

DUKE ENERGY'S APPEAL AND COMPLAINT AGAINST THE ELECTRIC RELIABILITY COUNCIL OF TEXAS RELATING TO THE APPROVAL OF PRR 830 (REACTIVE POWER CAPABILITY REQUIREMENT) §
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§ **PUBLIC UTILITY COMMISSION OF TEXAS**

DUKE ENERGY'S APPEAL AND COMPLAINT AGAINST ERCOT RELATING TO ITS APPROVAL OF PRR 830

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DOCKET NO. _____

DUKE ENERGY'S APPEAL AND	§	PUBLIC UTILITY COMMISSION
COMPLAINT AGAINST THE	§	
ELECTRIC RELIABILITY COUNCIL	§	OF TEXAS
OF TEXAS RELATING TO THE	§	
APPROVAL OF PRR 830 (REACTIVE	§	
POWER CAPABILITY	§	
REQUIREMENT)	§	

**DUKE ENERGY'S APPEAL AND COMPLAINT AGAINST
ERCOT RELATING TO ITS APPROVAL OF PRR 830**

Pursuant to Public Utility Regulatory Act ("PURA")¹ §§ 39.151 and 39.904(l) and P.U.C. PROC. R. 22.251, Duke Energy Corporation ("Duke"), on behalf of its subsidiaries Notrees Windpower, LP and Ocotillo Windpower, LP, files this Appeal and Complaint (this "Appeal") against the Electric Reliability Council of Texas ("ERCOT") relating to its approval of Protocol Revision Request ("PRR") 830 ("PRR 830") on November 17, 2009.

I. STATEMENT OF THE CASE

On November 17, 2009, the ERCOT Board of Directors (the "Board") approved PRR 830, fundamentally changing, without sufficient clarification or justification, the requirements for providing reactive power capability for Wind-powered Generation Resources ("WGRs") set forth in Sections 6.5.7.1 and 6.7.6 of the ERCOT Protocols (the "Protocols").² A copy of the November 17, 2009 ERCOT Board Action Report adopting PRR 830 is attached as Exhibit B hereto, and a transcript of the portion of the Board meeting where PRR 830 was discussed and approved is attached as Exhibit C. ERCOT intends to apply the changes to the Protocols covered by PRR 830 on a retroactive basis without conducting supporting studies and analysis or otherwise demonstrating that the drastic change in the reactive power capability

¹ TEX. UTIL. CODE ANN. §§ 11.001-66.017 (Vernon 2007 and Supp. 2009).

² Attached as Exhibit A is the affidavit of Andrew Dickson verifying all factual statements made in this Appeal.

requirement for existing WGRs is necessary from a reliability standpoint. Duke does not oppose the imposition of well-reasoned reactive power requirements on a prospective basis; however, the adoption of PRR 830 is an unfair and discriminatory action that unreasonably singles out WGRs for imposition of reactive power standards that are cost prohibitive due to the retrofits needed to bridge the gap between potentially unnecessary requirements and the technical capabilities of many existing wind turbines and the associated computer control systems.

The ERCOT Board's action in adopting PRR 830 potentially will directly and adversely impact most WGRs in ERCOT. Aside from the specific procedural and statutory deficiencies of the Board's actions, imposing standards on ERCOT-based WGRs that are more onerous than those imposed on WGRs in other power regions (pursuant to the Federal Energy Regulatory Commission's Order on Interconnection for Wind Energy – Orders 661 and 661-A)³ and requiring retroactive upgrades to achieve compliance with those standards is damaging to efforts to maintain and increase investment in wind-generated energy in Texas. Creation of an environment where the expectations of investors are frustrated as a result of post-operational protocol revisions made without substantial supporting evidence that such steps are necessary for grid reliability and which dramatically change the economics of a wind project on a retroactive basis, will chill further investment in Texas wind power project development. Such an approach is also counter to the Texas legislature's mandate to increase wind-generated energy and the continued development of the Competitive Renewable Energy Zones ("CREZs").

Underlying Proceedings. PRR 830 was submitted by ERCOT staff on September 8, 2009, pursuant to § 21.2 of the Protocols. Urgent status was granted on September 10, 2009, and the PRR was subsequently approved by the Protocol Revision Subcommittee ("PRS"), the

³ *Interconnection for Wind Energy*, Order No. 661-A, 70 Fed. Reg. 242 (December 19, 2005), 113 FERC Stats. & Regs. ¶ 61,254 (2005) ("FERC Order 661-A"). Order No. 661-A amended the final rules issued in *Interconnection for Wind Energy*, Order 661, 70 FR 34,993 (June 16, 2005), FERC Stats. & Regs. ¶31,186 (2005).

Technical Advisory Committee, and the ERCOT Board. Docket No. 36482 is a related proceeding.⁴

Identity of Directly Affected Entities or Classes. The Commission's decision will directly affect WGRs in ERCOT that began commercial operations after February 17, 2004.

Concise Description of Conduct From Which Relief is Sought. Duke requests that the Commission suspend the retroactive application of PRR 830 to existing WGRs and address the issue of whether application of the new reactive power capability requirements on a retroactive basis to existing WGRs is needed to maintain grid reliability. Duke is not opposed to providing reactive power capability in accordance with PURA § 39.904(1) and to participating in a dialogue with ERCOT and Commission staff regarding needed clarifications and the proper implementation of the reactive power requirements on a prospective basis. Duke would support a well-reasoned protocol revision applied on a prospective basis that is non-discriminatory and within the technical capabilities of WGRs. Duke further requests that the Commission suspend enforcement of PRR 830 and abate the December 31, 2010, deadline for compliance on a day-for-day basis while this Appeal is pending.

Statement of Applicable ERCOT Procedures and Protocols. As discussed in Section IV of this Appeal, Duke has complied with Chapter 21 of the ERCOT Protocols, *Process for Protocol Revision*. Duke participated in the protocol revision process for PRR 830, and this matter is properly before the Commission. In the alternative, under P.U.C. PROC. R. 22.251(c)(2), Duke requests a good cause waiver from having to utilize any additional ERCOT Alternative Dispute Resolution ("ADR") procedures regarding the issues raised by this Appeal.

⁴ *Appeal of Competitive Wind Generators Regarding the Electric Reliability Council of Texas' Interpretation of the Reactive Power Protocols*, Docket No. 36482, Order (Dec. 8, 2009).

Statement Related to Suspension. Section X of this Appeal contains Duke's motion for suspension of PRR 830 as it applies to existing WGRs while this Appeal is pending.

Commission Jurisdiction. Through its wholly-owned power generation subsidiaries, Duke is a 100% owner of 211 MW of wind-powered generation in ERCOT, and a partial owner of an additional 585 MW of wind-powered generation in ERCOT. Duke is directly affected by the unjustified operating requirements and the related increased costs that WGRs will incur as a result of the adoption of PRR 830. As explained further in Section IV of this Appeal, the Commission has jurisdiction over this Appeal under PURA §§ 14.001, 35.004(e), 39.001, 39.151, 39.904(l), P.U.C. SUBST. R. 25.362, and P.U.C. PROC. R. 22.251.

II. AUTHORIZED REPRESENTATIVES

Duke is the only Complainant and is represented by its authorized representatives below:

Michael J. Tomsu
Terry D. Roberts
Becky H. Diffen
Vinson & Elkins, LLP
2801 Via Fortuna, Suite 100
Austin, Texas 78746
Tel: (512) 542-8527
Fax: (512) 236-3211
Email: mtomsu@velaw.com
Email: troberts@velaw.com
Email: bdiffen@velaw.com

III. RESPONDENTS

ERCOT is the only entity against whom Duke seeks relief. ERCOT's legal representative is:

Mike Grable
General Counsel and Corporate Secretary
ERCOT
7620 Metro Center Drive
Austin, Texas 78744
Tel: (512) 225-7076
Fax: (512) 225-7079
Email: mgrable@ercot.com

IV. JURISDICTION

The Commission has jurisdiction over this Appeal under PURA §§ 14.001, 35.004(e), 39.001, 39.151, 39.904(l), P.U.C. SUBST. R. 25.362, and P.U.C. PROC. R. 22.251. P.U.C. PROC. R. 22.251 prescribes the procedure by which an entity may file a formal complaint with the Commission within thirty five (35) days after a decision or an act done or omitted to be done by ERCOT. Duke has complied with all necessary prerequisites to appealing ERCOT's decision by complying with ERCOT Protocols Chapter 21, *Process for Protocol Revision*. Specifically, Duke monitored the protocol revision process, worked closely with other wind generation owners taking part in the process, through an affiliate voted against PRR830 at the September 17, 2009 ERCOT PRS Committee meeting where it was considered, and commented on its opposition to the adoption of PRR 830 at the ERCOT Board meeting where PRR 830 was approved. This Appeal is filed within 35 days of the ERCOT Board action on November 17, 2009 approving PRR 830. Accordingly, Duke has participated in the Process for Protocol Revision under Section 21 of the Protocols and has timely filed this Appeal under P.U.C. PROC. R. 22.251.

While Duke believes it has complied with all required ERCOT processes, in the event the Commission determines that Duke has not fulfilled all applicable ADR obligations under the Protocols, Duke hereby requests a good cause waiver of any remaining ADR requirements.

P.U.C. PROC. R. 22.251(c)(2) provides the authority for such a waiver:

For any complaint that is not addressed by [P.U.C. Proc. R. 22.251(c)(1)] of this subsection, the complainant may submit to the commission a written request for waiver of the requirement for using the Applicable ERCOT procedures. The complaint shall clearly state the reasons why the Applicable ERCOT Procedures are not appropriate. The commission may grant the request for good cause.

To the extent necessary, a good cause waiver would be appropriate in this instance for three primary reasons. First, the dispute regarding PRR 830 is not a private dispute between Duke and ERCOT, but rather has implications for many other WGRs. Second, the issues have already been aired at ERCOT and presented to the ERCOT Board for a decision, so there is little likelihood that the ERCOT Board would change its position. Finally, the timetable for compliance with PRR 830 is short, and the ADR process could be too lengthy considering time constraints. The ERCOT General Counsel has no authority to overturn the decision of the ERCOT Board, and since the Board passed the PRR that was proposed by ERCOT Staff, ERCOT has no incentive to negotiate on this issue. For all these reasons, if necessary, Duke requests that the Commission grant a good cause waiver of compliance with any additional ERCOT ADR procedures and retain jurisdiction to resolve this dispute and determine the proper implementation of the requirements for reactive power capability.

V. ISSUES PRESENTED FOR REVIEW

This Appeal presents the following issues for Commission review and consideration:

1. Whether ERCOT is permitted to impose new and extensive reactive power capability requirements without a demonstration that the changes are needed for grid reliability.
2. Whether ERCOT may require compliance with new and extensive reactive power capability requirements which are technically and financially infeasible for WGRs.
3. Whether ERCOT, through PRR 830, may require WGRs to make unreasonable and costly retroactive retrofits and modifications to existing wind generation projects.
4. Whether the new reactive power capability requirements violate the anti-discrimination provisions in PURA and the PUC Substantive Rules, which prohibit rules or orders that unreasonably discriminate against, or are unduly prejudicial to, a group of market participants.

VI. STATEMENT OF FACTS

Reactive power is the number of Volt-Ampere Reactive (“VAR”) units produced by voltage and the out-of-phase component of alternating current.⁵ The “triangle” reactive power capabilities typical of wind farms mean that the WGRs can produce reactive power in direct proportion to the amount of “real power” generated. Thus, as the wind increases, more real power is generated, and more reactive power is available. The “rectangle” reactive power capabilities in question in this Appeal mean that a WGR must produce reactive power at an

⁵ ERCOT Protocols § 2.

equivalent basis regardless of whether the WGR is producing real power at 10% or 100% of its nameplate capacity.

On November 13, 2008, ERCOT Legal issued a Protocol Interpretation (the “Interpretation”) regarding the reactive power requirements in Sections 6.5.7.1 and Section 6.7.6 of the ERCOT Protocols. This Interpretation resulted in a complaint being filed against ERCOT by several wind generation companies at the Public Utility Commission of Texas.⁶ ERCOT eventually withdrew the Interpretation in June of 2009. The complaint at the Commission was dismissed on procedural grounds, and the parties continued to disagree on the proper interpretation of the ERCOT protocols that were in effect prior to the adoption of PRR 830.

ERCOT proposed PRR 830 on September 8, 2009 as a second attempt to assert its view of how the Protocols should be interpreted. In response, NextEra Energy Resources proposed PRR 835 on September 30, 2009. PRR 835 was supported by the wind companies as a more realistic, feasible, and fair way of addressing the requirements for reactive power capability. The language in PRR 835 would have avoided the installation of additional reactive power capability that was not justified for reliability, and thus avoided unnecessary cost impacts to existing WGRs. Further, it differentiated between requirements for WGRs and traditional resources because the majority of wind is located in the western zone of ERCOT, which has low load requirements and therefore very different reactive power requirements than the rest of ERCOT. If, however, a Transmission Service Provider (“TSP”) showed through a System Impact Study that higher reactive power capability was required to ensure grid safety or reliability, then the WGRs would be required to meet the higher reactive power requirements. The PRS Committee at ERCOT rejected PRR 835 at the same time it voted to recommend PRR 830.

⁶ See *Appeal of Competitive Wind Generators Regarding the Electric Reliability Council of Texas’ Interpretation of the Reactive Power Protocols*, Docket No. 36482, Order (Dec. 8, 2009).

PRR 830 requires WGRs to provide the “rectangle.” Unlike PRR 835, it requires the “rectangle” even if a System Impact Study does not show a need for anything more than the “triangle.” It imposes this requirement retroactively on wind facilities installed since 2004, as well as on all new wind facilities not yet online. PRR 830 does not take into account the physical design capabilities of wind turbines, nor does it consider the differences in reactive power characteristics in the rural, western zones of ERCOT compared to high load regions.

PRR 830 was approved by the ERCOT Technical Advisory Committee on November 5, 2009. NextEra Energy Resources appealed the decision, several other wind companies filed comments in support of the appeal, and both the appeal and the approval of PRR 830 were sent to the ERCOT Board. On November 17, 2009, the ERCOT Board voted to approve PRR 830.

To Duke’s knowledge, no substantial evidence in the form of formal studies or reports by ERCOT or findings of fact in any proceeding indicate that the ERCOT grid suffers from a deficit of reactive power creating the need for an increase in the reactive power requirements for WGRs and requiring retrofits to existing WGRs. There are also no studies that demonstrate a reliability need for WGRs to provide reactive power in accordance with PRR 830 or that establish that conformance with PRR 830 would eliminate any actual reliability problems. In addition, there are concerns that full compliance with PRR 830 by all WGRs may actually lead to even more problems on the grid, and TSPs may be required to install additional equipment to handle an over abundance of reactive power.

Industry standard for wind generators, in ERCOT and throughout the United States, has been the “triangle” requirement.⁷ ERCOT is aware and fully understands operationally that WGRs have always provided reactive power according to the capability of the units, dependent upon the output of the units at a given time. Further, ERCOT has accepted Interconnection

⁷ See FERC Orders 661 and 661-A, *supra* note 3.

Agreements and Generation Asset Registration Forms in the past that demonstrated the WGRs' ability to meet the "triangle" requirement, but not the "rectangle." PRR 830, billed as a clarification, is actually an improper retroactive amendment to the Protocols.

VII. ARGUMENT

A. **The ERCOT Board of Directors Violated PURA by Adopting Infeasible Reactive Power Capability Requirements**

Section 39.904(l) of PURA grants the Commission the authority to "adopt rules requiring renewable energy facilities to have reactive power control capabilities or any other feasible technology designed to reduce the facilities' effects on system reliability."⁸ The requirements PRR 830 retroactively places on existing WGRs, however, are not feasible without additional required clarifications. For example, the revised Protocols do not allow Duke to aggregate all of its turbines located at a single wind farm for purposes of the reactive power requirements, even though they are all located behind one interconnection point. Some of Duke's projects use multiple brands of turbines, and the wind farm's control system is designed to operate these various units as one single generator. From ERCOT's perspective, the types of turbines used behind the point of interconnect should be irrelevant as long as Duke can meet the reactive power requirements at the point of interconnection. The PRR 830 wording, however, goes beyond the point of interconnection, allowing aggregation only of like turbine brands. Despite the fact that Duke worked diligently with ERCOT staff to build one of its wind farms so that it operates in a manner that substantially meets the requirements of PRR 830, without further clarification the current wording does not allow Duke to meet the requirement because of its mixture of turbine brands.

⁸ PURA § 39.904(l).

Likewise, the 10% floor requirement is not feasible for existing WGRs. A wind farm may consist of hundreds of turbines spread across many miles of land. Often at low wind speeds the various turbines within a wind farm begin to operate at different times. It is quite possible for a wind farm as a whole to start generating 10% of its nameplate capacity with only a fraction of the turbines online. Generally, wind turbines can only supply reactive power when they are in service and generating real power. Subsequently, if only a few turbines are actually generating (which is likely if the wind is only blowing on an edge of the project), the wind project cannot produce reactive power in the amount required for the total project by PRR 830 (which the “rectangle” requires).⁹ The low end reactive power requirement in PRR 830 should only apply to the individual turbines that are online, which would pro-rate the required level of reactive power below the full requirement of the wind farm. Ten percent may be a reasonable number for conventional generation, but it is not feasible for WGRs due to the design characteristics of a wind farm.

ERCOT has not performed any studies to show that applying the new reactive power requirements to existing WGRs is necessary for reliability purposes, even though the Protocols require a demonstration of the need for additional reactive power.¹⁰ ERCOT has not shown any reasonable basis for imposing such extensive changes on existing wind generation. Further, the ERCOT Protocols require ERCOT to establish responsibility for reactive power capability among ERCOT TSPs, not generators:

Assuming optimal use of all other required installed Reactive Power capability, ERCOT Regional Planning Groups or Transmission Planning shall determine and demonstrate the need for any additional static and/or dynamic Reactive Power capability necessary to ensure compliance with the ERCOT Planning

⁹ An example of this occurred on December 20, 2009 at Duke’s Notrees facility. See Exhibit D for a description of the occurrence.

¹⁰ See ERCOT Protocols § 5.2.1(6).

Criteria, and ERCOT Transmission Planning shall establish responsibility for any associated Facility additions among ERCOT TSPs.¹¹

ERCOT is currently conducting a Low Voltage Ride Through (“LVRT”) study. If the study results in additional requirements for WGRs, they will involve the same voltage and power factor systems that PRR 830 involves. Requiring WGRs to retrofit existing wind resources to meet PRR 830 before the results of the LVRT study are available may lead to costly retrofits being made that either are unnecessary or in conflict with those that may be required as a result of the LVRT study. If retrofits are to be made, they should be done in the most economic manner possible. In addition to being more fair and economic for the generator, ultimately additional costs end up being passed on to the consumer.

PRR 830 is a “one size fits all” approach that simply does not work. In addition to the reasons explained above, PRR 830 is not economically efficient because it will necessitate the installation of reactive resources in locations where, as a practical matter, grid reliability benefits will not be realized or ensured. The majority of ERCOT wind farms are located in remote areas far from load. Even if wind resources were able to provide significant amounts of reactive power, there would likely be no benefit to loads that are hundreds of miles away due to the poor traveling characteristics of reactive power. Further, if too much reactive power is provided in remote areas, TSPs may have to add equipment on their lines to remove the excess in order to maintain reliability. Thus, the unique location and generation characteristics of wind, particularly in the western zone, cause that area to have very different reactive power requirements than the rest of ERCOT. This creates a unique situation that should be addressed with a unique solution tailored to address the specific issues.

