
SECTION 3: REGIONAL PLANNING

- (b) All concerns/questions or objections about the submitted project by any stakeholder or ERCOT should be submitted to the RPG within 21 days after ERCOT's transmittal to the RPG;
- (c) Each Entity providing comments should provide a "single" complete comment about each project by the end of the 21-day review period rather than sending multiple comments at various times or from various individuals. A single comment will help ERCOT and the project submitter keep track of the comments and develop an appropriate response;
- (d) Any questions related to data deficiency should be submitted to ERCOT and the submitter immediately;
- (e) If concerns or objections about a project are received, the project will be put into "study mode" until all concerns are resolved or until ERCOT assesses that a reasonable effort has been made to resolve all concerns, generally no more than an additional 28 days;
- (f) Project submitters should answer all questions and respond to all concerns in a timely manner;
- (g) Comments should be based on Good Utility Practice and sound engineering judgment. Suggestions should be able to be implemented by the TSP constructing and operating the project; and
- (h) ERCOT will post all project submissions, the comments received, and other information and databases associated with submitted transmission projects on its website.

3.1.6 *Notify PUCT of Recommended Transmission Projects*

ERCOT will notify the PUCT of the disposition of all Tier 1 or 2 projects and of the designated TSPs for those projects. ERCOT will then support ERCOT-endorsed projects in future Certificate of Convenience and Necessity (CCN) proceedings required for those projects through the use of filed supporting documents and testimony if necessary.



System Operating Limit Methodology for Planning Horizon

Effective Date: January 1st, 2013

EXHIBIT

AUG 29 2013

Bill 13

System Operating Limit Methodology for Planning Horizon

Index of Contents

1. Purpose..... 2

2. Definitions..... 2

3. SOL/IROL Determination Methodology 3

 3.1. Transmission Planner SOLs 3

 3.2. System Assessment and General Performance Criteria 3

 3.3. Determination Criteria 4

 3.4. Load Loss Threshold Guidelines..... 5

4. Distribution 5

5. Document Revisions 6

System Operating Limit Methodology for Planning Horizon

1. Purpose

NERC standard FAC-010-2.1 requires that each Planning Authority “shall have a documented System Operating Limits (SOLs) Methodology for use in developing SOL’s within its Planning Authority Area” for the planning horizon. This document describes the methodology for determining the SOLs, and the subset of SOLs classified as Interconnection Reliability Operating Limits (IROLs), for the planning horizon within the ERCOT Region [FAC-010-2.1 R1.1]. This methodology also documents the communications required by NERC FAC-014-2 [FAC-014-2 R5.3, R6].

2. Definitions

The NERC Glossary of Terms Used in Reliability Standards provides the following definitions:

Bulk Electric System (BES):

As defined by the Regional Reliability Organization, the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition

System Operating Limit (SOL):

The value (such as MW, MVar, Amperes, Frequency or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. System Operating Limits are based upon certain operating criteria. These include, but are not limited to:

- *Facility Ratings (Applicable pre- and post-Contingency equipment or facility ratings)*
- *Transient Stability Ratings (Applicable pre- and post-Contingency Stability Limits)*
- *Voltage Stability Ratings (Applicable pre- and post-Contingency Voltage Stability)*
- *System Voltage Limits (Applicable pre- and post-Contingency Voltage Limits)*

Interconnection Reliability Operating Limit (IROL):

A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System.

Interconnection Reliability Operating Limit T_i (IROL T_i):

The maximum time that an Interconnection Reliability Operating Limit can be violated before the risk to the interconnection or other Reliability Coordinator Area(s) becomes greater than acceptable. Each Interconnection Reliability Operating Limit’s T_i shall be less than or equal to 30 minutes.

Facility Rating:

The maximum or minimum voltage, current, frequency, or real or reactive power flow through a facility that does not violate the applicable equipment rating of any equipment comprising the facility.

Normal Rating:

The rating as defined by the equipment owner that specifies the level of electrical loading, usually expressed in megawatts (MW) or other appropriate units that a system, facility, or element can support or withstand through the daily demand cycles without loss of equipment life.

Emergency Rating:

The rating as defined by the equipment owner that specifies the level of electrical loading or output, usually expressed in megawatts (MW) or Mvar or other appropriate units, that a system, facility, or

System Operating Limit Methodology for Planning Horizon

element can support, produce, or withstand for a finite period. The rating assumes acceptable loss of equipment life or other physical or safety limitations for the equipment involved.

SOLs in the planning horizon are described as the most limiting Facility Rating and its designed thermal or voltage rating together with the system conditions at which the limit is reached or exceeded when applying the NERC Transmission Planning (TPL) standards. Facility Ratings determine the fundamental limits of transmission system equipment. An SOL shall not exceed the associated Facility Rating [FAC-010-2.1 R1.2].

The IROLs for the planning horizon relate to specific system configurations or defined system conditions (demand level, generation pattern, transfer amount, and facility contingency conditions) for which instability, uncontrolled separation, or Cascading Outages are projected to occur as described in Section 3 of this methodology.

3. SOL/IROL Determination Methodology

This methodology is applicable for determining SOLs/IROLs used in the planning horizon by the assessment of the reliability of the currently planned ERCOT transmission system. The assessment is accomplished through steady-state power flow, voltage stability, and transient stability analysis.

3.1. Transmission Planner SOLs

Transmission Planners (TPs) provide System Operating Limits to ERCOT ISO as the Planning Authority. The TPs provide SOLs as Facility Ratings, any special transfer limits, and any stability limits that the TP has derived, to ERCOT ISO. In accordance with this methodology, the Transmission Planners will also identify any SOLs that qualify as IROLs based on the criteria identified in section 3.3 of this methodology. These limits will be used in the analysis described in sections 3.2 of this methodology to determine if any additional SOLs are identified.

3.2. System Assessment and General Performance Criteria

As required with NERC Reliability Standard TPL-001, in the pre-contingency state and with all facilities in service, the BES shall demonstrate transient, dynamic and voltage stability; all Facilities shall be within their Facility Ratings and within their thermal, voltage, and stability limits. In the determination of SOLs, the BES condition used shall reflect expected system conditions and shall reflect changes to system topology such as facility outages [FAC-010-2.1 R2.1].

