asterisk note for droop/deadband settings for combined cycle steam turbines. *(NOTES:  ~~Joel Firestone to initiate SAR.~~) ERCOT*~~Joel Firestone~~, SAR BAL-001-TRE-01 LCRA-Combined Cycle Steam Droop setting clarification. ~~Awaiting response from ERCOT Legal.~~ NOGRR180 generate by ERCOT and discussion started at PDCWG July 17, 2018

2.       Revise bullets in R9.3 and R10.3 to reflect current process for requesting FME exclusions through ERCOT. *~~(NOTES:  Joel Firestone to initiate SAR.)~~*

Possible changes to the Attachment.

1. Develop a guideline for legitimate operating conditions that will prevent normal PFR performance to be included in the attachment to the BAL-001-TRE Standard, including consideration of ramping occurring during the time of an event.  This guideline may be included in the revised Standard as an attachment.  Discussed at PDCWG Meeting on March 7, 2018 at length. Joseph Bezzam to present ERCOT internal discussions on this topic at April 11 PDCWG. Meeting.*(NOTES:  Requested by Joseph Bezzam from ERCOT Compliance.)* Shirley Mathew and Joseph Bezzam, FME Exclusion Request Guideline. This guideline has been reviewed by PDCWG in May and June meetings and ERCOT has finalized the guideline after these discussions. This will be a guideline for use by ERCOT in reviewing exclusion requests for FMEs.

3.       Consider revisions to the evaluation process to first score each unit and determine if it passes or fails before applying exclusions to remove from consideration for FME scoring.  *Need to update the status on this.(NOTES:  Joseph Bezzam indicated that ERCOT could present sample information to the PDCWG on how this might effect results.)ERCOT still evaluating this.*

4.       ~~Evaluate adjustments to the 2% of HSL/5 MW upper evaluation limit for solid-fueled, super-critical units.~~ *~~(NOTES:  Stewart Rake of Luminant agreed to supply material for this.)~~* ~~Extend 2% of HSL Evaluation-Stewart Rake, Vistra Energy~~

5.       Evaluate the calculation of K-factors for steam turbines and determine if adjustments to the K-factor limit is needed.  *(NOTES:  Requested by James Fletcher (AEP))*

6.       Evaluate the mass flow correction constant for combustion turbines and determine if adjustments to the constant is needed.  *(NOTES:  Requested by James Fletcher (AEP))*

7.       PDCWG will consider value of monitoring additional high-frequency event response to examine overall performance and to examine potential risk related to future DC ties.  Discussion may include review of events that slope rather than spike upward.

8. Combined Cycle evaluation and Chiller not considered in NFRC.

9. No Evaluation of Resources below LSL especially for resources carrying RRS Responsibility.

**MOD-26 and NOGRR174 ERCOT Operating Guide Changes-Stewart Rake, Vistra Energy Corp.**

**BOARD**

On 8/7/18, the ERCOT Board approved NOGRR174 as recommended by TAC in the 7/26/18 TAC Report.

**TAC**

On 7/26/18, TAC voted unanimously to recommend approval of NOGRR174 as recommended by ROS in the 6/7/18 ROS Report with a recommended effective date of upon system implementation for paragraphs (2)(a), (4), and (5) of Section 2.2.5 and paragraph (7)(a) of Section 2.2.6; and September 1, 2018 for all remaining Sections. All Market Segments were present for the vote

As of June 14, PRS has approved NOGRR174. On June 7, ROS approved the NOGRR174. To endorse and forward to TAC the 5/3/18 ROS Report, as amended by the 6/6/18 STEC comments as revised by ROS, and the Impact Analysis for NOGRR174, with a recommended priority of 2018 and a rank of 210.

**PRS**

At its June 14, 2018 meeting, PRS unanimously voted to endorse the Reliability and Operations Subcommittee (ROS) recommended priority of 2018 and rank of 210 for Nodal Operating Guide Revision Request (NOGRR) 174. All Market Segments were present for the vote.

**ROS**

On 6/7/18, ROS voted unanimously to endorse and forward to TAC the 5/3/18 ROS Report, as amended by the 6/6/18 STEC comments as revised by ROS, and the Impact Analysis for NOGRR174, with a recommended priority of 2018 and a rank of 210. All Market Segments were present for the vote.

On 5/3/18, ROS voted unanimously to recommend approval of NOGRR174 as revised by ROS. All Market Segments were present for the vote.

**PDCWG**

April 11, the PDCWG will review the ERCOT comments to NOGRR174 that will also be reviewed by OWG at their next meeting. After PDCWG and OWG reviews, ERCOT comments will be brought to ROS for a vote of the NOGRR174.

As of March 5,2018, the NOGRR174 has been tabled by ROS after being sent to DWG and OWG with ERCOT wanting to provide comments or possible changes in the language for the period of initial 5 years then 10 year following.

For September 13, 2017 PDCWG Meeting. NOGR being prepared and awaiting ERCOT comments. Concern what specific model data be submitted to ERCOT.

Request Stewart Rake to provide comments on PDCWG Meetings prior to September.

For March 2, 2017 PDCWG Meeting. Stewart Rake awaiting ERCOT comments on NOGRR pertains to MOD26 only no longer MOD27. PDCWG to review comments from BEPC Shari Heino.

For February 8 2017 PDCWG Meeting, NOGRR to be presented posted on PDCWG Secure site.

For January 18 2017 PDCWG Meeting, NPRR determined was not needed only NOGRR

For November 9,2016 From Stewart Rake for PDCWG Meeting with questions for ERCOT Sandip Sharma