¹¹ ERCOT Protocols § 5.2.1(6).

Duke fully supports all feasible requirements necessary for a reliable grid, but ERCOT has not shown that the existing reactive power requirements have led to any reliability issues, nor that PRR 830 is necessary, or a good solution, to address any reliability problems, and the requirements of PRR 830 are not feasible for Duke to meet.

B. PRR 830 is an Improper Retroactive Change of ERCOT's Voltage Support Service Requirements.

1. Prior to PRR 830, the “Triangle” Reactive Power Capability Requirement Was Clearly Defined in the Protocols and ERCOT Binding Documents

The ERCOT Reactive Power Capability Protocols, prior to the commencement of the Legal Interpretation and Protocol Revision process in late 2008, required a “triangle” reactive power standard. Despite ERCOT claims that the “rectangle” has always been required and that PRR830 is simply a “clarification” of the existing protocols, section 6.7.6(5) of the pre-PRR 830 Protocols clearly stated the “triangle” requirement:

(5) At all times a Generation Resource unit required to provide VSS is On-line, the URL must be available for utilization at the generating unit's continuous rated active power output, and Reactive Power up to the unit's operating capability must be available for utilization at lower active power output levels. In no event shall the Reactive Power available be less than the required installed reactive capability multiplied by the ratio of the lower active power output to the generating unit's continuous rated active power output, and any Reactive Power available for utilization must be fully deployed to support system voltage upon request by ERCOT, or a TSP.

Further, section 3.1.4.1 of the ERCOT Operating Guide provides that “ERCOT has the right and obligation to Dispatch the reactive output (VARs) of each generation Facility within its design capability to maintain adequate transmission voltage in ERCOT.”¹² A wind turbine’s design capability is to provide reactive power equal to the amount of real power being generated. This is the “triangle,” and that is what the prior Protocols required. Section 6.7.6(5) was deleted as

¹² ERCOT Operating Guide, § 3.1.4.1.

part of PRR 830, a revision that effectively changed the reactive power requirements retroactively for operating wind projects.

Until the Legal Interpretation and Protocol Revision processes were begun in late 2008, ERCOT never required anything above the “triangle.” The “triangle” is industry standard across the United States.¹³ Section 1.5 of the ERCOT Operating Guides lists the areas in which ERCOT and NERC’s standards differ. This list does not make any mention of any differences between the NERC reactive power standard (which is clearly the “triangle”) and ERCOT’s reactive power requirements.

All of Duke’s discussions with ERCOT and all of the forms Duke filed with ERCOT through the end of 2008 showed the “triangle” capabilities of Duke’s wind farms. ERCOT never expressed any reservations about Duke’s “triangle” capabilities until January 2009. Further, the triangle interpretation of the Protocols was logical due to the physical design capabilities of wind turbines. Expecting a wind farm to meet the “rectangle” requirement at 10% generation is simply unrealistic when the wind is blowing on one part of the project site but not the other.

ERCOT has performed the CREZ studies assuming all WGRs met the “rectangle,” but NERC requires that ERCOT study the system that actually exists.¹⁴ ERCOT had full notice of the capabilities of Duke’s and others’ wind farms from the Asset Registration Forms that were filed with ERCOT. These forms explained the reactive power capability of WGRs, and that capability is the “triangle.”

¹³ See FERC Orders 661 and 661-A, *supra* note 3.

¹⁴ See NERC Standard MOD-010 establishing standards for Transmission Owners regarding modeling the reliability of the transmission system and providing that Transmission Owners are out of compliance if the modeling data set forth in NERC Standard MOD-011 is incomplete. NERC Standard MOD-011(B)(R1.2) requires the following “Generating Units (including synchronous condensers, pumped storage, etc.): location, minimum and maximum Ratings (net Real and Reactive Power), regulated bus and voltage set point, and equipment status.” FAC-010 requires Planning Authorities to establish System Operating Limits by modeling all Facilities and demonstrating voltage stability.

ERCOT has also accepted the “triangle” capabilities of wind farms through the interconnection process. ERCOT cannot allow a generator to interconnect to the grid in violation of the ERCOT Protocols. Until late 2008, ERCOT allowed many WGRs that met the “triangle” but not the “rectangle,” including Duke’s Ocotillo Windpower facility, to interconnect to the ERCOT transmission system. In early 2009, ERCOT told Duke that Duke’s Notrees project could not interconnect unless it met the “rectangle” requirement. This was the first time Duke had been notified that the “triangle” would not be sufficient, even though Duke had worked with ERCOT and the TSP throughout the study and negotiation process. If ERCOT has required the “rectangle” since 2002, as it claims, then ERCOT has not been enforcing its own protocols (which require noncompliance reporting and notification).¹⁵ ERCOT had notice of the “triangle” capabilities from each wind generator through both the interconnection and asset registration processes. ERCOT’s claim that PRR 830 is a simple clarification is disingenuous.

2. Requiring Retroactive Upgrades is Unreasonable

The lack of thoughtful deliberation based on substantive evidence by the ERCOT Board and ERCOT committees in adopting PRR 830 is demonstrated by the unreasonable retroactive upgrades required by the protocol revision. PRR 830 was approved without any consideration of the reasonableness of retrofitting an existing project. Retrofitting is cost prohibitive, as the WGR is not afforded the opportunity to plan for enhanced requirements and associated capital costs. The projected expenses required as a result of PRR 830 to retrofit existing generation facilities is estimated at close to \$100 million. Duke estimates that, if the PRR 830 requirements are adjusted to make full compliance possible, retrofitting will cost Duke approximately \$5 to \$7 million for its ERCOT wind projects, not including the lost revenues from shutting the project down while the retrofits are made.

¹⁵ See Protocols §§ 6.5.7.3(4), 6.7.6(4)-(5), 6.10.9(3), 6.10.9(4); Operating Guide 3.1.4.1.

Duke's wind farms currently operating in ERCOT were financed under the ERCOT Protocols and enforcement scheme that existed at the time they achieved commercial operation, and Duke is bound by the economics of existing power sales arrangements. The extremely expensive upgrades that PRR 830 requires will impose additional capital costs on WGRs that were not accounted for at the time financial arrangements for each project were finalized, and thus the WGRs may not have the ability to recover the additional capital for retroactive upgrades while maintaining economically practical operating costs. WGRs such as Duke entered and invested millions in the ERCOT market based on then-existing ERCOT Protocols, and they have operated in accordance with those Protocols. ERCOT's changes to the reactive power requirements without any regard to the financial and contractual complications required to achieve compliance, and without comprehensive studies demonstrating a need for requiring such costly upgrades, is unreasonable.

C. PRR 830 Violates the Anti-Discrimination Provisions in PURA by Forcing WGRs to Engage in Expensive Retrofitting not Required of Other Market Participants.

PRR 830 violates anti-discrimination provisions in PURA, namely Section 35.004(e) (prohibiting rules or orders that discriminate against market participants)¹⁶ and Section 39.001(c) (mandating that the Commission ensure terms and conditions governing ancillary services, such as reactive power, are not unreasonably preferential, prejudicial, discriminatory, predatory, or anticompetitive).¹⁷ PRR 830 does this by unreasonably singling out existing WGRs to bear the technological and financial weight of standards that may not be needed for grid reliability and stability.

¹⁶ PURA § 35.004(e): "The Commission shall ensure that ancillary services necessary to facilitate the transmission of electric energy are available at reasonable prices with terms and conditions that are not unreasonably preferential, prejudicial, discriminatory, predatory, or anticompetitive. In this subsection, 'ancillary services' means services necessary to facilitate the transmission of electric energy including ... reactive power, and any other services as the commission may determine by rule."

¹⁷ PURA § 39.001(c): "Regulatory authorities ... may not discriminate against any participant or type of participant during the transition to a competitive market and in the competitive market."

The issue of discrimination is intertwined with the technical design capabilities of wind-generated technologies and the cloud of uncertainty that hovers over ERCOT's unsubstantiated claims that PRR 830 is needed to ensure grid reliability. The technical design capabilities of existing wind generation technology are consistent with the "triangle" reactive power capability requirements in the Protocols prior to approval of PRR 830 and endorsed by FERC in FERC Orders 661 and 661-A.

WGRs such as Duke will be unduly discriminated against if they must make cost prohibitive retrofits that amount to a unique burden placed on a distinct group of market participants—the WGRs. Duke estimates that the retrofitting changes required by PRR 830 will cost Duke as much as \$7 million. When looking at the cost of the retrofits for the Texas wind industry as a whole, the cost estimates approach \$100 million. These financial burdens are borne by the WGRs due to industry specific technical design capabilities that conventional generators are not forced to work around. Absent evidence of specific demonstrated need for higher requirements at particular sites (demonstrated through System Impact Studies or the equivalent), Duke believes it is clearly being treated in an unreasonably different manner than conventional generators in two important ways: (1) Without a demonstrated reliability justification, WGRs are required to reach the "rectangle" reactive power capability requirement through expensive retrofits, while those conventional generators in operation prior to September 1, 1999 continue to receive exemption from the standard; and (2) WGRs are forced to make a choice not imposed on conventional generators—the option of either operating at levels in violation of reactive power capability requirements due to technical design capabilities or expending considerable money on retrofits that may or may not be needed.

While Duke is committed to ensuring that its WGRs contribute to the reliability and stability of the grid, PRR 830 was approved without any evidence that a fundamental change in the reactive power requirements was needed, and PRR 830 certainly provides no basis for the disparate imposition of a significant financial burden such as the retrofitting of equipment costing up to \$7 million.

VIII. REQUEST FOR EVIDENTIARY HEARING

Duke requests that the Commission schedule this matter for an evidentiary hearing to resolve factual disputes between the parties. Pursuant to P.U.C. PROC. R. 22.251(l), the Commission is required to resolve these factual determinations on a *de novo* basis, without any deference to the action taken by the ERCOT Board. Because this proceeding involves important policy issues for the Commission and is not an enforcement matter, the Commissioners have discretion to hear this matter themselves rather than referring the case to the State Office of Administrative Hearings, and Duke requests that the Commission hear the case. Even though it is requesting an evidentiary hearing at this point, Duke is amenable to attempting to negotiate an agreed statement of facts with ERCOT. However, Duke respectfully asserts that given the need to ensure a quick ruling by the Commission on this matter, this case should move forward with discovery and testimony while the parties attempt to reach a resolution on such facts. To the extent that there remain factual disputes, Duke requests an evidentiary hearing before the Commissioners to resolve any factual disputes.

IX. REQUEST FOR GOOD CAUSE WAIVER OF PAGE LIMITATIONS FOR FILING PURSUANT TO P.U.C. PROC. R. 22.72(F)

Duke respectfully requests a waiver of the fifty page limitation for filing as set forth in P.U.C. PROC. R. 22.72(f). P.U.C. PROC. R. 22.251(d)(1)(H) requires that a sworn record be filed consisting of the evidence complained of which may also contain other items pertinent to

the issues or points presented for review along with affidavits or other evidence on which Appellants rely. The record of these issues is quite extensive. The transcript from the ERCOT Board meeting alone exceeds the fifty page limitation contemplated in P.U.C. PROC. R. 22.72(f) and, coupled with the appeal itself as set forth herein and the other documents that meet the standard required by P.U.C. PROC. R. 22.251(d)(1)(H), well exceed the page limitation. In order to meet the standard set forth in P.U.C. PROC. R. 22.251(d)(1)(H), Duke requests a good cause waiver of P.U.C. PROC. R. 22.72(f).

X. REQUEST FOR SUSPENSION OF ENFORCEMENT

P.U.C. PROC. R. 22.251(i) requires a party to demonstrate good cause if it seeks to suspend the conduct or implementation of the decision complained of while an appeal is pending at the Commission. Duke requests that PRR 830 be suspended for existing WGRs until the Commission issues a final order in this proceeding.

In order to meet the December 31, 2010 deadline contained in PRR 830, Duke and other WGRs would be required to immediately begin planning and contracting for the required retrofitting, thus expending considerable amounts of money to become compliant with the new protocols. Resources to supply and construct the necessary upgrades to such a large number of wind farms in ERCOT during such a short time period are scarce, further complicating the efforts of affected WGRs to comply with the new protocols.

A suspension of the enforcement of the retroactive portions of PRR 830, that is, those parts that apply to already operating WGRs, would enable the Commission to fully develop the record and reach a decision in this proceeding while avoiding the significant harm that will result from the implementation of PRR 830. Before requiring Duke and other WGRs to spend millions of dollars upgrading their wind facilities, while at the same time losing revenue when the wind farms are shut down for the upgrades to be made, the Commission should address the issues

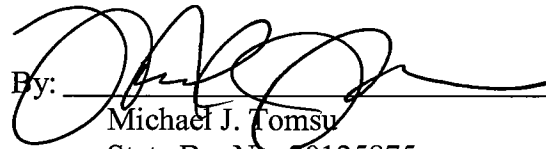
raised in this appeal. For these reasons, Duke requests that the Commission suspend retroactive enforcement of PRR 830 against operating wind farms and abate the December 31, 2010, deadline for compliance on a day-for-day basis until the conclusion of this proceeding.

XI. PRAYER FOR RELIEF

For the reasons set forth above, Duke requests that the Commission suspend the retroactive application of PRR 830 to existing WGRs and address the issue of whether the retroactive application of new reactive power requirements to existing WGRs in ERCOT is appropriate. Duke requests that the Commission suspend enforcement of PRR 830 during this proceeding and address all necessary clarifications regarding the prospective application of PRR830. Duke further requests all other relief, legal and equitable, to which it is justly entitled.

Respectfully submitted,

Duke Energy Corporation


By: 

Michael J. Tomsu
State Bar No. 20125875
Terry D. Roberts
State Bar No. 24046734
Becky H. Diffen
State Bar No. 24069613
Vinson & Elkins, LLP
2801 Via Fortuna, Suite 100
Austin, Texas 78746
Tel: (512) 542-8527
Fax: (512) 236-3211

**ATTORNEYS FOR
DUKE ENERGY CORPORATION**

CERTIFICATE OF SERVICE

I certify that a true and correct copy of the foregoing was served on ERCOT and the Office of Public Utility Counsel via e-mail, regular mail, postage prepaid, hand-delivery, or facsimile on this 22nd day of December, 2009.



Michael J. Tomsu

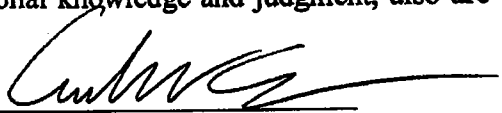
EXHIBIT A

AFFIDAVIT

STATE OF TEXAS §
 §
COUNTY OF TRAVIS §

BEFORE ME, the undersigned authority, on this day personally appeared Andrew Dickson, to me known, who being duly sworn according to law, deposes and says:

1. "My name is Andrew Dickson. My business address is 7000 North MoPac Expwy, Suite 475, Austin Texas 78731. I am employed by Duke Energy Generation Services, Inc. ("DEGS") as its Vice President of Business Development. DEGS is a wholly-owned subsidiary of Duke Energy Corporation. I am over the age of 21 and a resident of the State of Texas.
2. I am familiar with the foregoing Appeal and Complaint. To the best of my information, knowledge, and belief, the factual statements contained therein, including the attachments thereto, are true and correct. The opinions expressed therein, based upon my professional knowledge and judgment, also are true and correct."



Andrew Dickson

SUBSCRIBED AND SWORN TO BEFORE ME by the said Andrew Dickson this 18th day of December, 2009.



Notary Public, State of Texas

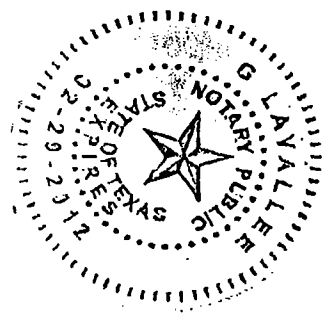


EXHIBIT B

EXHIBIT B

Board Action Report

PRR Number	830	PRR Title	Reactive Power Capability Requirement
Timeline	Urgent	Action	Approved
Date of Decision	November 17, 2009		
Effective Date	December 1, 2009		
Priority and Rank Assigned	Not applicable.		
Protocol Section(s) Requiring Revision	2.1, Definitions 2.2, Acronyms 6.5.7, Voltage Support Service 6.5.7.1, Generation Resources Required to Provide VSS Installed Reactive Capability 6.7.6, Deployment of Voltage Support Service		
Revision Description	This Protocol Revision Request (PRR) clarifies the Reactive Power capability requirement for all Generation Resources, including existing Wind-powered Generation Resources (WGRs) who are not able to meet the 0.95 lead/lag requirement with the Generation Resource's Unit Reactive Limit (URL). WGRs that commenced operation on or after February 17, 2004, and have a signed Standard Generation Interconnection Agreement (SGIA) on or before December 1, 2009 may meet the Reactive Power requirements through a combination of the WGR's URL and/or automatically switchable static VAR capable devices and/or dynamic VAR capable devices.		
Reason for Revision	Clarification of Reactive Power capability requirements on a going-forward basis and path to compliance for certain WGRs that are not able to meet the 0.95 lead/lag requirement at the Point of Interconnection (POI) based on the Generation Resource's URL.		
Overall Market Benefit	Provides additional clarity to the reactive requirements for wind generation.		
Overall Market Impact	Unknown.		
Consumer Impact	None.		

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Credit Impacts	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed PRR830 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
Relevance to Nodal Market	Yes. The Reactive Power capability requirements exist in Nodal as well.
Nodal Protocol Sections Requiring Revision	2.1, Definitions 2.2, Acronyms and Abbreviations 3.15, Voltage Support 6.5.7.7, Voltage Support Service
Procedural History	<ul style="list-style-type: none"> ➤ On 9/08/09, PRR830, a preliminary Impact Analysis, and CEO Revision Request Review were posted. ➤ On 9/10/09, PRR830 was granted Urgent status via a PRS e-mail vote. ➤ On 9/15/09, Horizon Wind Energy LLC comments were posted. ➤ On 9/17/09, PRS considered PRR830. ➤ On 9/28/09, Calpine comments were posted. ➤ On 10/7/09, Iberdrola Renewables comments were posted. ➤ On 10/8/09, a second set of Horizon Wind Energy LLC comments were posted. ➤ On 10/8/09, LCRA comments were posted. ➤ On 10/19/09, ROS comments were posted. ➤ On 10/21/09, Wind Coalition comments were posted. ➤ On 10/22/09, Vestas comments were posted. ➤ On 10/22/09, PRS again considered PRR830. ➤ On 10/22/09, NextEra Energy Resources comments were posted. ➤ On 10/26/09, the Impact Analysis was posted. ➤ On 10/28/09, a second set of Calpine comments were posted. ➤ On 10/29/09, Oncor comments were posted. ➤ On 10/29/09, ERCOT comments were posted. ➤ On 10/30/09, AEP comments were posted. ➤ On 11/2/09, Invenergy comments were posted. ➤ On 11/3/09, a second set NextEra Energy Resources comments were posted. ➤ On 11/3/09, a third set of Horizon Wind Energy LLC comments were posted. ➤ On 11/4/09, a second set of Vestas comments were posted. ➤ On 11/5/09, TAC considered PRR830. ➤ On 11/6/09, the NextEra Energy Resources appeal was posted. ➤ On 11/10/09, the NextEra Energy Resources appeal supporting documents were posted. ➤ On 11/10/09, a second set of AEP comments were posted.