As required with NERC Reliability Standard TPL-002, starting with all Facilities in service and following any of the contingencies identified for NERC Reliability Standard TPL-002, the system shall demonstrate transient, dynamic and voltage stability; all facilities shall be operating within their facility ratings and within their thermal, voltage and stability limits; and cascading or uncontrolled separation shall not occur. This would also include shunt devices and bipolar high voltage direct current systems not specifically included in TPL-002 Category B contingencies. [FAC-010-2.2, R2.2.1, R2.2.2, R2.2.3]. Starting with all Facilities in service, the system's response may include any of the following [FAC-010-2.1 R2.3]:

- Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the faulted facility or by the affected area [FAC-010-2.1 R2.3.1].
- System reconfiguration through manual or automatic control or protection actions [FAC-010-2.1 R2.3.2].

System Operating Limit Methodology for Planning Horizon

To prepare for the next contingency, system adjustments may be made, including changes to generation, uses of the transmission system, and the transmission system topology [FAC-010-2.1 R2.4]. As required with NERC Reliability Standard TPL-003, starting with all Facilities in service and following any of the contingencies identified in NERC Reliability Standard TPL-003, the system shall demonstrate transient, dynamic and voltage stability; all facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and cascading or uncontrolled separation shall not occur [FAC-010-2.1 R2.5]. The system's response may include any of the following [FAC-010-2.1 R2.6]:

- Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the faulted facility or by the affected area [FAC-010-2.1 R2.3.1].
- System reconfiguration through manual or automatic control or protection actions [FAC-010-2.1 R2.3.2]
- Planned or controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted firm (non-recallable reserved) electric power transfers [FAC-010-2.1 R2.6.1]

Study cases published by ERCOT Steady State Working Group (SSWG), ERCOT Dynamics Working Group (DWG) or ERCOT Five-Year Transmission Plan are used for the assessments [FAC-010-2.1 R3.1]. This case will contain the best estimate of any planned transmission line maintenance outages, system configuration, anticipated generation dispatch, and load levels. Additional system conditions, including a winter off-peak case or high wind low load case, may also been studied if needed. [FAC-010-2.1 R3.5].

The models used in the analysis represent the entire ERCOT Transmission system including all Facilities 60 kV and above. The ERCOT Transmission system has a limited amount of flow capability between ERCOT and other Interconnections over DC-ties, so these interconnections are modeled in the base case data sets as generation or load using historical flow information. The level of detail in the system models used in the analysis is consistent with the SSWG and DWG manuals and processes [FAC-010-2.1 R3.1 R3.3].

The contingencies selected for this analysis are based on NERC TPL Standards. [FAC-010-2.1 R3.2]

Where appropriate, simulations of SPS actions are allowed and included in the studies. This would be determined by the impact the SPS would have on facilities in the studies. If an SPS is not in the area and does not impact a facility in the area, it would not be included. If the impact of the SPS does not affect the type of limit being determined, it would not be included [FAC-010-2.1 R3.4].

3.3. Determination Criteria

Based on the assessment results in section 3.2, additional SOLs are identified if the system performance cannot meet any of the following:

- Transient, dynamic, and voltage stability;
- No Cascading or uncontrolled separation;
- Voltage stability margin is greater than or equal to 5% for Category B and 2.5% for Category C;
- Post disturbance frequency within the range from 59.4 Hz to 60.4 Hz; or

System Operating Limit Methodology for Planning Horizon

- Manual system adjustments, such as system reconfiguration between contingencies in an N-1-1 Category C event, or load shedding are needed in order to prevent Cascading or transient, dynamic, or voltage instability.

An SOL is an IROL if the system performance response results in:

- Loss of load in the Cascading or voltage collapse, either through manual action or as a consequence of the event, is greater than a threshold as defined in section 3.4 of this methodology.
- Tripped generation greater than two largest units' capacity.
- Observable inter-area oscillation with damping ratio less than 3%.

The IROL T_r is the lower of the relay trip setting time delay, where applicable, or 30 minutes [FAC-010-2.1 R1.3, R3.6]. The IROL T_r may be set lower using engineering judgment, by considering factors such as the risk of the event and history of equipment operation in the area.

3.4. Load Loss Threshold Guidelines

The value of the load loss threshold will be four times 1% of the ERCOT Interconnection load level used in the study. Since frequency response bias used for the ERCOT Interconnection is typically set at 1% of peak load, by multiplying by a conservative value of 4 (to represent a .4Hz frequency response) results in a MW value that should result close to a .4Hz frequency deviation. In ERCOT, generator protection is set greater than 60.6 Hz, based on ERCOT regional rules, so a reliability margin is built in to the threshold [FAC-010-2.1 R3, R3.6]. ERCOT ISO or the TP may choose to deviate from this guideline as necessary but should justify the reasoning for such deviation and which should not negatively affect reliability.

4. Distribution

This methodology is posted on the ERCOT Planning and Operations Information website. Notifications related to revisions of the SOL Methodology for the planning horizon will be made prior to the effectiveness of the change. When the methodology is revised a notification of update is sent to each Transmission Operator and Transmission Planner in the ERCOT Region [FAC-010-2.1 R4.2, R4.3]. Notification of revisions to the Reliability Coordinator is within ERCOT ISO as ERCOT ISO is the single Planning Authority and Reliability Coordinator in the ERCOT Interconnection. Any other Planning Authority that indicates that it has a reliability-related need for the methodology will be provided the current copy of the SOL Methodology for the planning horizon as well as have a notification of update sent to that Planning Authority for any future revisions [FAC-010-2.1 R4, R4.1, R4.2,]. If a recipient of the SOL Methodology for the planning horizon provides documented technical comments on the methodology, ERCOT will provide a documented response to that recipient within 45 calendar days of receipt of those comments. The response will indicate whether a change will be made to the SOL Methodology for the planning horizon or, if no change will be made, the reason why [FAC-010-2.1 R5].

ERCOT as the PA sends the assessment results annually to each NERC Transmission Operator and Transmission Planner in the ERCOT Region through either email distribution list or ERCOT Market Notice. The results will be shared within ERCOT ISO, as appropriate. Internal communications will include the list of multiple contingencies and the associated stability limits, or notification that results did not identify any stability-related multiple contingencies.[FAC-014-2 R5.3, R6.1, R6.2].