Board Action Report

	<ul style="list-style-type: none"> ➤ On 11/10/09, AES comments were posted. ➤ On 11/10/09, the Horizon position statement was posted. ➤ On 11/10/09, a second set of ONCOR comments were posted. ➤ On 11/10/09, the TAC Advocate position statement was posted. ➤ On 11/10/09, an ERCOT ISO position statement was posted. ➤ On 11/10/09, the TAC Advocate supporting document was posted. ➤ On 11/10/09, a second set of Wind Coalition comments were posted. ➤ On 11/17/09, RES America Developments comments were posted. ➤ On 11/17/09, a second set of AES comments were posted. ➤ On 11/17/09, the ERCOT Board considered PRR830. ➤ On 11/20/09, the NextEra Energy Resources ERCOT Board presentation was posted.
<p>PRS Decision</p>	<p>On 9/17/09, PRS unanimously voted to table PRR830 for one month and to encourage ROS to provide comments on PRR830. All Market Segments were present for the vote.</p> <p>On 10/22/09, PRS voted to recommend approval of PRR830 as endorsed by ROS. The motion passed via roll call vote. All Market Segments were present for the vote.</p>
<p>Summary of PRS Discussion</p>	<p>On 9/17/09, there was discussion regarding the appeal currently at the Public Utility Commission of Texas (PUCT) which stemmed from an ERCOT interpretation of the current Protocols regarding Reactive Power. It was debated whether or not the proposed content of PRR830 was being addressed in the contested case.</p> <p>On 10/22/09, ERCOT Staff explained that PRR830 is not intended to change the philosophy of the Protocols. ERCOT Staff also provided clarification of the proposed change to the WGR definition, and noted that dynamic devices will be required going forward, but that existing WGRs can meet the requirement with static devices. There was also discussion regarding the use of the “cone” versus the “rectangle” for Reactive Power capability and that having differing requirements makes planning difficult and may pose fairness and grid stability issues. Some Market Participants expressed concerns that requirements of PRR830 would impose costs to retrofit existing units and that studies should be performed to demonstrate need.</p>
<p>TAC Decision</p>	<p>On 11/5/09, TAC voted to recommend approval of PRR830 as recommended by PRS in the 10/22/09 PRS Recommendation Report and as amended by the 10/29/09 ERCOT comments. All Market Segments were present for the vote.</p>
<p>Summary of TAC Discussion</p>	<p>On 11/5/09, TAC reviewed PRR830 comments. A Market Participant proposed including language that allowed a hybrid solution to meet Reactive Power capability requirements. ERCOT Staff explained</p>

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	<p>that paragraph (6) of Section 6.5.7.1 allows Market Participants to submit alternative proposals to ERCOT for meeting the requirement, which could include a hybrid solution.</p> <p>Some Market Participants opined that changing the definition of WGR would have repercussions not only where "WGR" is used in the Protocols or market guides, but could also create complications in instances where the terms "generator," "Resource," or "unit" are used. ERCOT Staff contended that the definition change is needed in order to ensure that ERCOT has an accurate representation of each WGR's Reactive Power capability.</p> <p>Questions were raised regarding ERCOT's acceptance of the "triangle" that was provided in the Resource Asset Registration Forms (RARFs). ERCOT Staff explained that the RARFs should provide an accurate representation of what a unit is physically capable of doing and should not be taken as a substitute for the requirements in the Protocols, which require the "rectangle".</p> <p>Some Market Participants expressed concern regarding retrofits to existing units. It was stated that in the past, most rules that would impose cost on existing units were implemented on a prospective basis unless there was a demonstrated need, and it was argued that at this point, there has been no evidence provided indicating that there is a need to retrofit. Others countered that if generators are not operating in the "rectangle" as the current system was designed that it is a reliability issue versus a cost issue since the risk of a voltage collapse increases as you increase capacity not operating within the "rectangle."</p>
Board Decision	On 11/17/09, the ERCOT Board approved PRR830 as recommended by TAC in the 11/5/09 TAC Recommendation Report and rejected the NextEra Energy Resources appeal.

Quantitative Impacts and Benefits			
Assumptions	1		
	2		
	3		
	4		
Market Cost		Impact Area	Monetary Impact
	1		
	2		
	3		
	4		
Market Benefit		Impact Area	Monetary Impact
	1	<i>Clarifies the reactive requirements for wind generation.</i>	
	2		

Board Action Report

	3		
	4		
Additional Qualitative Information	1		
	2		
	3		
	4		
Other Comments	1		
	2		
	3		
	4		

Sponsor	
Name	John Dumas
E-mail Address	jdumas@ercot.com
Company	ERCOT
Phone Number	(512) 248-3195
Cell Number	
Market Segment	N/A

Market Rules Staff Contact	
Name	Sandra Tindall
E-Mail Address	stindall@ercot.com
Phone Number	512-248-3867

Comments Received	
Comment Author	Comment Summary
Horizon Wind Energy LLC 091509	Recommended that PRR830 be rejected as submitted.
Calpine 092809	Supported approval of PRR830.
Iberdrola Renewables 100709	Suggested existing Protocol language is clear. Proposed additional revisions only as an alternative to the ERCOT proposed changes.
Horizon Wind Energy LLC 100809	Opined that PRR830 is contrary to existing Protocols, and is proposed without demonstration of need. Commented that PRR830 re-defines Reactive Power capability requirements for Generation Resources interconnected with the ERCOT Transmission Grid, imposing new requirements on WGRs and requiring retrofits to the majority of operating WGRs.
LCRA 100809	Proposed clarifying language which would allow Resources to start at lower voltage levels. Also proposed changes related to

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	establishing Reactive Power requirements.
ROS 101909	Endorsed PRR830 as submitted.
Wind Coalition 102109	Provided alternative language to the definition of a WGR and the subsequent changes that are intended to improve the modeling of wind-powered generation reactive capabilities.
Vestas 102209	Stated that if PRR830 is adopted as proposed, it may unnecessarily increase the costs of WGRs in Texas with no improvements in reliability. Suggested that hybrid systems that have the effective performance of a fully dynamic system should be allowed.
NextEra Energy Resources 102209	Recommended that PRS reject PRR830 and instead recommended that PRR835 be approved.
Calpine 102809	Responded to NextEra's 10/22/09 comments and supported ERCOT's efforts to maintain system reliability and the fairness found in PRR830.
Oncor 102909	Supported ERCOT's efforts to maintain system reliability with PRR830.
ERCOT 102909	Provided comments to support the need for the WGR definition change. Also proposed additional language changes which revised the effective date in both the Revision Description and in paragraph (2) of Section 6.5.7.1 to December 1, 2009 and provided administrative edits and clarification to proposed language revisions.
AEP 103009	Supported the passage of PRR830.
Invenergy 110209	Proposed the addition of paragraph (12) to Section 6.5.7.1 to clarify the requirements and approximated the treatment afforded to other types of Generation Resources that have multiple turbines behind the same POI such as combined cycle units
NextEra Energy Resources 110309	Incorporated concepts and specific amendments proposed in comments submitted by LCRA (10/08/09), The Wind Coalition (10/21/09), ERCOT (10/29/09), and Invenergy (11/02/09). Also proposed additional language changes that utilized the "rectangle" requirement for all technologies as proposed by ERCOT.
Horizon Wind Energy 110309	Recommended that PRR830 be rejected.
Vestas 110409	Provided additional language changes so that dynamic VAR capable devices would include hybrid devices and would be considered as an acceptable alternative to meet ERCOT's Reactive Power interconnection requirement.
NextEra Energy Resources 110609	Appealed the TAC action of recommending approval of PRR830. Opined that TAC erred in its decision with respect to technical concerns raised but not resolved in the proposed language and that PRR830 contradicts previous ERCOT Board policy on imposing new technical capabilities on existing Resources.
NextEra Energy Resources 111009	Opined that PRR830 does not meet the ERCOT policy standard for retroactive application of technical capabilities; that further examination of technical issues is needed; that PRR830 does not maximize Consumer benefit; that Protocols can only be revised and

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	not clarified; that the Alternative Dispute Resolution (ADR) process should not be circumvented; and that the NextEra proposal would address issues prospectively while allowing the PUCT to interpret Protocols retrospectively. Provided additional supporting documents for position.
AEP 111009	Stated support for TAC recommendation and provided examples for AEP's belief that the ERCOT Transmission Grid has significant Reactive Power deficiency that is directly correlated to WGRs. Suggested the NextEra proposed language would require TSPs to submit reactive element upgrades and opined that related costs should be borne by those causing the costs.
AES 111009	Suggested PRR830 should not be implemented as recommended by TAC because: 1) PRR830 requires voltage and power factor capabilities higher than the Federal Energy Regulatory Commission (FERC) 661A requirements for which ERCOT has not demonstrated the need; 2) PRR830 is a piecemeal approach and ERCOT should take a comprehensive approach along with the Low Voltage Ride Through study; and 3) PRR830 retroactively changes the interconnection requirements for operating wind projects with no documented need.
Horizon Wind Energy LLC 111009	Suggested PRR830 does not clarify existing Protocols and will create hardships on a sub-segment of generation. Provided documents to support position.
Oncor 111009	Noted support for PRR830 and described principles needed for the bulk power system to operate reliably. Provided documents to support position.
TAC Advocate 111009	Explained the TAC position on PRR830 highlighting the discussion and vote tallies at various stakeholder meetings. Noted support was due to reliability concerns for the grid as well as desire that all generators be treated equitably. Highlighted need to ensure that the system is operated in manner in which it was planned and built and suggested further study is not needed as generators have a fixed reactive capability requirement.
ERCOT 111009	Requested rejection of the NextEra appeal and approval of PRR830 as recommended by TAC to preserve important reliability requirements, to maintain parity among Generation Resources, and to reduce uplift of costs to Load.
Wind Coalition 111009	Supported creating aggregations of actual wind-powered turbines of the same type for modeling purposes but argued the redefinition of WGRs will make WGRs "units" for all purposes in the Protocol and market guides.
TAC Advocate 111109	Provided a supporting document to review PRR830 procedural history, to note Reactive Power requirements and the applicability to existing Generation Resources, and to counter the argument for additional studies to determine need.
RES America	Requested that the ERCOT Board not approve PRR830 because it

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Developments Inc. 111709	will force some existing Generation Resources to retrofit equipment which would impose additional costs on the Generation Resource which would more efficiently be realized by TSPs. Suggested a technical study should be performed to determine whether Reactive Power response via the triangle is inadequate to maintain reliability.
AES 111709	Provided chronological summary and list of parties participating in the proceedings related to FERC Order 661A.
NextEra Energy Resources 112009	Opined that reinterpreting existing Protocols and applying them retroactively is bad policy and a bad precedent. Suggested the following were myths: 1) reliability requires PRR830 and 2) PRR830 is nothing new.

Revised Proposed Protocol Language

2.1 Definitions

Point of Interconnection (POI)

The location(s) where a Generation Entity's interconnection Facilities connect to the Transmission Facilities as reflected in the Standard Generation Interconnection Agreement (SGIA) between a Generation Entity and a Transmission and/or Distribution Service Provider (TDSP).

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Wind-powered Generation Resource (WGR)

A Generation Resource that is powered by wind. Wind turbines may be aggregated together to form a WGR if each turbine is the same model and size and located behind the same Generator Step Up (GSU) transformer.

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2.2 Acronyms

POI Point of Interconnection

GSU Generator Step Up SGIA Standard Generation Interconnection

Agreement

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6.5.7 Voltage Support Service

All Generation Resources (including self-serve generating units) that have a gross generating unit rating greater than twenty (20) MVA or those units connected at the same Point of Interconnection (POI) that have gross generating unit ratings aggregating to greater than twenty (20) MVA, that supply power to the ERCOT Transmission Grid, shall provide Voltage Support Service (VSS).

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6.5.7.1 Installed Reactive Power Capability Requirement for Generation Resources Required to Provide VSS

(1) Generation Resources required to provide VSS must be capable of producing a defined quantity of Reactive Power to maintain a Voltage Profile established by ERCOT. Generation Resources shall comply with the following Reactive Power requirements: an over-excited (lagging) power factor capability of ninety-five hundredths (0.95) or less and an under-excited (leading) power factor capability of ninety-five hundredths (0.95) or less, both determined at the generating unit's maximum net power to be supplied to the ERCOT Transmission Grid and at the transmission system Voltage Profile established by ERCOT, and both measured at the POI. The Reactive Power requirements shall be available at all MW output levels and may be met through a combination of the Generation Resource's Unit Reactive Limit (URL), which is the generating unit's dynamic leading and lagging operating capability, and/or dynamic VAR capable devices. For Wind-powered Generation Resources (WGRs), the Reactive Power requirements shall be available at all MW output levels at or above 10 percent (10%) of the WGR's nameplate capacity. When a WGR is operating below 10% of its nameplate capacity and is unable to support voltage at the POI, ERCOT may require a WGR to disconnect from the ERCOT System. The Reactive Power requirements of this paragraph shall apply to all Generation Resources except as otherwise provided in paragraphs (2) through (4) below.

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(2) WGRs that commenced operation on or after February 17, 2004, and have a signed Standard Generation Interconnection Agreement (SGIA) on or before December 1, 2009, must be capable of producing a defined quantity of Reactive Power to maintain a Voltage Profile established by ERCOT in accordance with the Reactive Power requirements established in paragraph (1) above. However, the Reactive Power requirements may be met through a combination of the WGR's URL and/or automatically switchable static VAR capable devices and/or dynamic VAR capable devices. WGRs shall comply with the Reactive Power requirements of this paragraph by no later than December 31, 2010, unless it is known by July 31, 2010, that related retrofits are required by the Voltage Ride-Through study conducted in accordance with Operation Guide Section 3.1.4.6.1, Protective Relaying Requirement and Voltage Ride-Through Requirement for Wind-powered Generation Resources, in which event ERCOT may in its discretion modify the deadline for an affected WGR. ERCOT, in its sole discretion, also may grant an extension of time for other reasons.

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(3) Qualified renewable Generation Resources (as described in Section 14, State of Texas Renewable Energy Credit Trading Program) in operation before February 17, 2004, required to provide VSS and all other Generation Resources required to provide VSS that were in operation prior to September 1, 1999, whose current design does not allow them to meet the Reactive Power requirements established in paragraph (1) above, will be required to maintain a Reactive Power requirement as defined by the qualified renewable Generation Resource's URL that was submitted to ERCOT and established per the criteria in the Operating Guides.

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Board Action Report

- (4) New generating units connected before May 17, 2005, whose owners demonstrate to ERCOT's satisfaction that design and/or equipment procurement decisions were made prior to February 17, 2004, based upon previous standards, whose design does not allow them to meet the Reactive Power requirements established in paragraph (1) above, will be required to maintain a Reactive Power requirement as defined by the Generation Resource's URL that was submitted to ERCOT and established per the criteria in the Operating Guides.
- (5) For purposes of meeting the Reactive Power requirements in paragraphs (1) and (2) above, multiple generation units including wind turbines shall, at a Generation Entity's option, be treated as a single Generation Resource or WGR if the units are connected to the same transmission bus.
- (6) Generation Entities may submit to ERCOT specific proposals to meet the Reactive Power requirements established in paragraph (1) above by employing a combination of the URL and added VAR capability, provided that the added VAR capability shall be automatically switchable static and/or dynamic VAR devices, ERCOT may, at its sole discretion, either approve or deny a specific proposal, provided that in either case, ERCOT shall provide the submitter an explanation of its decision.
- (7) A Generation Resource and TDSP may enter into an agreement in which the Generation Resource compensates the TDSP to provide VSS to meet the Reactive Power requirements of paragraph (1) above in part or in whole. The TDSP shall certify to ERCOT that the agreement complies with the Reactive Power requirements of paragraph (1).
- (8) Unless specifically approved by ERCOT, no unit equipment replacement or modification at a Generation Resource shall reduce the capability of the unit below the Reactive Power requirements that applied prior to the replacement/modification.
- (9) Generation Resources shall not reduce high reactive loading on individual units during abnormal conditions without the consent of ERCOT (conveyed by way of their QSE) unless equipment damage is imminent.
- (10) WGRs must provide a Real Time Supervisory Control and Data Acquisition (SCADA) point that communicates to ERCOT the number of wind turbines that are available for real power and/or Reactive Power injection into the ERCOT Transmission Grid. WGRs must also provide two (2) other Real Time SCADA points that communicate to ERCOT the following:
- (a) The number of wind turbines that are not able to communicate and whose status is unknown; and
- (b) The number of wind turbines out of service and not available for operation.
- WGRs must comply with the requirements of paragraph (10) by no later than June 1, 2010.

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Board Action Report

(11) For the purpose of complying with the Reactive Power requirements under this Section, Reactive Power losses that occur on privately-owned transmission lines behind the POI may be compensated by automatically switchable static VAR capable devices.

6.7.6 Deployment of Voltage Support Service

(1) ERCOT, or Transmission and/or Distribution Service Providers (TDSPs) designated by ERCOT, will instruct Generation Resources required to provide Voltage Support Service (VSS) to make adjustments for voltage support within the Unit Reactive Limit (URL) capacity limits provided by the QSE to ERCOT. Generation Resources providing VSS will not be requested to reduce megawatt output so as to provide additional Megavolt Ampere Reactive (MVAR), nor will they be requested to operate on a voltage schedule outside the URL, specified by the QSE without a Dispatch Instruction requesting unit-specific Dispatch or an OOME instruction.

(2) ERCOT and TDSPs shall develop operating procedures specifying Voltage Profiles of transmission controlled reactive Resources to minimize the dependence on generation-supplied reactive Resources. For Generation Resources required to provide VSS, GSU transformer tap settings will be managed to maximize the use of the ERCOT System for all Market Participants while maintaining adequate reliability.

(3) The TDSP, under ERCOT direction, is responsible for monitoring and ensuring that all Generation Resources required to provide VSS dynamic reactive sources in a local area are deployed in approximate proportion to their respective installed Reactive Power capability requirements.

(4) All Generation Resources required to provide VSS shall support the transmission voltage at the POI to the ERCOT Transmission Grid, or at the transmission bus in accordance with paragraph (5) of Section 6.5.7.1, Generation Resources Required to Provide VSS Installed Reactive Capability, as directed by ERCOT within the operating Reactive Power capability of the unit(s).

(5) The QSEs providing VSS shall meet the deployment performance requirements specified in Section 6.10.4, Ancillary Service Deployment Performance Measures,

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- Deleted: (5) . At all times a Generation Resource unit required to provide VSS is On-line, the URL must be available for utilization at the generating unit's continuous rated active power output, and Reactive Power up to the unit's operating capability must be available for utilization at lower active power output levels. In no event shall the Reactive Power available be less than the required installed reactive capability multiplied by the ratio of the lower active power output to the generating unit's continuous rated active power output, and any Reactive Power available for utilization must be fully deployed to support system voltage upon request by ERCOT, or a TSP.¶
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An induction generator may elect to make a contribution in aid of construction in lieu of meeting the installed capacity VSS requirements contained herein. In order to comply with the VSS requirements under this paragraph (7), the generator must make payment to the interconnecting TDSP under its generation Interconnection Agreement in a manner similar to that used to collect payments for the direct assignment of interconnection Facilities under applicable Public Utility Commission of Texas (PUCT) rules. The level of payment shall reflect the cost to the TDSP of procuring, installing, operating, and maintaining any Reactive Power equipment required to replace the Reactive Power capability that otherwise would be necessary for the interconnection of the generator. In order for this paragraph (7) to be effective for VSS compliance, the TDSP shall certify to ERCOT that the induction generator has complied with these requirements.