A list of transmission Facilities that are identified to be critical to the derivation of an IROL and the station or substation location that are associated with the initiating contingencies that lead to the identification of an IROL, will be sent to the appropriate NERC Transmission Owners and NERC Transmission Operators to assist

System Operating Limit Methodology for Planning Horizon

those entities in identifying transmission Facilities that are Critical Assets per CIP-002-4, Attachment 1 Criteria 1.8. Additionally, Flexible AC Transmission Systems (FACTS) identified through analysis to be critical to the derivation of an IROL, a list of such systems and their associated contingencies will be sent to the appropriate NERC Transmission Owner and NERC Transmission Operator to assist those entities in identifying transmission Facilities that are Critical Assets per CIP-002-4, Attachment 1 Criteria 1.9

5. Document Revisions

Version	Description	Revision Date	Author(s)
0	Draft – for initial review	19-AUG-2008	
1	Approved by ERCOT Planning. Posted for review. No process changes.	31-DEC-2008	JESchmall
2	Director Approval	30-SEP-2009	DWoodfin
3	Modified for changes due to TOP JRO/CFR, other updates/corrections	28-MAY-2010	DWoodfin
4	Update methodology	26-NOV-2012	JBillo, YZhang, JConto, AZhou, GGnanam, SHuang



**MINUTES OF THE BOARD OF DIRECTORS MEETING OF
ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.**

Electric Reliability Council of Texas, Inc.
7620 Metro Center Drive, Room 206
Austin, Texas 78744
January 17, 2012 at 9:00 a.m.

Pursuant to notice duly given, the meeting of the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT), convened on the above-referenced date.

Meeting Attendance:

Board Members:

Director	Affiliation	Segment
Bermudez, Jorge	Unaffiliated	Unaffiliated Director
Crowell, Craven	Unaffiliated	Unaffiliated Director
Dalton, Andrew	Valero Services, Inc.	Consumer/Industrial
Doggett, Trip	ERCOT	President and Chief Executive Officer (CEO)
Dreyfus, Mark	Austin Energy	Municipal (except for Agenda Items 1 through 22)
Fehrenbach, Nick	City of Dallas	Consumer/Commercial
Gent, Michehl	Unaffiliated	Unaffiliated Director
Givens, Sheri	Office of Public Utility Counsel	Consumer/Residential
Gresham, Kevin	E.On Climate & Renewables	Independent Generator (except for Agenda Items 25 and 26)
Clemenhausen, Barbara	Topaz Power Holdings, LLC	Independent Generator Segment Alternate (Agenda Items 25 and 26 only)
Hendrick, Eric	Stream Energy	Independent Retail Electric Provider (IREP)
Karnei, Clifton	Brazos Electric Power Cooperative, Inc.	Cooperative; Proxy for Mark Dreyfus for Agenda Items 1 through 22
Pfaffmann, Karl V.	Unaffiliated	Unaffiliated Director
Prochazka, Scott	CenterPoint Energy Houston Electric LLC	Investor Owned Utility
Ryall, Jean	Constellation Energy Commodities Group	Independent Power Marketer (IPM)
Walsh, Judy	Unaffiliated	Unaffiliated Director

Guests:

Anderson, Kenneth	Public Utility Commission of Texas – Commissioner (except for Agenda Item 11)
-------------------	---

EXHIBIT



Pablos, Rolando	Public Utility Commission of Texas – Commissioner (except for Agenda Items 10 through 26)
Billo, Jeff	ERCOT Manager of Mid-Term Planning
Bowling, Shannon	Cirro Group (IREP Segment Alternate)
Brown, Jeff	Shell Energy North America (US) LP (IPM Segment Alternate)
Clemenhausen, Barbara	Topaz Power Holdings, LLC (Independent Generator Segment Alternate)
Day, Betty	ERCOT Vice President of Business Integration
Doll, Laura	Former Chair of ERCOT Board of Directors
Dumas, John	ERCOT Director of Wholesale Market Operations
Dryer, Jerry	ERCOT Vice President and Chief Information Officer
Gage, Theresa	ERCOT Director of External Affairs
Goodman, Dale	ERCOT Director of Commercial Market Operations
Hobbs, Kristi	ERCOT Manager of Market Rules and Stakeholder Support
Leady, Vickie	ERCOT Assistant General Counsel and Assistant Corporate Secretary
Magness, Bill	ERCOT Vice President, General Counsel and Corporate Secretary
Manning, Chuck	ERCOT Vice President of Human Resources and Chief Compliance Officer
Ogelman, Kenan	CPS Energy, Technical Advisory Committee (TAC) Chair
Petterson, Mike	ERCOT Vice President of Finance and Treasury
Ruane, Mark	ERCOT Vice President of Credit and Enterprise Risk Management
Saathoff, Kent	ERCOT Vice President of Grid Operations and System Planning

Call Open Session to Order and Announce Proxies (Agenda Item 1)

Trip Doggett, ERCOT President and CEO, determined a quorum was present and called the meeting to order at approximately 9:02 a.m. Mr. Doggett noted the Antitrust and Security Admonitions and requested notice if there were any such concerns during the discussion in the meeting. Mr. Doggett announced that Clifton Karnei held the proxy for Mark Dreyfus.

Kenneth Anderson, Commissioner of the Public Utility Commission of Texas (PUCT or Commission), called an Open Meeting of the Commission to order to consider matters which had been duly posted with the Texas Secretary of State for January 17, 2012.

Election of Board Chair and Vice Chair (Agenda Item 2)

Mr. Doggett entertained a nomination for the 2012 Board Chair.

Jean Ryall nominated Craven Crowell as 2012 Board Chair. Mr. Karnei seconded the nomination. Mr. Crowell was elected as 2012 Board Chair by unanimous voice vote with no abstentions.

Chairman Crowell expressed appreciation for his election as Board Chairman and entertained a nomination for the 2012 Board Vice Chair.

Michehl Gent nominated Judy Walsh as 2012 Board Vice Chair. Mr. Karnei seconded the nomination. Ms. Walsh was elected as 2012 Board Vice Chair by unanimous voice vote with no abstentions.

Vice Chair Walsh expressed appreciation for her election as 2012 Board Vice Chair.



Mr. Karnei moved to recognize Laura Doll, former Board Chair, for her leadership and service to the Board. Andrew Dalton seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Chairman Crowell and, on behalf of the PUCT, Commissioner Anderson expressed appreciation for Ms. Doll's service to ERCOT. Ms. Doll thanked the Board for the opportunity to serve as Board Chair during 2011.

Election of Chief Executive Officer (CEO) and Ratification of Officers (Agenda Item 3)

Chairman Crowell entertained a motion for election of the CEO and ratification of Officers.

Mr. Dalton, Chair of the 2011 Human Resources and Governance (HR&G) Committee, reported that the HR&G Committee considered the election of the CEO and the ratification of officers at its December 12, 2011 meeting.