EXHIBIT C

EXHIBIT C

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TRANSCRIPT OF PROCEEDINGS
BEFORE THE
ELECTRIC RELIABILITY COUNCIL OF TEXAS
AUSTIN, TEXAS

BOARD OF DIRECTORS MEETING
TUESDAY, NOVEMBER 17, 2009

BE IT REMEMBERED THAT at 10:06 a.m, on
Tuesday, the 17th day of November 2009, the above-
entitled matter came on for hearing at the Electric
Reliability Council of Texas, 7620 Metro Center Drive,
Austin, Texas, before JAN NEWTON, Chairman, and MARK
G. ARMENTROUT, DANNY BIVENS, BRAD COX, ANDREW J.
DALTON, MIGUEL ESPINOSA, NICK FEHRENBACH, BOB HELTON,
CHARLES JENKINS, TRIP DOGGETT, CLIFTON KARNEI, ALTON
D. "DEE" PATTON, BARRY T. SMITHERMAN, ROBERT THOMAS
and DAN WILKERSON, Members of the Board, and the
following proceedings were reported by Lou Ray and Kim
Pence, Certified Shorthand Reporters of:

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AFTERNOON SESSION

TUESDAY, NOVEMBER 17, 2009

(1:18 p.m.)

12. TECHNICAL ADVISORY COMMITTEE REPORT

(a) PRR830

(b) APPEAL OF PRR830

CHAIRMAN NEWTON: Okay. I believe that we're back on the webcast, and I'm going to reopen our open session of the Board meeting this afternoon. I'm going to handle these next couple of items a little bit differently than what's outlined on the agenda. What we have on our agenda is a presentation on PRR 830, and then we have next an appeal of that PRR. This is a little unusual in terms of process, but we have a number of parties who have asked to make comments relative to this PRR.

If this is all right with the Board -- and I will be open for suggestions -- but rather than us discussing and voting on PRR 830 and then hearing all the comments relative to the appeal, what I would like to do is let's open up the discussion on PRR 830 and let's hear the TAC position, and then let's go through the various parties who have comments so that

24 the Board has the benefit of all the comments before
25 we ask the Board to vote on the PRR, rather than

1 having us vote and then hear and have to potentially
2 make a different decision.

3 So I'm seeing some heads nod, but I
4 would open it for any concerns if that causes anyone
5 any concerns relative to process.

6 Okay. Seeing none, with that, Mark,
7 would you kind of kick this off and kind of step us
8 through how we're going to try to approach this from
9 this point?

10 MR. BRUCE: Yes, ma'am. Thank you. As
11 you noted, we've got the one PRR that was not approved
12 on the consent agenda for your discussion this month.
13 That is PRR 830 reactive power capability requirement.
14 The PRR clarifies the reactive power capability
15 requirement for all generation resources, including
16 existing WGRs who are not able to meet the 0.95
17 lead/lag requirements with the resources -- within the
18 resources unit reactive limit.

19 This PRR was recommended for approval
20 by the TAC. It was a roll call vote. There was one
21 opposing vote from the independent generator segment.
22 There was six abstentions from the IOU, the generator,
23 the two consumers and two independent power marketers.
24 All the market segments were present for the vote.

25 The impact analysis shows only minor

1 changes to ERCOT databases to incorporate additional
2 SCATA points. These impacts can be managed through
3 the O&M budget. So the CEO determination on the PRR
4 is no opinion and no impact to nodal.

5 So as you mentioned, there will be a
6 presentation next by the TAC advocate. I just wanted
7 to mention that, number one, I recused myself as Chair
8 from selecting the advocate of the TAC position. I
9 was the opposing vote to the PRR, and it's my client
10 NextEra Energy Resources, that filed the appeal. So
11 the vice chair, Shannon McClendon, who abstained from
12 the vote, selected Mr. Houston of CenterPoint Energy,
13 who actually made the motion to recommend approval of
14 the PRR.

15 So, Mr. Houston, if you want to come up?
16 And he will outline for you the TAC's position on the
17 PRR.

18 CHAIRMAN NEWTON: Thank you, Mark.

19 MR. HOUSTON: Can everyone hear me?

20 CHAIRMAN NEWTON: Yes.

21 MR. HOUSTON: Help me out here -- oh,
22 here we go.

23 Okay. As mentioned, I'm John Houston
24 with CenterPoint Energy. And Shannon had asked for me
25 to present the appeal of PRR -- to be the TAC advocate

1 for the process.

2 I'd like to start with -- let me see if
3 I can make this work here. Just a little bit as Mark
4 went through the history, but I just wanted to go
5 through a couple of items here.

6 ERCOT originally proposed this to
7 clarify reactive power requirements applicable to all
8 generators, and to provide a framework for people who
9 might not be compliant to be able to comply with this
10 requirement of the protocols.

11 In September the PRS tabled this by
12 unanimous vote to send it to ROS for review of
13 reliability effects of this proposed revision. The
14 ROS vote was -- recommended approval after
15 considerable comments and discussions and
16 presentations in its October 15th meeting.

17 It was then forwarded to the Protocol
18 Revision Subcommittee. They considered it, again
19 extensive discussion took place, and market
20 participant involvement was heavy. It was recommended
21 approval and sent forward to TAC.

22 On November 5th we again took up this --
23 we at TAC then took up this revision. And after
24 considerable discussion -- as Mark just mentioned, we
25 had considerable discussion at TAC -- and it was

1 approved. I believe the vote was 23 to 1, and Mark
2 did recuse himself from selecting the TAC advocate.

3 Again, we're talking about ERCOT
4 reactive power requirements required of generators.
5 The existing protocol had been vetted through the
6 stakeholder process I want to say back in 2003 and
7 2004, with significant involvement of the stakeholders
8 in development and provision of comments with regard
9 to how reactive power would be supplied by generators.

10 Those requirements have been in place
11 for several years. And under that approach, the
12 requirements for both loads and generators are fixed
13 at a set level; i.e., those requirements don't change
14 after time passes and in the future. So loads and
15 generators are not subjected to the topography
16 changes, the addition of new generators to the system,
17 new lines. Those become the responsibility of ERCOT
18 planning and transmission providers.

19 So that adds the certainty that
20 generators look for with regard to they can build the
21 generating plant at its location, and they can achieve
22 meeting the requirements for their output and their
23 interconnection, in particular in this case their
24 reactive requirements.

25 Incremental needs that the system may

1 need going forward are identified by engineering
2 analysis and Mr. Woodfin's folks and others at ERCOT.
3 All of that is to ensure voltage stability for the
4 transmission system in ERCOT and that that can be
5 provided by facilities and changes made by
6 transmission providers.

7 There seems to be a lot of discussion --
8 and I'm sure we'll have a bit here in a moment more --
9 but PRR 830 was proposed to clarify, not change, the
10 existing requirements. So this in -- all of these
11 considerations at ROS and PRS and at TAC, stakeholders
12 heard many of the arguments that you will hear this
13 afternoon and rejected arguments that clarification of
14 PRR 830 should not apply to certain existing
15 generators because existing requirements were
16 ambiguous.

17 Now, that's just not true. They were
18 clearly understood. And, in fact, they're recognized
19 and have been by most of the members of ERCOT for
20 many, many years. This PRR -- and I want to be very
21 clear here, I am not discussing at all any pending
22 proceedings at the Commission or ADRs or -- that are
23 applicable toward past compliance. That's not -- as
24 the TAC advocate, I'm not discussing that this
25 afternoon. We're talking PRR 830, if you were to vote

1 it in, would become effective upon your approval.

2 PRR 830 provides the means and the time
3 frame for anyone who happens to be not compliant to
4 fairly and equitably comply with the requirements of
5 the protocol revision of the current protocols. And
6 they can do so without necessarily having to retrofit
7 their unit, because they could provide a payment in
8 lieu of -- a payment of contribution or they can
9 submit alternatives to changing their generation.

10 As far as the need for studies, this
11 again was brought up at -- I would say at all of the
12 considerations of this protocol revision. TAC and the
13 other stakeholder groups heard and, in my opinion, the
14 votes suggest rejected arguments that studies should
15 be performed to determine whether compliance with the
16 requirements are needed for reliability. That
17 included presentations by NextEra and Siemens that
18 you'll probably hear or see some of those this
19 afternoon.

20 As previously noted, the requirements
21 for generators are fixed. I think that's a good thing
22 if I was a generator. I think that would be
23 appropriate for my ability to finance projects and
24 be -- my ability to have certainty about what my
25 performance requirements were. They don't vary over

1 time. Those needs for the dynamic support of the
2 system are provided by the transmission providers
3 after significant studies.

4 So taking the fixed capability of
5 generators and loads as input, that enables the
6 transmission planning to take place, to assess the
7 incremental needs as we change the topography, as we
8 continue forward. They are then provided by the
9 transmission owners.

10 So as to the current state of affairs,
11 my belief -- and I think the members of TAC indicated
12 it with their vote -- that this protocol is in
13 existence and that these requirements are how we went
14 about planning this transmission system. I think
15 that's a very important part. How we got to where we
16 are is the assumptions under this clarification or how
17 we got to the transmission plan that we're now
18 operating under.

19 Now, if -- that plan has resulted in us
20 making decisions about investments in the transmission
21 system to enable reliable operation of ERCOT, the
22 ERCOT grid. We're about to embark on a significant
23 study of the reactive requirements associated with the
24 many billions of dollars associated with the CREZ
25 investment. It's intended that if this protocol is

1 passed that that will give certainty to those
2 decisions that need to be made with regard to the
3 dynamic reactive compensation that needs to be added
4 in CREZ by the transmission providers who are
5 constructing the transmission assets that will bring
6 this large amount of wind power to loads.

7 So, in my opinion, this approach is fair
8 and workable. It adds certainty, and it provides us
9 the path forward for doing the CREZ studies. It also
10 enables people who might not be compliant with a path
11 to become compliant and provide the reactive support
12 that the ERCOT system needs.

13 And I think I would encourage this Board
14 to consider reliability. I know you will hear a lot
15 of comments about who has to pay what. But bear in
16 mind that the situation that you as Board members are
17 operating ERCOT under right now, if there are people
18 who are non-compliant, they have basically taken some
19 of the margin out of the reliability of the ERCOT
20 system. That's being made up by ERCOT operations and
21 being provided by other generators or operational
22 constraints or considerations or decisions that are
23 being made every day because of that noncompliance.

24 Going forward, it's essential that we
25 understand where we are when we plan this system.

1 When we complete the recommendations and the planned
2 installations and investments by transmission
3 providers to enable this 18,000 megawatts to seek
4 loads in this state. So I would ask you, as Board
5 members to consider your responsibility as members of
6 the Board of the Electric Reliability Council of
7 Texas.

8 That is basically, Madam Chairman, my
9 comments this afternoon.

10 CHAIRMAN NEWTON: Thank you, John. Are
11 there any questions or comments for John at this
12 point?

13 Appreciate you stepping up and providing
14 us TAC's perspective on this.

15 My plan at this point is behind Tab
16 12(b) of the Board material is a memo that Mike Grable
17 was gracious enough to put together that kind of
18 summarizes some of the companies who were wanting to
19 make appellate positions. Before I get into that,
20 Mark, did you have something else you wanted to add
21 or --

22 MR. BRUCE: No, I was going to
23 introduce, I thought, Mr. Markarian from NextEra was
24 going to --

25 CHAIRMAN NEWTON: Well, actually what I

1 think I'm going to do is go in alphabetical order, if
2 that's okay. And I will just go according to the
3 alphabetical list of companies as they're defined
4 behind Tab 12(b).

5 So we will start out -- and then I will
6 also ask if there are any other parties. I had
7 understood that we potentially had one or two other
8 parties that had desired to make comments that did not
9 have an opportunity to get the materials to the Board
10 packet. So I will ask for those after we go through
11 this list of the companies who have provided
12 materials. So I'll start with AES Corporation, Robert
13 Sims. Is he here?

14 MR. SIMS: Yes.

15 CHAIRMAN NEWTON: Oh. Thank you.

16 And before we start the comments, if I
17 could, I want to be sure that everyone has an
18 opportunity to be heard on this. The Board had put
19 together procedures to handle appeals and so forth,
20 and I appreciate the companies that have tried to
21 adhere to those procedures. But we do want to provide
22 an opportunity for the Board to hear any comments from
23 any parties. However, in the sake of time, because
24 this is -- could be fairly lengthy, I would ask that
25 as the presentations are made that we not hear the

1 same comments repeated over and over again. So I
2 would ask that the presenters try to kind of keep that
3 in mind as you go through your comments so that you
4 will be presenting new ideas to the Board. And if you
5 choose to endorse a prior-made comment, that's fine,
6 but not to just restate the same positions over and
7 over if possible.

8 MR. SIMS: Thank you. Good morning.
9 Robert Sims with AES Corporation, and my presentation
10 is a little different. I thought it might be helpful
11 to give the Board a little perspective on the power
12 factor issue by looking at what's been done in other
13 regions of the United States. So I'll just briefly
14 cover that.

15 Basically, in 2005 and 2006, a
16 considerable amount of work was performed by a large
17 and broad group of grid operators and stakeholders,
18 including wind generators, and ultimately this work
19 lead to FERC issuing Order 661A, which is included in
20 Exhibit G to the FERC Large Generator Interconnection
21 Agreement. That's now the standard and required
22 agreement across most of the USA. It's used by all
23 investor-owned utilities under FERC jurisdiction, and
24 it's been adopted by a lot of non-FERC jurisdictional
25 entities in many regions of the country.

1 Just a little chronology on the work
2 that went together over that two-year period.
3 Initially in 2003 FERC issued Order 2003, and that
4 standardized the interconnection process requirements
5 and agreement for all large generators over
6 20 megawatts or 20 megawatts in aggregate.

7 In March 2004, as a result of
8 stakeholder comments, FERC issued Order 2003A, an
9 amendment of that. And that recognized that
10 electrical machine technology differences affect the
11 interconnection requirements. And with that they
12 provided what was termed Exhibit G, which was a blank
13 sheet of paper to be completed by stakeholders in the
14 wind power industry, recognizing that wind energy
15 technology was a little different.

16 So following on to that, September 2004,
17 FERC hosted a technical conference on requirements for
18 the interconnection of wind generators. The
19 conference was broadly attended. It was in Denver. I
20 was there. It went on for a full day with the FERC
21 commissioners there hearing positions about the
22 requirements for wind turbines. That was followed a
23 few months later in December 2004 NERC created the
24 Wind Generation Task Force. And they were chartered
25 with "review the bulk electric system reliability

1 implications and concerns of wind generation." So
2 under NERC, under the Transmission Working Group,
3 their group looked at this issue. They looked at
4 power factor. They looked at low voltage ride
5 through. And they looked at other aspects of
6 integrating large amounts of wind energy into the bulk
7 power system. That group began a series of regular
8 working meetings.

9 In July 2005, FERC issued Order 661,
10 termed The Interconnection Requirements for a Wind
11 Generator Plant. The order defined the technical
12 requirements, including low voltage ride-through,
13 which is now at issue coming up in ERCOT; power
14 factor, which is relative to PRR 830. And also SCADA
15 communication requirements for meteorological
16 information, units availability and so forth. And
17 those were all included in Exhibit G of the standard
18 large generation interconnection agreement, as I
19 mentioned, and are now law under FERC jurisdiction.

20 In 2005 NERC requested a rehearing on
21 661 based on some continuing work with a Generator
22 Task Force, primarily relating to finer details of the
23 timing of low voltage ride-through, the level of
24 voltage and the duration. There were no comments on
25 the power factor requirement.

1 That was finally followed in December of
2 2005 when FERC issued Final Order 661A and the final
3 Exhibit G, the requirements for wind generator plants.
4 Under the 661A process, there were a large number of
5 parties that participated. I put together a list here
6 from the FERC filing of all the parties that
7 participated in that process. CenterPoint was the
8 only one from the ERCOT region. Otherwise you see
9 many of the grid operators here: ISO New York,
10 midwest ISO, NERC themselves, New York ISO. A large
11 working group that participatend in this project --
12 PJM, Southern California Edison, et cetera, Xcel
13 Energy.

14 And here's the wording that was decided
15 upon under 616 A, which basically, "The wind
16 generating plant shall maintain a power factor within
17 a range of .95, leading to .55 lagging as measured at
18 the point of interconnection". I won't go through and
19 read this entire thing, but it's basically the
20 triangle requirement or the cone requirement you are
21 hearing discussed in the dialogue today.

22 Most wind turbine manufacturers then,
23 based on the ruling in 2005, designed wind turbines
24 for deployment in the United States based on this
25 requirement, and that is now what's available through

1 most of the country. So we now have a situation where
2 ERCOT is asking for high level -- higher level of
3 reactive support than required by FERC and NERC under
4 the standardized large generation interconnection
5 agreement, without really any technical basis or
6 studies to demonstrate that need for a higher
7 standard.

8 Thank you.

9 You want to do questions now or does
10 that come later on?

11 CHAIRMAN NEWTON: No, I think we
12 should -- are there any questions for Robert?

13 Dr. Patton?

14 MR. PATTON: Tell me how this is
15 different from the proposed PRR?

16 MR. SIMS: Well, 661, that's the
17 triangular requirement or the cone requirement where
18 the power factor of the generator is maintained with
19 an ability of plus or minus .95.

20 MR. PATTON: Please go back to the
21 previous language.

22 MR. SIMS: Sure.

23 MR. PATTON: Where does it talk about a
24 triangle?

25 MR. SIMS: It really doesn't. It

1 doesn't say triangle.

2 MR. PATTON: Thank you.

3 MR. SIMS: Questions?

4 Thanks.

5 CHAIRMAN NEWTON: Andrew?

6 MR. DALTON: In have one quick question.

7 This kind of relates to the 661A and how we're looking
8 at FERC -- I mean, kind of more globally as, you know,
9 some support for what we're doing here in ERCOT on
10 wind. I know back when we had the LBRT discussion
11 several months ago, I think the wind generation
12 community took the position that 661A, even though it
13 had standards for LBRT, that didn't apply in ERCOT, it
14 never happened in ERCOT, and now here you seem to be
15 taking the opposite position that, well, FERC set a
16 standard, so we should go with it.

17 And I'm trying to understand how we
18 should be looking at the FERC precedent and are we
19 picking and choosing when we want to rely on it or
20 should we be doing this more systematically to be
21 consistent with the federal standards, or should we be
22 recognizing that ERCOT is probably unique in the
23 country because we have a lot more wind than any other
24 state?

25 MR. SIMS: Well, I don't think I'm

1 taking a position on any of those points. I'm letting
2 you know what a large body of stakeholders determined
3 was the appropriate power factor requirement for wind
4 generators in much of the US.

5 MR. DALTON: All right.

6 CHAIRMAN NEWTON: Mike Grable --

7 MR. GENT: On one of your previous
8 slides I represented NERC in filing protests, and I
9 can recall vividly -- this is prior -- just prior to
10 my retirement -- that this was sprung on us and, I
11 will say, given very little attention or time to
12 respond. The FERC employee that was largely
13 responsible for this was a former employee of AWEC,
14 whatever that wind associate -- AWEA. Is that it?

15 Oh, yeah. And you'll notice, if you
16 read through, which I have on my screen now, read
17 through 661A, you'll see all sorts of protests from
18 the industry, mostly having to do with low voltage
19 ride-through. So we never really got around to all of
20 the issues and then FERC just went ahead and passed it
21 anyway. So I don't think using 661A as a basis for an
22 argument is really something that's going to gain a
23 lot of traction within my circles.

24 MR. SIMS: Well, I do agree that most of
25 the discussion was around the low voltage

1 ride-through. I don't think there was much discussion
2 at all as far as the power factor requirement.

3 CHAIRMAN NEWTON: Anything else for
4 Robert?

5 Yes, Mike?

6 MR. GRABLE: Just a brief comment. I do
7 agree with Dr. Patton's point that there is no
8 triangle or rectangle mentioned in this quote.

9 Robert, would you flip to the last
10 slide, which I think is what Mike Gent was
11 referencing?

12 MR. SIMS: The very last?

13 MR. GRABLE: Yeah, asking for a higher
14 level than that required by FERC and ERCOT. I think
15 whether it's higher than that required by FERC is
16 debatable, and 661A can be interpreted. But it's the
17 end NERC part of this that troubles me a little bit.
18 NERC did express grave reservations with the wind
19 position in 661A, and Chairman Kelliher pointed that
20 out, that NERC was troubled. So I don't think it's
21 quite right to say that NERC was signed on to your
22 version of the approach here. But I just want to
23 highlight that.

24 MR. SIMS: Okay. Very well.

25 CHAIRMAN NEWTON: Okay. Thank you,

1 Robert.

2 Okay. The next company ahead is AEP,
3 Kip Fox.

4 MR. FOX: Thank you, Madam Chairman.

5 Let's see -- I believe you have our comments in your
6 Board package. The only thing I would like to add to
7 that from AEP's perspective is that one of the things
8 that we do find -- and not to belabor on some of the
9 points that John has brought up -- is that we fight
10 these issues every day. The question that came up
11 during TAC is what's the indication that we have
12 problems in the system, and the fact is every life in
13 the day of operations from the operations side of --
14 as a TSP, we see the warning indicators every day. I
15 mean, the fact that we have lot of operations going
16 through, and the fact that we're going through
17 different kinds of requirements, we're doing switching
18 and all kinds of other things from an operational
19 standpoint, tells us that this issue is becoming more
20 and more critical.

21 And as the Board considers this
22 alternative and this PRR, we need to understand that
23 there are operational things out in the field that
24 we're almost at the point that we can't handle
25 anymore. It should be -- it's not a reliability

1 crisis right now, but it's growing. And we see this
2 more in ERCOT than we do at AEP in some of the other
3 RTOs that we operate where there's wind available.

4 And I would say from an AEP perspective,
5 we see this issue in the west more prevalent than we
6 do in our other locations. So to us these
7 requirements have been very clear in being a rectangle
8 rather than a cone for many years and in our other
9 jurisdictions, and that's all I would like to add at
10 this point in time.

11 CHAIRMAN NEWTON: Thank you. Any
12 questions for AEP?

13 Okay. Thank you very much.

14 Again going in alphabetical order,
15 ERCOT. Kent, are you handling ERCOT?

16 MR. SAATHOFF: Yes. I just wanted --
17 you know, the written comments you can read. I just
18 want to go into a little bit of the history very
19 briefly. As John mentioned, the PRR was passed in
20 2004. And really the issue of compliance or
21 non-compliance with the PRR didn't raise up until last
22 summer. And it became an issue in a wind workshop
23 that we had back in August.

24 And back in August, John Dumas made a
25 presentation where he stated the rectangle requirement

1 was what the protocol required, which is that
2 generators are to provide a constant source of
3 reactive power over their entire operating range,
4 which is based on the plus or minus .95 at their
5 maximum power level. That was followed subsequently
6 by a market notice to that effect.

7 In the interim, it became apparent that
8 wind generators were having -- existing wind
9 generators were having problems with that
10 interpretation and that requirement. So we worked
11 with them since the end of last year to determine a
12 way that they could comply with what we believe was in
13 the existing protocol. Unfortunately, we couldn't
14 reach agreement with all of them, but we felt like we
15 should file this protocol to establish a way of
16 compliance and, hopefully, go in that direction and
17 get full compliance.

18 Back in June, we contacted -- we
19 reviewed the resource asset registration forms that
20 were filed earlier last year, and contacted those
21 generators that, you know, appeared not to meet the
22 reactive requirement in the protocol based on that
23 information. And the resource asset registration
24 forms, which is mentioned in other comments and I'm
25 sure will be mentioned later, their purpose was really

1 not compliance. Their purpose is for us to get
2 accurate data on what is out there in real life so we
3 can appropriately model it. So they weren't
4 established for checking protocol compliance.

5 But nevertheless, we did go back and
6 look at them and see if the information reflected
7 there showed compliance with the rectangle, and we
8 contacted those that it appeared that they didn't meet
9 that requirement and to get additional information --
10 or additional reactive resources that aren't reflected
11 in your RARF, and, you know, we got various responses.

12 But we contacted 70 wind generators. Of
13 those 70, 16 met the requirement, the rectangle; 29
14 met the triangle requirement, which, you know, we
15 believe is not what the protocol requires; 9 didn't
16 meet either the triangle or the rectangle; and 16 were
17 pre-2004 wind generators that were exempt from the
18 requirement.

19 So we essentially filed the protocol to
20 establish a way for those 38 generators that don't
21 comply to comply, and that was the primary purpose of
22 the protocol.

23 CHAIRMAN NEWTON: Okay. Any questions
24 for Kent?

25 Yes.

1 MR. BIVENS: Kent, you said -- I'm
2 trying to remember what you said -- you said that the
3 particular requirement in this PRR, when you
4 established it in 2004, was not necessarily for
5 compliance but --

6 MR. SAATHOFF: No, the RARF --

7 MR. BIVENS: The RARF --

8 MR. SAATHOFF: -- the Resource Asset
9 Registration Forms that were created last year, mainly
10 to get a good set of data for the -- for our nodal
11 model, yeah.

12 MR. BIVENS: So with most protocols,
13 when you find non-compliance, what do you do?

14 MR. SAATHOFF: Well, this issue has come
15 up before. We at ERCOT ISO do not have a compliance
16 staff. So what we do is when we have a system
17 incident that has occurred and we look into that
18 incident and it looks like to us there may be some
19 issues of protocol compliance, we will forward a
20 report on that to the TRE.

21 MR. BIVENS: Why was there a four-year
22 period before this became an issue?

23 MR. SAATHOFF: You know, frankly, it
24 didn't come to our attention, and I assume everybody
25 thought they knew what it meant. And apparently there

1 is a difference of opinion on what it meant.

2 MR. BIVENS: Okay.

3 CHAIRMAN NEWTON: Andrew?

4 MR. DALTON: Thank you. Kent, a couple
5 of questions. As I was reading through your memo, a
6 couple of thoughts occurred to me on this concept of
7 parity among the generation resources. And it seems
8 that there are some pre-'99 units that are exempt,
9 some pre-2004 units that are exempt. Then there's
10 this 2004 to 2009 group of generators, and then
11 there's another group 2009 -- December 1, 2009 going
12 forward. I mean how many generators are in each of
13 those buckets?

14 MR. SAATHOFF: You know, I don't have
15 that information at hand. The 1999 for conventional
16 generators, and February 2004 for wind generators,
17 that was established in the protocol. The -- from
18 2004 to now and future, that's at issue right now.
19 But the protocol just had those two groups.

20 I do know in 2004 we had about 1300
21 megawatts of wind, and right now we have over
22 8500 megawatts of wind.

23 MR. DALTON: Okay. How much
24 conventional generation was on at that time that's
25 still on today, a decade later.

1 MR. SAATHOFF: I certainly don't have an
2 exact number, but I would say, you know, 10, 20,000
3 megawatts, somewhere in there. That's just a guess.

4 MR. DALTON: And I support this parity
5 concept. I think it's a good one that we keep all the
6 generators on the same foot. I'm just trying to kind
7 of get a sense for what are we talking about and how
8 does that affect the system, too? Because I'm
9 somewhat sympathetic to making changes when the rules
10 might not have been clear to everyone.

11 But to get to that point, as we went
12 through the interconnection process with these
13 generators or they were submitting their RARFs, I
14 mean, at what point did ERCOT know that there was an
15 issue with some of these generators, and how quickly
16 did ERCOT react to that?

17 MR. SAATHOFF: Well, we really only
18 became aware that there was an issue back last summer.
19 As a result of discussions with wind generators and
20 other parties, we did the review of the resource
21 registration -- of the RARFs last summer -- excuse me,
22 this summer, back in June.

23 MR. DALTON: Okay. So this is -- we
24 learned it through the RARF process because ERCOT
25 doesn't really directly participate directly with the

1 interconnection requests?

2 MR. SAATHOFF: That's right. Generation
3 interconnection agreements are between the generator
4 and the transmission provider.

5 MR. DALTON: Okay.

6 MR. SAATHOFF: ERCOT is not a party to
7 those agreements.

8 MR. DALTON: Okay. And there's not some
9 communication process between the TSPs and ERCOT
10 regarding what the standards that are being imposed to
11 the interconnection process are?

12 MR. SAATHOFF: There's -- I believe
13 there's a standard -- fairly standard generation
14 interconnection agreement that I believe the PUC
15 approved. But as far as us being a party to
16 generation interconnection agreements, no, we're not.
17 And we have not been reviewing all those.

18 MR. DALTON: Okay. And then, I guess,
19 if we didn't pass 830 today, what would that do to all
20 the modeling and the studies that have been done in
21 the CREZ docket? I mean, would that throw everything
22 kind of into disarray, or would we be able to modify
23 that information or -- what does it do? How does it
24 interplay with the CREZ work that's already been done?

25 MR. GRABLE: Kent, do you mind if I

1 answer this one? I think it's a procedural question.

2 MR. SAATHOFF: Okay.

3 MR. GRABLE: If 830 doesn't pass,
4 ERCOT's belief is that the protocol says what it says
5 and we require the rectangle and we will model
6 according to that. There is more uncertainty as to
7 whether -- you know, in what venue and how far down
8 the road it will reach -- other people deciding one
9 way or the other on the issue, but that's how we'll
10 proceed.

11 MR. DALTON: Okay. That's all I have
12 for now. Thank you.

13 CHAIRMAN NEWTON: Mike?

14 MR. GENT: Kent, did you say that there
15 were -- from your study that you surveyed there were
16 28 that could meet the requirement?

17 MR. SAATHOFF: No, there were 16.

18 MR. GENT: 16 that could --

19 MR. SAATHOFF: That met the rectangle
20 and 16 were exempt.

21 MR. GENT: All right. The question has
22 to do with those 16, and it is how do they meet the
23 requirement physically and is there a high voltage
24 issue with these 16?

25 MR. SAATHOFF: Of the 16, five

1 apparently meet the requirement with the generator.
2 Apparently they have some of the newer generators that
3 can provide a full dynamic requirement. Six met it
4 after they provided additional information that was
5 not reflected in the their RARF. Four met it with
6 essentially the way PRR 830 says, that you can meet it
7 by the addition of additional static and dynamic
8 devices in addition to the generation. And one
9 submitted a mitigation plan committing to do that in
10 the future.

11 MR. GENT: I guess my question would --
12 second question only deals with those four then. It
13 just seems to me if you put in static capacitors
14 you're looking at a possible overvoltage situation
15 under certain system conditions as well, unless
16 they're operating properly.

17 MR. SAATHOFF: That's right. And we
18 reviewed that to make that sure we were comfortable
19 with -- that that amount of capability could be
20 operated within the requirements.

21 CHAIRMAN NEWTON: Is that all, Mike?

22 MR. GENT: Yes. Thank you.

23 CHAIRMAN NEWTON: Bob Helton, I think
24 you were next.

25 MR. HELTON: Just real quick question,

1 Kent. Is there a problem then with our procedures for
2 connecting to the grid itself? And what models -- I
3 know whenever we turned in all of our data for our
4 generation units we had to have every model and every
5 test and everything we did turned in to both planning
6 and operations. Is there a different process or did
7 we just do that and that's -- it's not in the
8 procedure that you actually review that against the
9 OGRs -- you know the operating guides protocol
10 requirements? I'm trying to figure out where there
11 may be a hole where we could catch something like
12 this --

13 MR. GRABLE: Kent, can I jump in here,
14 too? I mean, there are two things I think we ought to
15 look at. One is we rely on, as you know better than
16 anyone -- you know better than I do, Bob, the
17 generator itself certifies that it understands and
18 complies with all protocols. I think we need to make
19 sure going forward that ERCOT staff and individual
20 generation owners and operators are on the same page
21 with respect to all those items. We probably need to
22 go through them one by one and make sure that when a
23 generator certifies that they're fully compliant with
24 the protocols, they understand what that means. They
25 understand what ERCOT staff understands that that

1 means.

2 I think we also had some
3 miscommunication here between the TSPs and ERCOT. And
4 I don't want to speak for them or our staff or get
5 into who knew what or who thought what, but you've
6 heard from the TSPs -- you've heard from one and
7 you'll hear from -- well, you've heard from two and
8 you'll hear from a third today as we go through this
9 list -- that they believe it's the rectangle, that
10 were there interconnection agreements signed up where
11 the generator is going to tell us they should have
12 known we were talking about the triangle here, you
13 know, yeah. So there clearly are some communication
14 issues we need to work on.

15 MR. HELTON: Right. And that's what I
16 was getting at. I mean if -- because if the test
17 data and the model data was all -- which exists for
18 every unit, then we would be able to know that right
19 off the bat. I was just curious to see if we do need
20 to change some procedures on that issue.

21 MR. GRABLE: I think we ought to flag
22 that regardless of the PRR, regardless of any NOVs and
23 regardless of any PUC action as a separate issue to
24 take up and make sure that we report back to the Board
25 that we're all on the same page.

1 Danny, I wanted to go back and make sure
2 your RARF question -- that's a form we created for
3 nodal readiness to make sure we understood what was
4 out on the grid -- setting aside compliance, just what
5 can you actually do. And, of course, the date of that
6 form is only within the last year. It's not something
7 that existed in 2004 or prior years, but it has a
8 different -- you had a question about protocol
9 compliance, and I think we've covered that. But I
10 just wanted to make sure we had returned back to that
11 initial question.

12 CHAIRMAN NEWTON: Did you have another
13 question?

14 Okay. Dee?

15 MR. PATTON: Kent, you said that you
16 became aware of this issue last year? This year?

17 MR. SAATHOFF: Last year.

18 MR. PATTON: What flagged that to you?

19 MR. SAATHOFF: Well, there were a couple
20 of events early last year where we had some high
21 voltage in the west and we -- we called on some wind
22 generators involved to deploy their reactive to lower
23 the voltage, and that couldn't be done. So the
24 transmission operator, to avoid equipment damage,
25 opened up the line. So that was the first hint we

1 got.

2 But then as we went to the wind
3 workshops and discussions on this issue, you know, we
4 were certainly aware it was an issue at that point
5 last summer.

6 CHAIRMAN NEWTON: Danny?

7 MR. BIVENS: This may be a question for
8 I think every speaker, but one of the issues today is
9 probably going to be whether we vote this thing up or
10 down or whether it gets remanded back to TAC for
11 further study or more looking at. And there's a
12 statement in Mr. Houston's comments of November 10th
13 and it's also on his slides. He basically says he --
14 the reactive capability requirements for generators
15 and load are fixed and that if there's any variance at
16 all, then that's going to be done by the transmission
17 owners.

18 So with respect to whether studies are
19 needed, he makes a statement, "Studies are performed
20 to identify the variable transmission owner
21 requirements," so it's on the transmission owner. And
22 I -- my question is -- I mean, probably everybody --
23 do you agree that there are no -- there's no need for
24 any further studies? And I think you said the same
25 thing in your comments as well.

1 MR. SAATHOFF: Yes, the whole premise is
2 that the protocols set out the standards that
3 generators have to meet. In other words, what they
4 bring to the table. Under those assumptions that
5 those requirements are being met, then the
6 transmission operators perform the studies to
7 determine what additional equipment they may need to
8 put on the transmission system.

9 CHAIRMAN NEWTON: Yes, John?

10 MR. HOUSTON: Yes. In answer to your
11 question, I think CenterPoint would again design and
12 plan the system in conjunction with ERCOT to make all
13 the changes, assuming that the generators are
14 performing as per the protocols, and assuming loads of
15 meeting their requirements. As I pointed out in some
16 of my comments, for example, in Houston, we've just
17 invested over 25 million in dynamic reactive because
18 there isn't adequate dynamic reactive capability in
19 the existing generators in the Houston area to prevent
20 voltage collapse.

21 So, yes, we do make those, and we would
22 not go back to the generators. That would basically
23 be every few years, if the study indicated it, instead
24 of building \$25 million worth of dynamic reactive I
25 would have had to go back to the local generators and

1 say how about producing .9? How about producing .85?
2 I wouldn't hear that millions and millions and
3 millions of dollars comment many times over.

4 So I -- that's not how it works. This
5 works. It's fair. It's equitable. It's how we
6 planned the system. It's important to reliability.

7 CHAIRMAN NEWTON: Dee?

8 MR. PATTON: I would just observe
9 that -- an observation on the actual system is the
10 best study of all, requires no assumptions whatsoever.

11 CHAIRMAN NEWTON: Bob?

12 MR. HELTON: Just real quickly. On the
13 study -- on the CREZ study, the effect this would have
14 on the CREZ study -- correct me if I'm wrong, Ken --
15 the whole situation is if it was determined that every
16 generator needs to be in the rectangle, then the CREZ
17 study would base on that issue that everyone was in
18 that and then any additional stuff that needed to be
19 done would be done by the transmission providers.
20 Correct?

21 MR. SAATHOFF: The current CREZ reactive
22 study is assuming the rectangle.

23 MR. HELTON: Right.

24 MR. SAATHOFF: And so anything
25 additional to that would be, you know, provided by the

1 transmission operator.

2 MR. HELTON: Right. So if something
3 happens and somebody decides that that's not the case,
4 what would the actual change be, and say that somebody
5 said it was the triangle, then you would need --
6 knowing that, what that would change is the
7 calculation on what the TDSPs would have to do to
8 ensure stability. Correct?

9 MR. SAATHOFF: We would have to go back
10 and redo the study with that changed assumption.

11 MR. HELTON: Right. Okay. Thanks.

12 CHAIRMAN NEWTON: Dee?

13 MR. PATTON: And that changed assumption
14 would result in greater uplift to the consumer.

15 MR. SAATHOFF: Depending on what it
16 showed. If it showed that you needed more reactive
17 equipment because of that, yes. But you don't know
18 until you've done it.