Mr. Dalton moved to approve the election of the CEO and ratification of Officers as presented. Karl Pfirrmann seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Committee Member Preferences and Assignments (Agenda Item 4)

Chairman Crowell reported that the Committee Member Preferences and Assignments were included in the meeting materials. There was no further discussion on this matter at this time.

Confirmation of Technical Advisory Committee (TAC) Representatives (Agenda Item 5)

Chairman Crowell entertained a motion for confirmation of TAC Representatives.

Mr. Dalton moved to approve the confirmation of TAC Representatives as presented. Mr. Doggett seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Confirmation of TAC Chair and Vice Chair (Agenda Item 6)

Chairman Crowell entertained a motion for confirmation of the 2102 TAC Chair and Vice Chair.

Mr. Doggett moved to approve the confirmation of TAC Chair and Vice Chair as presented. Eric Hendrick seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Approval of December 12-13, 2011 Board of Directors Meeting Minutes (Agenda Item 7)

Chairman Crowell entertained a motion to approve the December 12-13, 2011 Board of Directors meeting minutes (Minutes).

Nick Fehrenbach moved to approve the Minutes as presented. Mr. Dalton seconded the motion. The motion passed by unanimous voice vote with two abstentions (Jorge Bermudez and Mr. Hendrick).

CEO Update (Agenda Item 8)

Mr. Doggett provided Board members with the CEO update and responded to questions and comments from Board members.



Kevin Gresham conveyed his appreciation to ERCOT staff and Market Participants for their dedication and efforts related to resource adequacy.

Mr. Doggett introduced and recognized ERCOT's newest Technical Principals: Jose Conto, Dynamic Studies; Michael Legatt, Human Factors; John Moseley, Model Architecture; Diran Obadina, System Development and Carl Raish, Load Profiling.

Operating Reports (Agenda Item 9)

Chairman Crowell provided an opportunity for ERCOT staff highlights and Board members' questions on the Operating Reports.

Financial Summary Report (Agenda Item 9a)

Mike Petterson, ERCOT Vice President of Finance and Treasury, responded to Board members' questions on the Financial Summary Report.

External Affairs Update (Agenda Item 9b)

There was no discussion of the External Affairs Update at this time.

Wholesale Market Operations Update (Agenda Item 9c)

There was no discussion of the Wholesale Market Operations Update at this time.

Commercial Market Operations Report (Agenda Item 9d)

Dale Goodman, ERCOT Director of Commercial Market Operations, provided some highlights on the Commercial Market Operations Report and responded to Board members' questions on this topic.

Grid Operations and Planning Report (Agenda Item 9e)

Kent Saathoff, ERCOT Vice President of Grid Operations and System Planning, provided some highlights on the Grid Operations and Planning Report. Mr. Saathoff and Mr. Doggett responded to Board members' questions on this topic.

Information Technology (IT) Report (Agenda Item 9f)

Jerry Dreyer, ERCOT Vice President and Chief Information Officer, responded to Board members' questions on the IT Report.

Business Integration Update (Agenda Item 9g)

Betty Day, ERCOT Vice President of Business Integration, provided some highlights on the Business Integration Update and responded to Board members' questions on this topic.

Cross Valley 345 kV Regional Planning Group (RPG) Project (Agenda Item 10)

Jeff Billo, ERCOT Manager of Mid-Term Planning, presented the Cross Valley 345 kV Regional Planning Group (RPG) Project presentation and responded to Board Members' questions on this topic.

Mr. Gent moved to: (1) endorse the need for the Cross Valley 345 kV RPG Project to meet the reliability requirements for the ERCOT System which ERCOT staff has independently reviewed and recommends for Board endorsement and the Technical Advisory Committee (TAC) has voted



to support; and (2) deem the North Edinburg-Loma Alta 345 kV line critical to reliability of the ERCOT System pursuant to Public Utility Commission of Texas Substantive Rule 25.101(b)(3)(D). Mr. Karnei seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Preliminary Discussion of Proposed Price Correction for DC N Settlement Point (November 24, 2011 (Agenda Item 11))

Commissioner Anderson excused himself from the meeting room during discussion of this Agenda Item.

John Dumas, ERCOT Director of Wholesale Market Operations, presented the Proposed Price Correction for DC_N Settlement Point (November 24, 2011) presentation and responded to Board members' questions on this topic.

TAC Update (Agenda Item 12)

Mr. Ogelman, TAC Chairman, provided the TAC Update and responded to Board members' questions on this topic.

Revision Requests Unanimously Recommended by TAC (Agenda Item 12a)

Mr. Ogelman reported that the following Revision Requests were unanimously recommended by TAC:

- Nodal Protocol Revision Request (NPRR) 413 – Oklaunion Exemption Calculation Verification;
- NPRR414 – Unaccounted for Energy (UFE) Calculation Clarifications;
- NPRR415 – Inadvertent Interchange and Inadvertent Energy Clarification;
- NPRR417 – Transmission and/or Distribution Service Provider (TDSP) Submittal of Consumption and Demand Values for Advanced Metering System (AMS) Electric Service Identifiers (ESI IDs); and
- System Change Request (SCR) 764 – Public Access to Select Market Information System (MIS) Dashboards.

Mr. Gent moved to approve NPRRs 413, 414, 415, and 417 and SCR 764 as recommended by TAC in their respective TAC reports. Mr. Bermudez seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Annual Review of Minimum Point-to-Point Option Bid Price Required by Protocol (Agenda Item 12b)

Mr. Karnei moved to approve the Annual Review of Minimum Point-to-Point Option Bid Price Required by Protocol as recommended by TAC. Mr. Doggett seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Annual TAC Structure and Procedural Review (Agenda Item 12c)

Mr. Ogelman provided a report on the Annual TAC Structure and Procedural Review and responded to the Board members' questions on this topic.

Chairman Crowell deferred the lunch break (Agenda Item 13).



Adjunct Membership Approval for Membership Year 2012 for RRE Austin Solar LLC (Agenda Item 14)

Bill Magness, ERCOT Vice President, General Counsel and Corporate Secretary, presented the requested Adjunct Membership Approval for Membership Year 2012 for RRE Austin Solar, LLC.

Ms. Walsh moved to approve the Adjunct Membership Approval for Membership Year 2012 for RRE Austin Solar LLC. Mr. Pfirrmann seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Ethics Agreements for Directors and Segment Alternates (Agenda Item 15)

Mr. Magness reminded the Board members that the Ethics Agreements for Directors and Segment Alternates were contained in the meeting materials and signed copies of the Ethics Agreements should be forwarded to the Legal Department.

Future Agenda Items (Agenda Item 16)

There was no discussion regarding Future Agenda Items at this time.

Other Business (Agenda Item 17)

There was no discussion of Other Business at this time.

Lunch (Agenda Item 13)

Chairman Crowell recessed the Open Session of the meeting for lunch at approximately 11:33 a.m.

Executive Session (Agenda Items 18 through 24)

Chairman Crowell adjourned the meeting into Executive Session at approximately 12:08 p.m. and reconvened Open Session at approximately 2:23 p.m.

Vote on Matters from Executive Session (Agenda Item 25)

After reconvening to Open Session, Chairman Crowell called for a motion to approve a matter from Executive Session.

Mr. Karnei made a motion to approve the Litigation and Regulatory Matter noted in the Executive Session meeting materials as Agenda Item 23b as discussed in Executive Session. Mr. Gent seconded the motion. The motion passed by unanimous voice vote with no abstentions.

Adjournment (Agenda Item 26)

Chairman Crowell adjourned the meeting at approximately 2:25 p.m.

Board materials and presentations from the meeting are available on ERCOT's website at <http://www.ercot.com/committees/board/>.

A handwritten signature in cursive script that reads "Vickie G. Leady".
Vickie G. Leady
Assistant Corporate Secretary

APPROVED
Minutes of the Technical Advisory Committee (TAC) Meeting
ERCOT Austin – 7620 Metro Center Drive – Austin, Texas 78744
Thursday, January 5, 2012 – 9:30 a.m.

Attendance

Members:

Bivens, Danny	OPUC	
Boyd, Phillip	City of Lewisville	
Brandt, Adrienne	Austin Energy	
Brewster, Chris	City of Eastland	
Burke, Allan	TNMP	
Cochran, Seth	DC Energy	
Comstock, Read	Direct Energy	
Cox, Brad	Tenaska Power Services	Alt. Rep. for K. Emery
Downey, Marty	TriEagle Energy	
Greer, Clayton	Morgan Stanley	
Grimes, Mike	EDP Renewables	
Grubbs, David	Garland Power and Light	
Hellinghausen, Bill	EDF Trading	
Helton, Bob	GDF Suez	
Houston, John	CenterPoint Energy	
Jones, Brad	Luminant	
Lewis, William	Cirro Group	
McCann, James	Brownsville PUB	
Minnix, Kyle	Brazos Electric Power Cooperative	
Nelson, Stuart	Lower Colorado River Authority	
Ogelman, Kenan	CPS Energy	
Pieniazek, Adrian	NRG Texas	
Ross, Richard	AEP Service Corporation	
Sims, John	Nueces Electric Cooperative	
Smith, Bill	Air Liquide	
Wittmeyer, Bob	Consumer – Residential	
Wood, Henry	South Texas Electric Cooperative	
Zimmerman, Mark	Chaparral Steel Midlothian	
Zlotnik, Marcie	StarTex Power	

The following proxies were assigned:

- Mark Soutter to Mike Grimes

Guests:

Ashley, Kristy	Exelon
Bell, Wendell	TPPA
Berger, James	AEP
Bevill, Rob	GMEC
Bojorquez, Bill	Sharyland Utilities
Burke, Tom	APM
Burkhalter, Bob	ABB
Clemenhausen, Barbara	Topaz
Coleman, Katie	TIEC

EXHIBIT

AUG 29 2013

Billo 15 KP

Cote, Daryl
Donohoo, Ken
Escamilla, José H.
Frazier, Amanda
Gedrich, Brian
Goff, Eric
Headrick, Bridget
Jones, Liz
Jones, Randy
Lee, Jim
McKeever, Debbie
Nortey, James
Oswalt, Vicki
Patrick, Kyle
Reed, Carolyn
Reid, Walter
Roach, Temujin
Saenz, Fernando
Sandidge, Clint
Schwarz, Brad
Scott, Kathy
Starnes, Bill
Stephenson, Randa
Trout, Seth
Wagner, Marguerite
Walker, DeAnn
Whittle, Brandon
Williams, Blake

Hartigen
Oncor Electric Delivery
CPS Energy
Luminant
NextEra
Reliant
Sharyland
Oncor
Calpine
Direct Energy
Oncor
TIEC
EFH
Reliant
CenterPoint Energy
Wind Coalition
PUCT
BPUB
Noble Solutions
ECRNA
CenterPoint Energy
DME
Lonestar Transmission
Customized Energy
EMMT
CenterPoint Energy
Stratus Energy Group
CPS Energy

Via Teleconference

ERCOT Staff:
Albracht, Brittney
Anderson, Troy
Billo, Jeff
Boren, Ann
Gnanam, Prabhu
Hobbs, Kristi
Magness, Bill
Ruane, Mark

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

Brad Jones called the meeting to order at 9:37 a.m.

Antitrust Admonition

Mr. B. Jones directed attention to the Antitrust Admonition, which was displayed. A copy of the Antitrust Guidelines was available for review.

ERCOT Board Update

Mr. B. Jones reviewed the disposition of revision requests considered at the December 12, 2011 ERCOT Board meeting and reported that the South Texas Electric Cooperative (STEC) appeal of the Holistic Approach to Congestion Irresolvable by Security Constrained Economic Dispatch (SCED) was not granted, but that the Board approved the approach as recommended by TAC. Mr. B. Jones also reported presentation of the results of the annual TAC review process, and that the Board urged TAC and all subcommittees, particularly the Commercial Operations Subcommittee (COPS) and the Retail Market Subcommittee (RMS), to give careful consideration to whether some meetings might be cancelled in the course of the year.

Election of 2012 TAC Chair and Vice-Chair

Kristi Hobbs thanked Mr. B. Jones and Kenan Ögelman for their leadership, reviewed the election process detailed in the TAC Procedures, and opened the floor for nominations.

Read Comstock nominated Mr. Ögelman for 2012 TAC Chair. Mr. Ögelman accepted the nomination. No additional nominations were offered and Mr. Ögelman was named 2012 TAC Chair by acclamation.

Adrian Pieniazek nominated Bob Wittmeyer for 2012 TAC Vice Chair. Mr. Wittmeyer accepted the nomination. No additional nominations were offered and Mr. Wittmeyer was named 2012 TAC Vice Chair by acclamation.