19 CHAIRMAN NEWTON: Okay. Any other
20 questions for Kent?

21 Oh, Mike?

22 MR. GRABLE: Bob, if I were a thermal
23 generator and wind were victorious in their
24 interpretation of the protocol at whatever level,
25 whatever finality we end up with, Kent's right that

1 that would immediately change the transmission
2 reactive support assumption. But if I were a thermal
3 generator, I would want to clamber onto the deal that
4 wind got and we would need certainty as to that
5 outcome and then that could further affect what we
6 need from transmission.

7 MR. HELTON: I'm not sure it being a
8 thermal I would agree with that aspect, because, you
9 know, we've already designed and put up our -- we're
10 in as a triangle -- I mean, a rectangle, so we're
11 already there. So there's not a deal to go get, I
12 don't believe.

13 MR. GRABLE: I understand. I've heard
14 that from your peers.

15 CHAIRMAN NEWTON: Okay. We'll move on.
16 I have down next in alphabetical order Brian Hayes
17 with Horizon Wind Energy.

18 MR. HAYES: Okay. So before I get
19 started, I just wanted to first thank you guys. I
20 appreciate the time to come and present our side of
21 the story on this and, you know, just to give you a
22 little background. So horizon is active in the ERCOT
23 market. We have a 400-megawatt plant in Albany, Texas
24 just outside of Abilene. And it's been in operation
25 since 2006 and 2007 is when it came on line. So it

1 was post the 2004, you know, that we're talking about
2 here. And, you know, I just want to let you guys
3 know, the reason I'm here today is because reliability
4 is, you know, paramount to us and to, I would say,
5 almost any wind generator in the room. So it's not a
6 thing about concern about -- so we are concerned about
7 reliability.

8 But the concern that's been raised
9 through this PRR is just the methodology that we're
10 going through to require the retrofitting of
11 facilities to have this -- to meet this rectangle for
12 the wind generators, which I'll go through and discuss
13 why our interpretation of the protocols at the time of
14 interconnect was not the rectangle. And it's going to
15 be -- so it's a cost for us as a generator that will
16 in turn get passed on to consumers. So I just want to
17 make sure that ERCOT and the community is doing the
18 prudent practices to make sure that we're going at
19 this in the right way before we subject to a large
20 investment.

21 So let me just tell you a little bit
22 about how we interconnected just to give the story on
23 how it worked for us. So as I said, our plant came
24 online in 2006. We did, you know, numerous studies
25 with the TSP to -- providing them all the information

1 of our plant, what the generators were, what the
2 equipment they were going to have in addition to that.

3 We even -- through this study the TSP
4 recommended that we needed to have additional
5 capacitor banks to provide voltage support, and we did
6 comply and we put those capacitor banks in. But
7 through all of this study, the requirements that we
8 were meeting were based off this curve here. And this
9 is the infamous triangle that we're talking about.

10 So if you read through the protocols in
11 6 .5 .7.1 it talks about that a generator must meet
12 the .95 lead/lag requirement. So if you take the .5
13 lead/lag requirement, effectively what it means is as
14 your generation goes up, you provide more voltage
15 support as your output goes. So this is a sliding
16 scale effectively with how much you generate. So this
17 is how our plant is designed to operate.

18 We actually provide a little bit more on
19 the top because of the capacitor banks, but in the end
20 this was the -- this is how we were designing the
21 plant and how we interconnected, and this is what was
22 approved by the TSP and ERCOT prior to any -- prior to
23 us putting any megawatts onto the grid.

24 And, you know, I will say also that, you
25 know, all the parties were involved with this. So as

1 the -- after the studies were completed, we completed
2 the GARF, which, you know, now they're on the RARF.
3 Right? But at the time this was the GARF, the
4 Generation Asset Resource Form, that was completed and
5 went through and submitted and approved. And then on
6 the day the plant was energized, there was ERCOT on
7 the line -- I believe it was Oncor and then ourselves
8 ensuring that the plant was interconnected and working
9 as it was designed to do.

10 So all these things have been checked.
11 And then, as you know, which was discussed previously,
12 then in August of last summer, there was -- there was
13 actually a conflicting message which I think wasn't
14 discussed prior, that in the morning ERCOT sent out a
15 page that basically shows that this is the -- this is
16 how a wind generator resource provides reactive
17 support. And you see the triangle. And then on the
18 top is what a conventional does which is more similar
19 to the rectangle. And I will say that this was not
20 presented. This was sent out to all the people who
21 were going to go to the workshop in the morning. And
22 then by the afternoon, the chart on the bottom right
23 had changed to the rectangle.

24 But I will point out that the --
25 actually the example did not change. And so when you

1 can see the second bullet point it says, "Wind
2 generation output equals zero megawatts and the
3 megavar requirement is zero megavars," which is the
4 exact same definition that we're saying here, that
5 it -- as your output goes down to zero, you stay at
6 zero; whereas, the protocol change that is in
7 discussion is effectively trying to get us to provide
8 the reactive support at the highest levels, even when
9 we're at zero.

10 So these were the conflicting messages
11 that then resulted in the interpretation that went out
12 by ERCOT. And then this is the -- and I guess further
13 support of that will support the cone -- or the cone
14 or the triangle in 6.7.6, the language in red here.
15 Basically if you read this, it says, "The required
16 installed reactive capability multiplied by the ratio
17 of the lower active power output to the generating
18 unit's continuous rated active power output."

19 So if you go through and you turn that
20 into a formula, it's effectively the triangle, and
21 it's a sliding scale. So as your output goes up, the
22 amount of reactive power that you have to provide
23 increases. And so when you're at zero, it's zero. So
24 this is how again we've operated and throughout -- you
25 know, since the plan has been energized and why we're

1 here today to talk to you about this further.

2 So I guess, you know, taking this all in
3 context, this is -- the issues that we have, you know,
4 with this change that is come down and that we're
5 discussing is that, one, since 2004 there's been 7,000
6 megawatts that have interconnected into ERCOT. And as
7 was described earlier, some of these meet the
8 requirements, some of them don't.

9 We have significant concern that there's
10 going to be a lot of money spent to get all of these
11 generators to align with the rectangle. And there's
12 not been one study done to determine if this
13 reactive -- if this equipment that we're going to put
14 in the ground is actually going be used. I mean, it
15 could very well be the case that we could -- that all
16 these generators could go back and retrofit, spend the
17 money, which for our client we have looked at is in
18 the tens of millions of dollars, put the equipment in
19 the ground and then that equipment could sit idle and
20 never be used. It could be a stranded cost just
21 because maybe it wasn't in the right place or maybe
22 because it was never needed in the first place. So
23 there is a big concern to us that the studies not
24 being done will end up being a poor use of dollars for
25 the generators, which will then be, in the end result,

1 on to the consumers.

2 And I think the other thing that I --
3 that has been somewhat frustrating is just that this
4 has been described as a clarification. And, you know,
5 as -- I think it's pretty clear, based on the number
6 of generators that don't meet this requirement today,
7 that it is much more than a clarification. And then
8 with the dollars that are at stake and the amount of
9 investment that's required, again it's hard to call
10 this a clarification. It's a very significant deal,
11 and something that we think needs to make sure that
12 there is a prudent study to ensure that the dollars
13 are going in the right place.

14 Then I guess the -- I guess the last
15 issue that we have has been brought up recently, and
16 that's just that, you know, there's this disconnect
17 between what was planned in the transmission versus
18 how we're actually interconnecting and operating has
19 raised a lot of concern. It seems counterintuitive
20 that instead of actually going back and looking at how
21 we're actually generating and then making the right
22 decision on what is -- where the investment were to
23 occur, to just go back and unilaterally make us meet
24 whatever what was modeled to begin with.

25 So anyway, those are my comments, and I

1 appreciate any questions.

2 CHAIRMAN NEWTON: Are there any comments
3 or questions?

4 Kent?

5 MR. SAATHOFF: Start with this, that is
6 deployment of voltage support. Right? It's not
7 voltage -- it's not reactive requirement, is it?

8 MR. HAYES: Yes. Yes.

9 MR. SAATHOFF: Okay. And the reactive
10 requirement is in a different section of the protocol.

11 MR. HAYES: Right.

12 MR. SAATHOFF: In the slide that you had
13 up before from Mr. Duma's presentation --

14 MR. HAYES: Yes.

15 MR. SAATHOFF: -- is that his entire
16 presentation?

17 MR. HAYES: No, it is not.

18 MR. SAATHOFF: Okay. Thank you.

19 CHAIRMAN NEWTON: So it's an excerpt or
20 has it been modified?

21 MR. SAATHOFF: Yeah. The point is
22 there's a preceding slide that stated that we believe
23 the requirement was a rectangle.

24 CHAIRMAN NEWTON: Okay. Mike?

25 MR. GENT: Yes. In your background

1 material and in the material you presented here,
2 there's an implication that this information has been
3 made clear to ERCOT, and then I heard in Kent's
4 explanation that the data is provided to the
5 transmission owner. And in fact I have before me
6 where -- if I hadn't heard this, I would make the
7 assumption that you're doing these studies at ERCOT's
8 request and behalf and that you presented all this to
9 them and they signed off on it. Is that what you're
10 trying to say here, that they signed off on your
11 inability to provide vars as they think are necessary?

12 MR. HAYES: The transmission service
13 provider has signed off that the studies were
14 completed.

15 CHAIRMAN NEWTON: And maybe it's in your
16 background material, but for my clarification are you
17 supportive of the rectangle prospectively and only
18 opposed to it retroactively?

19 MR. HAYES: Yes. So -- yes. So
20 retrofitting in our view is -- it's much more costly
21 to do retrofits than to do -- than to build when
22 you're actually building a new plant. So the
23 prospective we have no concerns with doing anything
24 prospective because we can build it into the plant.
25 And we can even make requirements from our turbine

1 suppliers that we meet certain requirements.

2 CHAIRMAN NEWTON: Well, I guess again,
3 just for clarification, my simple mind --

4 MR. HAYES: Yes.

5 CHAIRMAN NEWTON: -- you don't have a
6 problem --

7 MR. HAYES: -- no problem --

8 CHAIRMAN NEWTON: -- with the
9 requirement for reliability to be the rectangle?

10 MR. HAYES: Going forward prospectively.

11 CHAIRMAN NEWTON: Thank you.

12 Yes, Miguel.

13 MR. ESPINOSA: Explain to me then why,
14 if you go back and retrofit, you might have stranded
15 assets, but if you go forward and install them going
16 on, you don't?

17 MR. HAYES: That's a fair point. So
18 there is the risk that they could be stranded assets,
19 even if you do it going forward. But I would say that
20 the amount of economic impact that you're contributing
21 is a lot less just because you're designing it into
22 when the plant is being built. You don't have to take
23 the plant down. There's a lot of factors that go into
24 it that make retrofits much more -- a whole different
25 game.

1 CHAIRMAN NEWTON: Okay. Andrew?

2 MR. DALTON: Just one quick question,
3 kind of a follow-up clarification. So it would be
4 your position then essentially what we should be doing
5 is setting up a tiered process here, prior to 2004 no
6 reactive power for wind from 2004 until December 1,
7 2009 or November 30th, 2009 the cone applies. From
8 December 1, 2009 forward the rectangle applies. Is
9 that a fair characterization?

10 MR. HAYES: That is correct.

11 MR. DALTON: Okay.

12 CHAIRMAN NEWTON: Okay. Any other
13 comments for Brian?

14 Okay. Thank you, Brian.

15 Next we have NextEra.

16 MR. MARKARIAN: Good afternoon. We
17 actually brought this appeal. I'm Dave Markarian,
18 managing attorney for NextEra Resources for litigation
19 and state regulatory, and we appear most respectfully
20 before this body because we believe that
21 reinterpreting existing protocols and applying them
22 retroactively is a bad idea.

23 We believe we too are a reliability
24 leader. And we understand and take this very
25 seriously and we seek to do the right thing. But we

1 also believe that we're being entirely reasonable
2 here, and we fear that we're straying a little bit
3 from common sense, which is why we're here.

4 We have made a proposal or, if you will,
5 a counterproposal that we think is entirely
6 reasonable, which is this: If a study demonstrates
7 that more than a triangular reactive power
8 configuration is required, we're all in. No problem.
9 We believe it would be appropriate to examine
10 carefully any reliability events. I'm going to come
11 back and tell you about what we have been told,
12 because we have been asking about this for a long
13 time, nearly six months.

14 But clearly, as of last night, we were
15 told -- and today you were today -- that 21 and 17
16 months ago there were two events. There's been no
17 study done as to those two events, and yet those
18 events are being used to suggest that between 30 and
19 \$100 million in investment be deployed. I just
20 watched with respect, bewilderment and amazement at
21 your diligent debate over \$11 million. This is a big
22 deal, and that's why we're here. And we hope no one
23 feels as though we're wasting your time. I know it's
24 been up before, but we believe we can demonstrate to
25 you that it hasn't been considered the right way or

1 quite enough.

2 This proposal is a one size fits all
3 proposal, when we all know that reactive power
4 capability should be a bus-to-bus analysis. Providing
5 reactive power far from load doesn't always make
6 sense. Even one of the parties that got up and spoke
7 to us in support of PRR 830 has stated embedded in its
8 comments that if you don't quite do it this way, give
9 us the money and we'll use it more appropriately where
10 it should be properly located, where reactive power
11 isn't necessary out in the hinter lands, we can tell
12 you a better way to get this done, AEP.

13 We essentially focus on what we believe
14 are two myths, the first being that reliability
15 requires it. We have been diligently questioning
16 whether there have been any true events. As recently
17 as July and August of this year, we were told there
18 were no events in several meetings on several calls
19 with numerous witnesses. There have been no system
20 emergencies. There have been no advisories or alerts
21 that are tied to non-compliance of 6571 or 67. And
22 the first mention of any of that, ladies and
23 gentlemen, was at the TAC meeting on November 5th.

24 So we began to ask a lot of questions.
25 We couldn't get from ERCOT staff any dates, no

1 descriptions, no analysis of these events, where they
2 were, when they were. But we did our own
3 investigation and determined that not a single event
4 related to voltage -- not a single event related to
5 voltage in 2009 in West Texas was reported in the
6 system operations reports to reliability and
7 operations subcommittee or the Board of Directors or
8 in ERCOT public operations reports. We asked about
9 any events and were told as recently as two days ago
10 that there has been no technical analysis that's been
11 fully performed by ERCOT staff as to these events. No
12 analysis as to the cause of events, no study. Most
13 importantly, that the procedures you're being urged to
14 adopt today would be the proper action to take and
15 would avoid these events.

16 The second myth, respectfully, is that
17 PRR 830 is nothing new. How can you possibly explain
18 ERCOT's report to you today that far more than half of
19 the wind farms have been deployed with something less
20 than the rectangle configuration of reactive power?

21 The TAC advocate in its presentation
22 told you that this requirement has been in place for
23 several years. But if you look at PRR, it has been
24 entirely rewritten. The red in the center of this
25 document reflects everything new. The red on the

1 outside of these documents reflects everything
2 deleted, striking entire existing paragraphs,
3 inserting entirely new paragraphs, inserting new
4 technical standards and inserting new compliance
5 deadllines and plan approval processes. These are
6 clearly not the same thing. Moreover, as we just went
7 over, ERCOT has produced documents -- I think someone
8 said it best this afternoon, there might be a
9 communication problem. I think that's probably the
10 best you can say about it.

11 ERCOT itself has produced documents that
12 demonstrate different requirements for wind than what
13 the current PRR 830 requirements would provide. And
14 that's the document you focused on. This is clearly
15 an ERCOT document. It's not been doctored. It's from
16 2008. It talks about a requirement. It talks about a
17 triangle.

18 And on the page that you were focused on
19 earlier, look at this. Shown to the right are the
20 reactive capability curves for a conventional
21 generator and a wind turbine. It points you to this D
22 curve, and it points the wind generator to what we
23 have commonly called the triangle. Despite what ERCOT
24 might be saying today, just last year they were not
25 saying the triangle was bad. They were not saying it

1 had to be applied retroactively. They called it, in
2 this document, the requirement.

3 So regardless of whether you call this
4 confusion or a communication issue, one thing it is
5 not is clear. We knew that because wind farms don't
6 just spring up. Wind farms are built and
7 interconnected in conjunction with the very best
8 engineering minds in this state and from outside of
9 the state that operate in this state. That is the
10 TSPs play a key role. And even though we've heard
11 some of them come up today and say they approve of PRR
12 830, they in fact have approved interconnection of
13 wind farms with something less than a rectangular
14 configuration and have taken a slightly different
15 position today.

16 What I think we've all overlooked is
17 that ERCOT has a statutory obligation to stay on top
18 of -- in fact, to be the ultimate in providing
19 supervision and responsibility as it relates to
20 transmission interconnection service. It is
21 absolutely in the statute that governs this body -- I
22 should say PUCT Substantive Rule 25.361.

23 And I know very well that ERCOT would
24 not approved anything that adversely affected
25 reliability either implicitly or tacitly and allow it

1 to continue for three or four years and only discover
2 17 or 20 months earlier that there was some
3 reliability event and, therefore, a problem, and then
4 failed to study it, failed to bring that study before
5 you, but urge action on a matter that would be so
6 costly, ultimately those costs being borne by those
7 we're here to protect.

8 25.361 says shall, "ERCOT shall accept
9 and supervise all requests for interconnection, shall
10 plan the transmission system." We've heard excuses,
11 or at least explanations, to be a little more polite,
12 but clearly what was known to ERCOT was that at least
13 80 RARFs were submitted to -- I should say this, it's
14 been set forth by the opponents of this protocol
15 revision review -- at least 80 RARFs have been
16 submitted to and approved by ERCOT. I think the
17 explanation was given to us today that ERCOT has
18 these, but they don't use them for the particular
19 purpose the statute suggests is their obligation.

20 These RARFs demonstrate, if you examine
21 them and use them, look at them, that wind was not
22 designed to meet the rectangle, the rectangle at least
23 in many, many instances. Local TSPs, some of the best
24 minds in the business, performed interconnection
25 studies based upon the triangle. No problems with the

1 triangle have been identified. And probably most
2 significantly, where there was an additional reactive
3 component necessary, it was imposed upon the wind
4 generators. They put those components in, and did so
5 based upon the studies.

6 This information, these studies, as is
7 appropriate pursuant to Substantive Rule 25.361, is
8 available to ERCOT. Those were available for study
9 and for compliance with ERCOT's obligations under
10 25.361. So we contend that not only were these
11 things known to the TSPs and studied by the TSPs, but
12 ultimately, pursuant to the operation of 25.361,
13 approved by ERCOT.

14 The real question we have with regard to
15 this proposal is retroactivity because it sets bad
16 precedent. It can be imposed on anyone literally
17 under any situation. It imposes huge regulatory risk
18 on future business decisions, affecting again anyone.
19 And if you look at the long view, a matter that should
20 be of grave concern and something we shouldn't rush to
21 judgment on. Again, the NextEra position is if a
22 study justifies something beyond the triangular
23 configuration, we'll step up, pay for it and implement
24 it.

25 And third, we have to look at the long

1 view of how this decision will affect investment
2 decisions in Texas. Here we believe that the Board
3 has only imposed retroactive application of technical
4 requirements where there was compelling evidence
5 supporting it. I think we've emphasized the point
6 enough that there hasn't been a study. And the one
7 study that's underway -- that could be used to answer
8 some of these questions is underway. We heard about
9 it this morning. And it probably won't be done until
10 the end of this year or early in the next.