Mr. Ögelman, joined by the Market Participants, thanked Mr. B. Jones for his service as TAC Chair.

Approval of Draft TAC Meeting Minutes (see Key Documents)¹

November 3, 2011

December 1, 2011

Mr. B. Jones moved to approve the November 3 and December 1, 2011 TAC minutes as posted. Mr. Pieniazek seconded the motion. The motion carried with two abstentions from the Independent Power Marketer (IPM) and Independent Retail Electric Provider (IREP) Market Segments.

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

Rob Bevill presented revision requests for TAC consideration.

Nodal Protocol Revision Request (NPRR) 327, State Estimator Data Redaction Methodology
Mr. B. Jones noted that ERCOT requested additional time to review NPRR327.

Mr. B. Jones moved to table NPRR327 for one month. William Lewis seconded the motion. ERCOT Staff explained that with the new requirement that ERCOT provide an opinion on each revision request, ERCOT is finding it difficult to support NPRR327 in its current state due to associated costs and requests further discussion with Market Participants before presenting its opinion to the Board. Clayton Greer expressed concern that many Market Participants support NPRR327 and that the ERCOT opinion should not become a *de facto* veto. Adrienne Brandt opined that it is a good idea for ERCOT to formulate its opinion and share it at the TAC level so that the first hearing is not at the Board meeting. Mr.

¹ Key Documents referenced in these minutes may be accessed on the ERCOT website at:
<http://www.ercot.com/calendar/2012/01/20120105-TAC>

Pieniazek disagreed with the assertion that many Market Participants support NPRR327 and added that ERCOT's opinion might be helpful to Market Participants that are undecided regarding NPRR327. The motion carried unanimously.

NPRR407, Credit Monitoring Credit Parameters Posting Requirements

Mr. Hobbs noted that ERCOT has no opinion regarding NPRR407, but recognizes the benefits of added transparency and clarity for the health of the market.

Mr. Greer moved to recommend approval of NPRR407 as recommended by PRS in the 12/15/11 PRS Report. Mr. Wittmeyer seconded the motion. The motion carried unanimously.

NPRR422, Public DAM Shift Factors

Mr. Hobbs noted that ERCOT has no opinion regarding NPRR422, but recognizes the benefits of added transparency and clarity for the health of the market.

Mr. Greer moved to recommend approval of NPRR422 as recommended by PRS in the 12/15/11 PRS Report. Bob Helton seconded the motion. The motion carried unanimously.

NPRR423, Add Voltage Support Requirement for IRRs and Allow Manual Control of Static VAr Devices if Approved by ERCOT

Mr. Hobbs noted that ERCOT, as the submitter, supports the approval of NPRR423.

Mr. Greer moved to recommend approval of NPRR423 as recommended by PRS in the 12/15/11 PRS Report. Henry Wood seconded the motion. The motion carried unanimously.

Mr. R. Bevill reminded Market Participants that a Special PRS meeting was scheduled for January 9, 2012.

Review of Multi-Year Project Priority List (PPL)

Troy Anderson presented highlights of the multiyear list and discussed priority and rank definitions, enhanced release planning, and release targets. Market Participants discussed the discontinuation of a capability line in the PPL; that impacts of revision request approvals on existing projects should be clearly communicated at the Board level; that items should not be left unapproved for lack of funding in that year, but instead should be approved in order to be entered into the queue for future release planning; and that a visual presentation for presentation at both the TAC and Board level would be useful for consistency and understanding.

Market Participants also discussed that it would be helpful to understand when certain elements of an NPRR are live in the ERCOT systems, and in which release other elements of the NPRR will be implemented; and were supportive of the improved reporting format.

Revision Requests Tabled at TAC (see Key Documents)

NPRR334, Incorporate Resource Limit for the Amount of Regulation Service that may be Provided from a Generation Resource During any Operating Hour

Market Participants discussed when the Reliability and Operations Subcommittee (ROS) and the Wholesale Market Subcommittee (WMS) might conclude review of NPRR334.

Mr. Wood moved to table NPRR334 until the February 2, 2012 TAC meeting and to request that WMS and ROS provide comment prior to the February 2, 2012 TAC meeting. Mr. B. Jones seconded the motion. The motion carried unanimously.

Planning Guide Revision Request (PGRR) 008, New Planning Guide Section 4, Generation Resource Interconnection

NPRR408, Clarification of ERCOT Authority to Deny Energization of Non-Compliant Generators

Mike Grimes opined that the discussion of both PGRR008 and NPRR408 has been robust and represents a compromise to aid certainty in the interconnection process, and that the revision requests provide a reasonable way to manage the iterative process.

Mr. Grimes moved to recommend approval of NPRR408 as recommended by PRS in the 11/17/11 PRS Report, and PGRR008 as recommended by ROS in the 10/13/11 ROS Report and as revised by the 12/22/11 Oncor Electric Delivery comments. Mr. Wood seconded the motion. The motion carried unanimously.

ROS Report (see Key Documents)

Ken Donohoo reminded Market Participants that ROS did not meet in December 2011 but did have an e-mail vote to reinsert a portion of the Nodal Operating Guide that was inadvertently deleted.

Nodal Operating Guide Revision Request (NOGRR) 087, Reinsertion of Network Operations Modeling Requirements – URGENT

Ms. Hobbs presented administrative revisions to defined terms for the sake of conformity.

Mr. Greer moved to approve NOGRR087 as recommended by ROS in the 12/8/11 ROS Report and as revised by TAC. Randy Jones seconded the motion. The motion carried unanimously.

Mr. Donohoo noted that ROS would soon begin its annual review of ROS working groups and task forces, and again brought to TAC's attention the intention of ROS to form a task force to pursue issues raised by the rejected PGRR011, Planning Criteria Clarifications and Enhancements To Narrow The Gap Between Operations and Planning, and asked for TAC's direction. Market Participants discussed that there seems to be some incremental improvements worth pursuing and that such a task force would be suitable. Market Participants also discussed new North American Electric Reliability Corporation (NERC) Transmission Planning Standards that are anticipated from NERC; that Market Participants need to be apprised of considerable critical requirements for reconfiguration; and that there will likely be an implementation timeline of three to six years. Mr. Donohoo noted that he will work to bring more information as the standards are approved.

Mr. Ögelman thanked Mr. Donohoo for his leadership of ROS.

RMS Report (see Key Documents)

Kathy Scott presented revision requests for TAC consideration.

Retail Market Guide Revision Request (RMGRR) 105, Change to the IDR Meter Requirement Report Due to Inclusion of AMS Meters

RMGRR106, Clarifies E-mail Process for Safety-Net and Emergency Reconnect Requests and Adds a Spanish Version of the New Occupant Statement

RMGRR107, Replace TML References with MIS

Ms. Hobbs noted a revision to RMGRR106 to add an appendix.

Mr. R. Jones moved to approve RMGRR105 and RMGRR107 as recommended by RMS in the respective 12/14/11 RMS Reports, and RMGRR106 as recommended by RMS in the 12/14/11 RMS

Report and as revised by TAC. John Houston seconded the motion. The motion carried unanimously.

Mr. Ögelman thanked Kyle Patrick for his leadership of RMS.

COPS Report (see Key Documents)

Debbie McKeever presented revision requests for TAC consideration.

Commercial Operations Market Guide Revision Request (COPMGRR) 028, Synchronization with NPPRR374, Modification of SCR Process and Urgency Requirements
Load Profiling Guide Revision Request (LPGRR) 045, Synchronization with NPPRR374, Modification of SCR Process and Urgency Requirements

Danny Bivens moved to approve COPMGRR028 and LPGRR045 as recommended by COPS in the respective 12/6/11 COPS Reports. Mr. Houston seconded the motion.

Mr. Ögelman thanked Ms. McKeever for her leadership of COPS.

WMS Report (see Key Documents)

TAC Annual Review of Minimum Point-to-Point (PTP) Option Bid Price Per Protocol Section 7.7.1

Mr. Wood moved to endorse the WMS recommendation to maintain the current Minimum PTP Option Bid Price at a value of \$0.010. Mr. Wittmeyer seconded the motion. The motion carried with one abstention from the IPM Market Segment.

ERCOT Operations, Planning, and IT Report (see Key Documents)

Commodity Exchange Act Exemption Update

Mark Ruane provided an update regarding ERCOT's preparation of an application for exemption from the Commodity Exchange Act. It was discussed that the application will note that ERCOT will be implementing minimum participation requirements but that specifics will not be included in the application; and that the application will make high-level references to capitalization requirements. ERCOT Staff explained that the initial application will be made jointly with other Independent System Operators (ISOs) and then the Commodity Futures Trading Commission (CFTC) will issue individual orders for ISOs.

ERCOT Staff noted recent discussion at a Public Utility Commission of Texas (PUCT) Open Meeting of the Volcker Rule and limitations on proprietary trading; that concerns have been raised that some of the restrictions would impact the ability of banks to participate in markets; and that ERCOT Staff anticipates requesting permission of the Board to file comments. ERCOT Staff requested input from Market Participants and noted that comments are due by February 13, 2012.

Cross Valley Project

Jeff Billo presented the ERCOT independent review of the Cross Valley 345kV Project, sensitivities for Port of Brownsville industrial Load additions, and the ERCOT recommendation for improvements associated with Option 5. In response to questions, Mr. Billo confirmed that the ERCOT recommendation is entirely based on what ERCOT believes are reliability needs, but that ERCOT Staff has neither the resources nor expertise to vet the validity of claims made by Brownsville Public Utilities Board (BPUB).

Richard Ross opined that ERCOT came to the right conclusion in recommending Option 5 and took issue with the word "speculative" and noted that to some degree every forecast is speculative. Mr. R. Jones offered that if there is a history of projects locating in other areas due to lack of transmission at the Port of Brownsville, the region will never win similar projects if there is not some sort of speculative build. Market Participants debated whether an increase of 250MW Load is a reasonable expectation.

Katie Coleman expressed concern for justifying a project based on an assertion of a large Load increase at a specific substation without a specific customer. Ms. Coleman noted that her criticism is not directed at ERCOT as there is not a policy or process for vetting such assertions to justify a reliability project, but that TIEC is taking the opportunity to raise awareness of this issue. Ms. Coleman opined that Option 3 offers a compromise as with or without the additional 250MW a 345kV line is still needed in the Valley, and the remaining 12 mile line could be built in the event that an industrial customer located in the region. Mr. Ross supported process improvements.

Bill Smith moved to endorse Option 3. Mark Zimmerman seconded the motion. Mr. Smith voiced support of the 12/29/11 TIEC Comments regarding the Sharyland and BPUC Cross Valley 345 kV Project, and added that Option 3 is based on Scenario 1 and offers the flexibility to support Scenario 2 at the appropriate time. Market Participants discussed build and cost differences between the Options.

Mr. Ross moved to amend the motion to endorse Option 5. Mr. Wittmeyer seconded the motion. Mr. Ross noted that Option 5 is the ERCOT recommendation and opined that the recommendation is not based on speculation. Market Participants discussed that historical Load growth in the Valley is four to five percent annually. Mr. Houston expressed concern that economic growth cannot be expected for Texas if a minimalist transmission system is planned; that Option 5 provides the best options to Brownsville for long-term planning and does not require that needed lines be prosecuted separately before the PUCT; and that it is untenable to have Load shed be part of the plan to support Industrial Consumers.

Fernando Saenz noted that a number of projects that investigated locating in Brownsville eventually located elsewhere due to inadequate transmission to serve Industrial Load. Mr. Saenz added that two steel projects located in Mississippi rather than Texas, and that another steel project located off shore. Mr. Saenz reported that two additional projects are looking to locate at Brownsville and the BPUB must indicate in its proposal whether there will be line available to serve the Load. Market Participants debated whether precedent is being set in basing projects on specific Load claims; that ERCOT lacks the authority to vet claims of potential Load; and that Option 5 provides a level of value engineering.

Mr. B. Jones offered an amendment to the motion to amend to request that ROS review the planning process relative to validating Load forecasting inputs of discrete Load additions and determine whether process improvements need to be made. Mr. Donohoo did not object to ROS review but reminded Market Participants that Transmission Service Providers (TSPs) are required to make such analyses and ROS cannot further compel TSPs. Mr. Donohoo opined that the particular Load is not speculative and observed he is aware of Loads continually looking to locate in the region. Mr. Ross and Mr. Wittmeyer accepted Mr. B. Jones' amendment to the motion to amend the motion.

The motion to amend the original motion carried on roll call vote with two objections from the Consumer Market Segment. *(Please see ballot posted with Key Documents.)*

The motion to endorse Option 5 and request that ROS review the planning process relative to validating Load forecasting inputs of discrete Load additions and determine whether process improvements need to be made carried with two objections from the Consumer Market Segment.