11 What we would respectfully ask you to
12 consider is that under Protocol 1.2, whatever you do,
13 and whatever you decide is governed by ensuring access
14 to the transmission and distribution systems on
15 non-discriminatory -- excuse me, non-discriminatory
16 terms, and to act in a manner that's reasonable.

17 And ask yourselves and guide yourselves
18 by whether what we're asking be done is fair, whether
19 it's reasonable, whether it's non-discriminatory,
20 whether it's necessary. Because clearly if you have a
21 system in which ERCOT tells you that more than half
22 the wind farms it polled cannot state that they're in
23 compliance with what is now being read as consistent
24 with 830, then we are asking for something new to be
25 imposed.

1 ERCOT did publish the triangle under the
2 guise of it's a, quote, unquote, "requirement" and
3 there's a sea of wind farms conforming to something
4 other than a rectangular configuration of reactive
5 power configurations. And, you know, the definition
6 of good utility practice, if you look at the statute,
7 is any practice, method or act engaged in or approved
8 by a significant portion of the electric utility
9 industry during a relevant time period.

10 In our case alone LCRA, Brazos, AEP,
11 took the wind farms in question that we have built and
12 operate, looked at our reactive capabilities and
13 approved us for interconnection. All interpreting the
14 protocol essentially the way most if not all of the
15 wind generators have been interpreting it.

16 There shouldn't be any real question
17 that this didn't exist as a requirement or it just
18 doesn't make sense that so much of the system would be
19 out of compliance. I don't think ERCOT would allow
20 that to happen. This is new. It's being applied
21 retroactively. There's no study confirming that it is
22 necessary, and as soon as there is one that confirms
23 it's necessary, we'll be the first people to sign on
24 and support it.

25 More importantly, there's no study that

1 suggests that what's being proposed here will fix the
2 problem. And although it's been stated that there was
3 a lot of analysis of this, we really believe that
4 there was a rush to judgment. This was not assigned
5 to a working group. There was no task force assigned
6 to it. There were several amendments, even some
7 supported by ERCOT staff, that were never voted on.

8 And so in closing, before we rush to
9 spend huge dollars, tens to hundreds of millions of
10 dollars that is retroactively applied, that will chill
11 investment and result essentially in what is
12 consumer-friendly pricing, that keeps electricity
13 prices low for consumers, and we'll just wipe that
14 out. Especially we believe this is unwise when there
15 have been no reliability events triggered by
16 non-compliance -- that is by non-compliance with what
17 the proponents state is the proper application of the
18 protocol. And no study of the reliability benefits
19 that 830 would trigger. Thank you.

20 CHAIRMAN NEWTON: I'm going to ask you
21 the same question, and based upon a couple of your
22 comments, I just want to be clear of my understanding
23 of NextEra's position: Without a study you would not
24 support the rectangle prospectively? Or you would?

25 MR. MARKARIAN: I think we stated that

1 we would support it going forward.

2 CHAIRMAN NEWTON: Well, that's what I
3 was wanting to clarify based upon the comments you
4 made because --

5 MR. MARKARIAN: I really meant to say
6 both things. If the study demonstrates -- well, I
7 guess we're actually saying exactly the same thing.

8 CHAIRMAN NEWTON: Okay. Well, but, no,
9 I guess my question is are you saying you would not --
10 will you support prospective rectangle without a
11 study?

12 MR. MARKARIAN: I think we're taking
13 that position, yes, ma'am.

14 CHAIRMAN NEWTON: It's only the
15 retroactive piece that's at question.

16 MR. MARKARIAN: That's correct.

17 CHAIRMAN NEWTON: Okay. Thank you. Any
18 other questions?

19 Yes, Clifton?

20 MR. KARNEI: Did I hear you throw out a
21 number of the estimated capital cost to be in the
22 range of 30 million to 130? And where does that come
23 from?

24 MR. MARKARIAN: Our estimated number for
25 our system would be about \$27 million. And I think

1 some of our competitors are -- if you will, sister
2 wind companies -- have indicated that in addition to
3 our expenditures it would total industry-wide \$100
4 million.

5 MR. KARNEI: How much?

6 MR. MARKARIAN: 100.

7 MR. KARNEI: Okay. Thank you.

8 CHAIRMAN NEWTON: Charles?

9 MR. JENKINS: I'd like to understand a
10 little bit more about your offer. You said if a study
11 shows that something else is needed, you would be glad
12 to go back and install that on your existing farms --

13 MR. MARKARIAN: We absolutely have taken
14 that position.

15 MR. JENKINS: How far into the future
16 hold? If we study it next year and we figure out you
17 need \$5 million worth, and then 10 years after that we
18 discover it needs 60 million. Are you okay with that?

19 MR. MARKARIAN: That's right. There's
20 no limit, and it would be an indefinite commitment.

21 CHAIRMAN NEWTON: Is that all, Charles?

22 MR. JENKINS: Yes. Sorry.

23 CHAIRMAN NEWTON: Dee.

24 MR. PATTON: Why would you agree to
25 without a study comply proactively ---

1 CHAIRMAN NEWTON: Prospectively.

2 MR. PATTON: -- period, I guess?

3 MR. MARKARIAN: Doctor, would you mind
4 if I ask Peter WYBIERALA to answer that. He's much
5 more technically astute and can perhaps --

6 MR. PATTON: No, it's -- it doesn't
7 require an engineering analysis. Please answer the
8 question.

9 CHAIRMAN NEWTON: Whichever one y'all
10 want to is fine.

11 MR. MARKARIAN: Got it. Doctor, I'm
12 sorry, I actually knew that and I had to get it
13 whispered back in my ear. We could easily have made a
14 decision prospectively to rely more heavily on the
15 Siemens technology, which would have taken these
16 concerns off the table.

17 MR. PATTON: But you're perfectly
18 willing to go forward into it in infinity without a
19 study. Correct?

20 MR. MARKARIAN: I think it's preferable
21 to know that everything we do has a purpose and makes
22 sense. But so much of this -- I mean, I know that
23 ERCOT is a quasi-public body. But so much of this is
24 compromise. And although we might from an engineering
25 perspective have one view, we also recognize that the

1 reality is we all have to work together to try and do
2 the very best we can. And I think what you see in
3 that position is not some sort of hypocrisy but a
4 recognition that we all have to work together and
5 sometimes make compromises.

6 MR. PATTON: Thank you.

7 CHAIRMAN NEWTON: Andrew?

8 MR. DALTON: I'm going to hold back.

9 CHAIRMAN NEWTON: Okay. Mike?

10 MR. GENT: You may have heard earlier
11 Kent Saathoff said that they had done a survey of 70
12 wind farm owners, and that 16 of the 70 they surveyed
13 let -- were able to meet the requirements that they
14 feel is put out in the original version of this
15 standard?

16 MR. MARKARIAN: Yes, sir, I heard that.

17 MR. GENT: Would you suggest to us that
18 they should no longer be required to be held to that
19 as well?

20 MR. MARKARIAN: No, what I'm guessing --
21 and it's purely a guess -- is that those are probably
22 units that opted for a particular technology. And as
23 technology marched forward -- you probably know that
24 in and around 2000 I don't think there was a wind
25 turbine capable of producing reactive power, and as

1 technology evolved there were options. And although I
2 don't know the specifics of what the gentleman spoke
3 of, that would be my guess.

4 MR. GENT: So how would you feel about
5 if we exempted wind generators from this requirement
6 in those installed after 2004 and before 2009? What
7 about the combustion turbines and all the other units
8 that are installed? Would we not also hold them to
9 the same requirement?

10 MR. MARKARIAN: You're at the edge of my
11 technological knowledge, but I don't know that that
12 would be an applicable concern for us for anybody.

13 MR. GENT: Okay. You're not concerned?

14 CHAIRMAN NEWTON: Bob?

15 MR. HELTON: One quick question, because
16 I'm a little confused about Charles' question and your
17 answer. We were talking about doing the triangle
18 prospectively and then you're talking about doing
19 another study later for \$60 million and you're
20 agreeing to that --

21 CHAIRMAN NEWTON: Bob, can you get a
22 little closer to the mic?

23 MR. HELTON: -- I'm not sure what that
24 question meant and what that answer meant. Because if
25 we're looking at prospectively saying we're going to

1 do the triangle, then that is what would be from that
2 point forward. So I'm not sure what you were asking
3 and I'm not sure what your answer meant.

4 MR. JENKINS: I'll clarify what I
5 thought I was asking.

6 MR. HELTON: Okay.

7 MR. JENKINS: And that was -- I was
8 assuming that discussion was leading toward there
9 would be some time frame of units between 2004 and
10 2009 perhaps that would be held initially as a minimum
11 to the triangle standard and be subject to further
12 modifications in order to meet whatever a study showed
13 actually was necessary for reliability. And say a
14 year into it we figured out through study that a
15 certain amount of stuff was needed, and then over a
16 period of time conditions change in that part of the
17 grid and it turns out more is needed, would they be
18 willing to continue to hold open the requirement that
19 they -- that they do retrofit when a study showed it
20 was necessary indefinitely, and they said they would.

21 MR. HELTON: Were -- okay. So just to
22 clarify because I'm just trying to make sure we're all
23 listening, because I'm not sure he got that.

24 MR. MARKARIAN: That's absolutely what I
25 intended to say.

1 MR. HELTON: Okay. So in other words,
2 what you're saying if he -- you're not -- if you do
3 agree to go with the triangle and not the rectangle,
4 then you're basically saying that they need to take
5 over -- the question was would you take over the
6 responsibility the TDSPs generally take over after the
7 original interconnection is done?

8 MR. JENKINS: That was the thrust of my
9 question, and I'm quite surprised by their answer,
10 quite frankly.

11 MR. MARKARIAN: I don't think that's
12 exactly --

13 MR. HELTON: That's why I'm --

14 MR. MARKARIAN: Sir, I'm sorry, maybe I
15 misunderstood. I don't think anyone suggested we take
16 over the job of TDSPs. I thought the suggestion was
17 that we do what studies demonstrate is appropriate to
18 ensure system reliability. And that I did agree with.

19 MR. HELTON: Yeah, see what the question
20 was is, like today -- and this is one of the things
21 that John Houston talked about and some of the
22 others -- is when a generator connects, he's on the --
23 the rectangle, then anything that changes in the
24 system around that generator that creates an issue
25 with voltage is taken care of through the TDSP adding

1 reactive or dynamic stability components on the
2 system.

3 What Charles is talking about is saying
4 if you agree to do a triangle, are you also agreeing
5 that any upgrades that happen after that point, which
6 traditionally would be taken care of and paid for
7 through TCOS, that you're going accept that
8 responsibility was what I understood. And I
9 understood that you agreed with that? Isn't that
10 right, Charles?

11 MR. JENKINS: Yeah.

12 MR. HELTON: I'm just trying to make
13 sure that you fully understand what you answered
14 there.

15 MR. MARKARIAN: Would you kindly mind
16 repeating the question for us? Thank you.

17 MR. HELTON: Well, it wasn't my
18 question. I'm just trying to figure out what you
19 agreed to. But what -- the way traditionally things
20 are done is whenever I hook up one of my units and
21 it's hooked up through the typical rectangle
22 situation, I'm on the system. As topology changes and
23 things happen on the system that create different
24 needs for voltage support and studies are done by the
25 TDSP and/or ERCOT, and they have to -- and they say,

1 oh, we've got a stability problem here and so they
2 will go to the TDSP. The TDSP will put in whatever
3 dynamic or static devices need to go in to ensure
4 voltage control in that area. And what Charles'
5 question was, was if you're going to do -- or would
6 you agree that if you're doing the triangle, that any
7 changes therefore that came about on the system for
8 whatever reason around those assets, that you would
9 take the cost of upgrading those devices.

10 MR. SCHAFER: Sir, the answer to that
11 question is no.

12 MR. HELTON: That's what I'm trying to
13 get to. Okay?

14 MR. MARKARIAN: Yeah. I understood the
15 original question to mean if there was some issue that
16 was directly related to the reactive capability
17 limitations of the wind turbine, we would stand up for
18 that.

19 THE REPORTER: I'm sorry, I don't know
20 who the gentleman was walking across the room.

21 MR. SCHAFER: Matt Schafer.

22 CHAIRMAN NEWTON: Are you with NextEra?

23 MR. SCHAFER: Yes.

24 CHAIRMAN NEWTON: Okay. Andrew?

25 MR. DALTON: I think this question --

1 MR. GRABLE: Let me interrupt for just a
2 second. I apologize. This is Mike.

3 If anybody who speaks who isn't on the
4 agenda or they don't have your information, please
5 give them a business card. Thanks.

6 MR. DALTON: I think this question will
7 be more simple. If -- I want to try to recharacterize
8 your position a little bit similar to what I did with
9 AES. It would be your position that prior to
10 February 17th of 2004, no reactive power applies.
11 From February 17th, 2004 until December 1, 2009, the
12 cone or triangle should apply, unless a study shows
13 something more is necessary? And prospectively, after
14 December 1st, 2009, the rectangle should apply. Is
15 that fair?

16 MR. MARKARIAN: Essentially, yes.

17 MR. DALTON: Okay. Another point -- and
18 this kind of gets into the retroactivity issue that --

19 MR. MARKARIAN: Remember we sort of
20 positioned ourselves in the alternative as you
21 probably know from reading the submission. So -- but,
22 yes. Essentially yes.

23 MR. DALTON: Okay. With regard to this
24 retroactivity issue that you're raising, I mean, am I
25 correct to read the PRR that the standard doesn't kick

1 in until December of 2010, December 31st, 2010?

2 MR. MARKARIAN: I think the concern is
3 it would require us -- when we use the term
4 retroactivity, we simply mean it would require us to
5 go back and retrofit existing wind farms and spend
6 significant sums of money to do so.

7 MR. SCHAFER: Yeah, the standard is
8 compliance by that date.

9 MR. DALTON: Yes. But what I would
10 suggest is I think throwing this term retroactivity
11 into the debate I think is disingenuous and really
12 unhelpful at this point, because everybody who's in
13 the business, whether it's refining, generating power,
14 chemical plants, you get changed regulations that
15 affect your business all the time. And they happen
16 and you have to make adjustments to your business
17 going forward.

18 This is a proposed adjustment to your
19 business going forward. You may not agree with it,
20 but it's not in any case I think retroactive. And I
21 think that's an unhelpful path to discuss. I think
22 there are other realistic points that we need to
23 debate and consider as a Board. I know I too am
24 concerned about having any group of parties in the
25 market have to pay \$100 million that may or may not

1 have significant benefits, but the idea that this is
2 retroactive I think is unhelpful.

3 MR. MARKARIAN: Sir, if I could just
4 clarify a bit, respecting what you said about the use
5 of the term, I think our concern is a little bit
6 different and a little more nuanced. It is not
7 retroactivity alone and in a vacuum. It's
8 retroactivity without any sort of precise study.

9 CHAIRMAN NEWTON: I think we've got it.
10 Okay.

11 MR. DALTON: And what I'm suggesting is
12 it's not retroactive in either event.

13 CHAIRMAN NEWTON: Yeah. I think we've
14 got it.

15 Mike, did you have something else?

16 MR. GRABLE: I did very briefly. I
17 don't want to debate points. I do want to say I love
18 your slide about entirely new on the PRR, and Christy
19 you should keep that for future stakeholder meetings.
20 If we limit the amount of revisions as a PRR goes
21 through the process, Mark, I think you'd love that,
22 too. So let's definitely hang onto that one.

23 There were two comments related to ERCOT
24 staff and either their nonresponsiveness or their
25 statements against interest, and I just want to

1 respond to those very briefly. Regarding the two
2 reliability events, Dave, sometimes as you know events
3 can happen that -- for example, a nuclear event in
4 South Florida can ripple the frequency through the
5 entire Eastern Interconnect. That's going to be
6 public. Other times events are more confidential and
7 they may be referred to Texas Regional Entity here,
8 for example. So there may be reasons that staff is
9 not communicating with a party who wasn't involved in
10 those events. I don't want to dispute your
11 conclusion, but I did want to respond to that point.

12 You made a lot about the August 2008 ROS
13 slide, Slide 3 that John Dumas sent out. And I think
14 you kind of acknowledged that there were -- you know,
15 there's been some wind comments that said, "Oh, there
16 are multiple versions. We don't know what to
17 believe." I think it's important to note for the
18 record that that slide did go out as you highlighted
19 it in the morning. And at 5:10 on the same day John
20 Dumas revised it and sent it out again and told
21 everyone on the ROS list, "The presentation that I
22 sent out on voltage control covers an example of
23 reactive capabilities of a wind farm. The example
24 does not meet the protocols."

25 And I'm not going to go through his

1 whole email, but, you know, there is not exactly
2 confusion on that point. We did send out an incorrect
3 slide and it did refer to the triangle as the
4 requirement. But that mistake was corrected hours
5 later the same day, and I don't think there can be
6 confusion 5:10 p.m. last August 21st as to what at
7 least ERCOT staff believes is required. So I just
8 wanted to clarify those two points and thank you for
9 joining us.

10 MR. MARKARIAN: And, Mr. Grable, if
11 anything I said led you to believe that we believe
12 that our working relationship with ERCOT is anything
13 other than --

14 MR. GRABLE: You don't need to -- I
15 don't have any concerns personally on that score
16 whatsoever.

17 MR. MARKARIAN: My only point was we've
18 been very concerned about finding out about these
19 reliability events and trying to dig in.

20 CHAIRMAN NEWTON: Okay. Thank you,
21 gentlemen, very much. We appreciate it. We have two
22 more that I'm aware of, and then I'll open it for any
23 others who may be in the audience. Next would be
24 Oncor, Ken Donohoo.

25 MR. JENKINS: Yeah, Ken's not here and

1 didn't intend to make a presentation. We'll just
2 stand by the comments. I will observe that I've
3 interviewed our transmission planners and I've
4 interviewed our staff that does the work on generation
5 interconnection, and there's been no uncertainty in
6 their mind that they've been planning for the wind
7 farms to have a rectangular-type configuration since
8 2004.

9 CHAIRMAN NEWTON: Thank you, Charles.
10 The Wind Coalition, Walter Reid?

11 MR. REID: And in your Board packets you
12 should have found a brief slide presentation called
13 PRR 830 issues, and I will try to find it on here. If
14 anybody can -- there it is. Right there.

15 Okay. Got it. That's me.

16 Y'all have been handling some pretty
17 weighty matters up to this point -- oh, by the way,
18 just to introduce myself briefly, I've been with ERCOT
19 since -- in ERCOT working for -- since 1970. And
20 about 15 years ago I went into independent consulting
21 and five years ago started consulting with the wind
22 coalition that represents over 30 members and, I'd
23 say, roughly two-thirds of the wind that's on ground
24 in ERCOT.

25 The issues you've -- you know, hit are,

1 of course, what do the protocols say and what do they
2 really mean as they're written today? And we've got
3 many thousands of megawatts that believe that, you
4 know, it says something different than what ERCOT is
5 saying. And, of course, that's a major issue that
6 needs to be resolved and, I suppose, is fundamentally
7 a legal matter.

8 But I guess the point I'd like to make
9 here is that we do need clarification. Because we've
10 got so many folks that have already apparently
11 interpreted it one way, we can't allow the next 8,000
12 megawatts that are about to sign up relative to CREZ
13 to not have some clear direction of what it is that we
14 really intended to say. So we may not have meant what
15 is in those protocols. Maybe we meant something
16 different. And if that's true, we need to make it
17 clear.