Draft Scope for Look Ahead SCED Group (Possible Vote)

Mr. Ögelman observed that a scope is needed for a proposed Look Ahead SCED group and suggested that a convening meeting be conducted, with full WebEx capabilities, so that interested parties might consider issues such as participation and voting structures. Market Participants discussed that the meeting should be organizational only and open to all parties; that the eventual group should report to TAC; and that the bounds of the effort should be considered in a separate process and not at the organizational meeting. Mr. Ögelman suggested that a draft charter be presented for consideration at the February 2, 2012 TAC meeting and requested that Mr. Wittmeyer facilitate the organizational meeting.

Revised TAC Procedures

Mr. Ögelman noted that representatives of the Consumer Market Segment have requested the February 2, 2012 TAC to consider a proposed change to how votes are tallied within the Consumer Market Segment. Mr. Greer asked if the ERCOT Membership considered any Bylaw revisions at its 2011 annual meeting. Ms. Hobbs offered that ERCOT Board's Human Resource and Governance committee considered some issues but decided not to offer changes at this time and reported that she was advised that should a Market Participant desire a change, the segment's Board Member should be petitioned.

Other Business

2012 Meeting Schedule

Mr. Ögelman requested that TAC members consider how to manage the 2012 schedule, as the ERCOT Board is not scheduled to meet in March or November. Market Participants discussed that TAC members are not compensated for meetings and so there is not the same budget impact as Board meetings; and that should TAC have a light agenda, the meeting might be cancelled with several days notice, or TAC might take the opportunity to consider tabled items or issues that cannot be addressed during a typical TAC meeting.

Mothball Process

Bill Hellinghausen requested that Market Participants review the notification period for events related to Reliability Must Run (RMR) units, such as a request to suspend service, any subsequent ERCOT decision, and a change of status. Mr. Hellinghausen noted that related revision requests would be discussed at the January 9, 2012 Special PRS meeting and TAC might direct PRS to consider the notification periods as part of those discussions. Market Participants discussed whether the request for Monticello Units 1 and 2 were rescinded before the mothball start date; whether such rescissions are properly unrestrained; and whether ERCOT should be compelled to provide notice to the market of such rescissions on weekends and holidays as opposed to the next Business Day. Market Participants also discussed that preliminary language might be considered at the Special PRS meeting, but that a separate NPRR might be necessary.

Adjournment

Mr. Ögelman adjourned the January 5, 2012 meeting at 12:50 p.m.

Ross/Wittmeyer motl

Tally Votes

TALLY TOTAL		
Voting Structure	Motion Passes	
TAC	- 20	
TAC Vote:	28	2
	Abstentions	
	0	

Date: January 5, 2012

Clear

Prepared by: B. Albracht

Sector / Entity	Representative	Present	Yes	No	Abstain
Cooperatives					
Brazos Electric Power Cooperative	Kyle Minnix	y	1		
Lower Colorado River Authority	Stuart Nelson	y	1		
Nueces Electric Cooperative	John L. Sims	y	1		
South Texas Electric Cooperative	Henry Wood	y	1		
	Segment Vote:	4	4	0	0
Municipals					
Austin Energy	Adrienne Brandt	y	1		
Garland Power & Light	David Grubbs	y	1		
Brownsville Public Utilities Board	James McCann	y	1		
CPS Energy	Kenan Ogelman	y	1		
	Segment Vote:	4	4	0	0
Investor Owned Utilities					
TNMP	Allen Burke	y	1		
CenterPoint Energy	John Houston	y	1		
Luminant Energy	Brad Jones	y	1		
AEP Service Corporation	Richard Ross	y	1		
	Segment Vote:	4	4	0	0
Independent Generators					
EDP Renewables	Mike Grimes	y	1		
GDF Suez	Bob Helton (RJones)	y	1		
NRG Texas	Adrian Pleniazek	y	1		
Invernergy Energy Management	Mark Soutter (Mike Grimes)	y	1		
	Segment Vote:	4	4	0	0
Consumers					
Divide Subsegments?	n	Consumer Vote Total	1		
Residential Consumer	Resi	Bob Wittmeyer	y	1	
Office of Public Utility Counsel	Resi	Danny Bivens	y	1	
City of Lewisville	Comm	Phillip Boyd	y	1	
City of Eastland	Comm	Chris Brewster	y	1	
Air Liquide	Indu	Bill Smith	y		1
Chaparral Steel Midlothian	Indu	Mark Zimmerman	y		1
	Segment Vote:	6	4	2	0
Independent Retail Electric Providers					
Direct Energy		Read Comstock	y	1	
TriEagle Energy		Marty Downey	y	1	
Cirro Group		William Lewis	y	1	
Star Electricity dba StarTex Power		Marcie Zlotnik	y	1	
	Segment Vote:	4	4	0	0
Independent Power Marketers					
DC Energy		Seth Cochran	y	1	
Tenaska Power Services		Keith Emery (Brad Cox)	y	1	
Morgan Stanley		Clayton Greer	y	1	
EDF Trading		Bill Hellinghausen	y	1	
	Segment Vote:	4	4	0	0
All Sectors Voting Totals					
	Segment Vote:	30	28	2	0

EXHIBIT

AUG 29 2013

Bill 16 KP

LO-METC-018: Please refer to page 12 of Mr. Capra's direct testimony. Please provide METC's best available estimate of the cost to purchase and install a fourth 345 kV/138 kV autotransformer at Argenta substation. To the extent such an estimate is not available specifically for Argenta substation, please METC's best available cost estimate for the expected purchase and installation cost for a typical new 345 kV/138 kV autotransformer on its transmission system of a MVA size roughly comparable to that of the 345 kV/138 kV autotransformer currently located at Argenta substation.

RESPONSES:

METC objects to this request to the extent it requests information related to costs, because it is not relevant, beyond the scope of factors to be considered by the Commission when granting a certificate under MCL 460.568(5), and is not designed to discovery admissible or relevant evidence. Without waiving any objections, METC responds as follows:

A detailed cost estimate would require ensuring that the chosen configuration would not have negative impacts on power flows and system short circuit values, as well as creating a specific configuration. Without considering how power flows or system short circuit values would be impacted, and assuming one of many possible configurations, a high-level cost estimate for the addition of a fourth 345/138 kV transformer at the Argenta station would be roughly \$12,100,000.

(Response by William Tripp)