18 What I'm about to talk about is going to
19 be a very technical issue. It's partly coming up to
20 you -- and I apologize that I'm having to bring it to
21 the Board level because we've had such a rapid
22 development of this issue. The first time that this
23 was discussed at the ROS meeting to today it's 30
24 days. So in 30 days we've taken a very weighty, major
25 issue, with a lot of concerns by a lot of people, and

1 we've brought it to the Board in 30 days.

2 One of the issues is that ERCOT has
3 intended to do a better modeling job. And as I
4 understand primarily focused on their realtime systems
5 so that they can reflect what the actual reactive
6 capability of wind generators is. And in doing that,
7 in coming up with that, they are coming up with a
8 redefinition of this thing called a WGR. And a WGR
9 has been -- that term has been in the protocols for I
10 don't know how long, but years. And it fundamentally
11 applies to the whole wind turbine ranch facility.

12 The new definition that ERCOT is putting
13 forward creates fictitious subunits. We have great
14 support for the idea of the modeling. We needed to do
15 that years ago. So I'm thrilled with us doing this.
16 But the problem that we're running into is WGR, as
17 written today, before 830 is adopted, WGR applies to
18 that interconnect point, that big red rectangle up
19 there. And all of these wind turbines -- there's 70
20 wind turbines in this diagram -- are feeding in via
21 some transformers up to that interconnect point, maybe
22 a transmission line between the substation for the
23 wind generator and the interconnect point with the
24 transmission service provider.

25 The new definition of WGR says that

1 below each transformer -- so in this particular
2 diagram -- let's see, I think I can use this somehow.

3 In this diagram there is one transformer
4 shown that is bringing all of these wind generators up
5 to transmission voltages. If there were connections
6 over here, there might be two transformers, which by
7 the way is pretty common in ERCOT, lots of
8 two-transformer installations for a number of reasons.

9 What ERCOT is asking is that we identify
10 generators of a same type. So this might be -- just
11 to pull some names out of a hat -- these might be GE
12 wind generators. These red ones over here and here,
13 they might be Siemens. And the rest of these might be
14 Mitsubishi. And they all have different reactive
15 characteristics, and what ERCOT wants to know is how
16 many of them are operating today and, as a result,
17 they can then calculate and model what is it that my
18 reactive capability today is for this particular wind
19 range.

20 By taking the WGR definition and moving
21 it from there and saying all of these blue -- these
22 six blue ones -- are now WGR No. 1, these three red
23 ones are WGR No. 2. And, of course, the rest are WGR
24 No. 3. We have all of a sudden created fictitious
25 things that don't have meter points. And, as a

1 result, we're going to treat them just like units.
2 And if you look in the protocols, the word resource
3 and units occurs in the protocols and the guides over
4 2,000 times. Now all of those don't apply to WGR no
5 matter how you define them. But all of a sudden what
6 we've been using and interpreting at this interconnect
7 points has now got to be applied here.

8 And so, for instance, we're going to
9 have to treat them like any other generator would
10 treat their units, and there's a lot of things that
11 don't make sense because of that. I'll be happy to
12 get into the details of why it doesn't make sense, but
13 what we proposed -- and you'll see it in the Wind
14 Coalition comments -- is alternative wording that, in
15 our opinion, provides 100 percent of the data that
16 ERCOT needs to do its modeling without changing the
17 definition of WGR.

18 So this is a very, very simple thing,
19 and I apologize that we're having to bring it up to
20 the Board, but we just haven't had the opportunity to
21 vet this yet. This whole 830 has not been discussed
22 in any working group or in any task force where we can
23 have the kind of give and take that it takes for us to
24 understand the problems that ERCOT is going to have
25 with this modeling and the ones that we're going to

1 have.

2 In addition, I did want to point out on
3 kind of the issues that were raised by some other
4 speakers, if I'm permitted.

5 CHAIRMAN NEWTON: Very quickly.

6 MR. DALTON: Walter, one second. Could
7 you hold off for one second on that? I wanted to
8 follow up with John or Kent.

9 Is there a reason why we're going back
10 behind the point of interconnect in PRR 830 as opposed
11 to just characterizing the wind farm as a whole?

12 MR. DUMAS: Yes.

13 MR. DALTON: Could you explain that to
14 me?

15 MR. DUMAS: Sure. First of all, wind,
16 as Walter said, wind turbines have been aggregated
17 together to form a unit. In some cases it may be, you
18 know, one unit or multiple units. The concern is if
19 you've got turbines that are very different in
20 characteristics -- reactive capability for instance.
21 You've got maybe a group -- say you've got 20 turbines
22 that have great reactive performance, and then you
23 have -- a lot with that, another 20 turbines that
24 doesn't have any.

25 If you lump those together in 40

1 turbines to form one unit, our models require one
2 reactive curve. So how are you going to design or
3 draw one reactive curve that represents 40 units with
4 very dissimilar capability?

5 So what we've proposed in PRR 830 is,
6 well, you can aggregate turbines, but you need to
7 aggregate turbines that are the same model, same size,
8 have the same characteristic. So when we're running a
9 power flow analysis or running realtime contingency
10 analysis with one reactive curve for that unit, that
11 that reactive curve is representative of the
12 capability of those turbines that it represents.
13 Because you can run into -- not only would you have
14 difficulty creating a reactive curve to represent 20
15 dissimilar capabilities. What happens when you have
16 all -- say 10 of your good performing turbines down
17 for maintenance? Then you've got little to no
18 reactive capability, but yet you've got a curve that
19 shows that you have more than you need to.

20 Now, a couple of points I want to make
21 here. The point of interconnect, where that meter --
22 that red meter that Walter has drawn -- is talking
23 about -- I assume he's referring to the EPS meter, the
24 poll settlement meter, it's very common on
25 conventional units that we may have -- I can think of

1 one case where we've got five different power lines
2 coming into a power plant and there's an EPS meter for
3 those five lines, but the individual units have
4 realtime telemetry provided from an RTU of their
5 individual megawatt output, their individual limits
6 provided through SCADA. So, I mean, that's a common
7 practice and that's how it's done with, you know,
8 almost all of our units with -- providing telemetry
9 that's from -- either from our control system or from
10 a transducer that's out at the field.

11 The other thing I wanted to point out,
12 Walter made a comment earlier that this PRR has only
13 been out there a month. We've been dealing with this
14 issue for a long time now as we've been talking about,
15 and we've had quite a few discussions. This PRR was
16 actually submitted, I believe, September 8th date. It
17 was tabled -- it was presented at ROS to cover what's
18 in the PRR, what we're trying to do. Then that went
19 to the PRS. PRS tabled it for a month for ROS to have
20 a discussion, and John Houston covered the history of
21 those discussions.

22 MR. DALTON: Just follow up on that --

23 MR. REID: If I could follow up on
24 that -- oh, I'm sorry.

25 MR. DALTON: I'm okay with the concept

1 of the telemetry and why you want the telemetry on the
2 units. But it would seem to me that from a grid
3 reliability perspective, what you really want is
4 wherever they're connected to the grid to know what
5 capability they're expected to deliver at that point
6 of interconnection -- I mean, if the generators, for
7 whatever reason, can't deliver because there are some
8 units down, that should be on them. And if they
9 create a violation or if they create a grid problem,
10 you know, the TRE or someone is going to come calling
11 on them for that. That's for them to deal with as
12 opposed to trying to -- I'm worried that creating
13 these little subunits inside of a single
14 interconnection potentially creates more reliability
15 issues for the grid than it solves, or am I wrong in
16 that assumption?

17 MR. DUMAS: No, sir. Let me trot it out
18 a little deeper and see if I can answer your
19 questions.

20 MR. DALTON: Okay.

21 MR. DUMAS: You've got to have a
22 reactive curve that represents the capability of that
23 unit, where it can go to. At the point of
24 interconnect, each unit has a -- what's called a
25 voltage schedule where they're trying to hold the

1 voltage. And the way they hold the voltage is they
2 supply either more vars or absorb vars if the voltage
3 is high.

4 We also run realtime contingency
5 analysis where we simulate taking lines out of
6 service, and we look to see what the voltage would go
7 to if we took that line out of service.

8 Well, the way the software is going to
9 calculate where the voltage can go to is based on a
10 capability curve supply. And it's going to look at
11 that capability curve and say, okay, well how many
12 vars can you produce or how many vars can you take in?
13 So it's very important that that capability curve is
14 representative of what that unit can do.

15 You also -- if you have any devices in
16 the substation such as cap banks, reactors, stack
17 house, whatever the device is, you model those
18 separately. So they all contribute, but it's very
19 important that you know what the capability of that
20 units is. It's not just the realtime output of the
21 unit. It's what it can do when you simulate these
22 contingencies.

23 MR. DALTON: Are you aggregating all of
24 that at the point of interconnection or are you
25 aggregating at some other point on the grid?

1 MR. DUMAS: It's aggregated however they
2 submit it in a resource plan. So as Walter pointed
3 out, in a lot of cases it may be all the units at the
4 farm, whether it's -- you know, no matter what type
5 they are, whether it's a mixture of different
6 turbines.

7 MR. DALTON: So say for example they had
8 these three sets of turbines, all different sizes, and
9 they had two capacitor banks and they aggregated that
10 and they said at the point of interconnection we can
11 deliver you "x" reactive power. Is that sufficient
12 for this or do you need more detail and granularity
13 than that?

14 MR. DUMAS: It's not sufficient because
15 what you need is to be able to hold the voltage. And
16 you may need varying amounts of vars to be able to do
17 that. So the var varies. What you're trying to do is
18 hold the voltage. And what the requirement is with
19 the .95 rectangle from a hundred megawatt unit, you've
20 got to be able to deliver up to 33 megavars. That's
21 the requirement.

22 So if the voltage goes low -- say it's a
23 345 bus -- and the voltage goes low to 340, and the
24 unit is putting out 33 megavars but it can't get the
25 voltage up past 340, then it met the requirement.

1 But it could be that it could go -- depending on the
2 conditions of the grid -- it could be it could go to
3 345 and only put out 10 megavars. So you need to know
4 how that capability is going to vary based upon your
5 curve when you run your study and the need of the
6 simulation that you're doing.

7 CHAIRMAN NEWTON: Okay, gentlemen, if I
8 could --

9 MR. DALTON: I'll yield.

10 CHAIRMAN NEWTON: Well, we really need
11 to get going here. Did you have a couple more
12 comments, things that haven't been said by the other
13 parties?

14 MR. REID: A response to a couple of
15 things. First of all, to this reactive -- this
16 discussion on the modeling. I 100 percent agree with
17 everything John has just said in terms of the need to
18 do the modeling and that it needs to be the extra
19 detail. You really need to get to the low side of the
20 transformer and show the pieces. If you look at my
21 wording, it does that. It just doesn't redefine WGR
22 in the process.

23 So we're totally supportive of this.
24 I've been on about this for over a year, maybe even
25 two years, that we need this kind of detail in load

1 flow and operations, totally supportive, just don't
2 redefine WGR in the process.

3 I would footnote that we've taken more
4 time here at the Board to discuss this one issue than
5 at all the committees or subcommittees that have
6 discussed this PRR to date. And I can discuss the
7 flow of this. It's 30 days since this was first
8 discussed that it came to here.

9 The other things that I'd like to
10 mention and be a little cutesy on it, but what we have
11 here is a failure to communicate. We've got a whole
12 bunch of folks out there that I think were trying to
13 do the best job they could, whether they were
14 transmission service providers or wind generators or
15 ERCOT.

16 And my analysis of this over now -- over
17 a year of being involved in it, is we've just had
18 people talking in conventional generator terms and
19 people talking in wind generator terms. If you look
20 at the forms that they were asked to fill out, if they
21 didn't fill them out, they weren't going to get
22 interconnected. If they did fill them out, they had
23 to use a lot of engineering judgment, because what
24 they were asked to respond to doesn't fit their
25 hardware and their systems. So you've got a lot of

1 issues that were just very difficult, and we're all
2 learning on this.

3 The voltage issues that we've had, the
4 one that I'm aware of, that I think was -- highlighted
5 here was a communication issue, as I recall it, where
6 various parties were trying to make something happen.
7 This was, what, over a year ago -- in fact more than a
8 year ago. And as a result of that in some of the
9 workshops we had a lot of discussion. I applaud AEP
10 and Oncor. Oncor sent their operators, every single
11 shift operator from Oncor went to a wind ranch to
12 understand what they're doing, how they're built, how
13 they operate. I believe Ross Phillips gave them a
14 questionnaire to go get answered when you go out to
15 the field so that all those operators understood.

16 We've got a history in ERCOT of all the
17 folks really working well together. And when they get
18 on the phone or they see a typed message or an
19 automatic display on their computer, they've all had a
20 lot of communication together. They all understand
21 what we're saying. We tend to speak in short words,
22 take shortcuts on our communication.

23 We've got a new industry that's trying
24 to integrate. I think everybody has been working real
25 hard to do it. We're all running together. I really

1 encourage you to please do what we need to make it
2 clear for the new generators. And the generators that
3 are there, they're there today, they're there
4 tomorrow, they're there next month. Let's take the
5 time it takes to figure out how we're going to handle
6 that. And I don't want to get into discussing from my
7 point of view what the right way to do that is. It's
8 certainly not in this forum. Thank you for your time.

9 CHAIRMAN NEWTON: Okay. Thank you. Did
10 the Wind Coalition take a position about this
11 prospective and retroactive piece?

12 MR. REID: Yes. And I say the Wind
13 Coalition, we have not had a vote on it. And, as I
14 say, we have 30 members. And I think someone when
15 they were speaking from -- one of the Wind Coalition
16 members -- used the word competitor. So getting all
17 these guys in the same boat much less paddling in the
18 same direction is a challenge --

19 CHAIRMAN NEWTON: That's okay. If the
20 answer is just no, that's fine.

21 MR. REID: So most of those guys have
22 all agreed that this rectangle is definitely where we
23 need to go, and I know of no one that is going to
24 oppose it.

25 CHAIRMAN NEWTON: On a prospective

1 basis?

2 MR. REID: On a prospective basis.

3 CHAIRMAN NEWTON: Okay. Thank you very
4 much.

5 Okay. Do we have any other comments or
6 people who would like to make any comments?

7 Okay. Please identify yourself and who
8 you're representing.

9 MR. R. JONES: Thank you, Madam
10 Chairman. My name is Randy Jones. I'm with Calpine
11 Corporation, and we're in the independent generator
12 segment. I have the unique privilege of serving this
13 year on ROS, WMS, PRS and TAC. And I can certify to
14 you that you have not met longer today than all those
15 groups have on this issue. Trust me on that.

16 I come at this issue with a fairly deep
17 background in system operations, although I'm not an
18 engineer. I worked in realtime operations and managed
19 realtime operations for TNP for 13 years, both on a
20 control air generation side as well as the wire side,
21 managing voltage support and reactive compensation.

22 Our view at Calpine is that voltage
23 support is a community service. No one gets paid for
24 it. And as you're all aware, in the area of
25 discipline of market design, the biggest enemy to any

1 community service is a free rider. It always creates
2 problematic areas.

3 We view voltage support as an
4 obligation, one that we all share as generating
5 resources. And we believe that there have been enough
6 provisions made in the protocols that everybody can
7 carry their fair share.

8 As I look around the room, I can also
9 tell you that I'm probably the only person here who
10 participated in the Interim Voltage and Reactive
11 Standards Task Force many years ago that ROS put
12 together. And in at least one of those meetings at
13 the old HL&P building, I asked the question not once
14 but twice: Does this mean that generators can provide
15 a proportional amount of reactive output at lower real
16 power levels? And the resounding answer I got both
17 times was no. I think maybe one time it was hell
18 no -- excuse my French.

19 But I was disabused of the idea of a
20 system, particularly one operating in the shoulder
21 months at very low loads, where generators would only
22 provide the triangular reactive capability. I still
23 to this day believe that the folks who participated in
24 that group understood very clearly what the
25 requirements had to be. And if developers of wind

1 facilities would have asked any of us, I'm certain
2 they would have gotten the same answer. It's a
3 rectangle, folks.

4 We believe that PRR 830 has been fully
5 vetted. The debate has been beyond vigorous at times.
6 Despite what you've heard, we think that the time that
7 the stakeholders have had to evaluate this PRR has
8 been more than adequate.

9 It's a fundamental component of system
10 reliability and security. And the idea that you can
11 take a snapshot and do a study today and that's good
12 enough to determine what a generator ought to provide
13 we believe is a huge myth. Over the life cycle of a
14 unit you just can't continue to perform studies. And
15 I think you saw the fallacy in that kind of approach
16 when Charles Jenkins asked that question. There was a
17 lot of trepidation about how you would approach that.
18 That's why we believe there's a standard; that all
19 resources ought to meet it. And once they meet it
20 going forward, there's no question about where the
21 rest of the reactive compensation has to come from.

22 We would ask that you affirm the work of
23 the stakeholders, recognize the overwhelming votes for
24 PRR 830 through the stakeholder community, and affirm
25 the work of TAC in denying the appeal of NextEra and

1 approving PRR 830. Thank you.

2 CHAIRMAN NEWTON: Any questions?
3 Comments?

4 Okay. I think where that takes us --
5 oh, I'm sorry. I didn't see her. We do need need to
6 take a very brief break after this presentation
7 because we've got our court reporters here that her
8 fingers are probably about to fall off. I tried to
9 assure them I would try not to go more than two hours
10 and we are already past it, both this morning and this
11 afternoon. So after this presentation, we are going
12 to take just a two- or three-minute break.

13 I would ask for people not to go real
14 far -- I'll say five minutes, but be back. Okay? So
15 that's a forewarning ahead of time.

16 Excuse me. Now you can go ahead.

17 MS. DIFFEN: That's okay. I'm going to
18 make this really short. I'm Becky Diffen representing
19 Duke Energy. In the interest of time and as requested
20 I'm not going to repeat any of the comments made
21 today. But Duke owns several hundred megawatts of
22 wind generation in ERCOT, and we would just like the
23 Board to know we support the comments made today and
24 filed previously by Horizon, NextEra, AESCS and the
25 Wind Coalition. That's all.

1 CHAIRMAN NEWTON: That was very brief.

2 Thank you.

3 Anyone else?

4 I'm not trying to cut anyone off. We'll
5 come back and take further comments. I would just
6 like a hands up or notification.

7 Okay. Five minutes and we'll come back.

8 (Recess: 3:20 p.m. to 3:27 p.m.)

9 CHAIRMAN NEWTON: Okay. I'm going to go
10 ahead and get started. I think we've got enough Board
11 members in the room, at least, and hopefully they will
12 be in their seat shortly.

13 I think what I'd like to do right now is
14 before we actually discuss the path forward for the
15 board, there has been some nuances and discussions
16 regarding some of the other activities relative to
17 this issue that have been at the Commission. So,
18 Mike, can you touch on those?

19 MR. GRABLE: Yeah, I'll be real brief
20 and try to be neutral. John Dumas touched on that
21 there have been a lot of staff and wind generator and
22 TSP interactions, that this wasn't a blank slate that
23 began with PRR 830. One of the things that's been
24 occurring is we actually got an interpretation
25 request, which is a little known protocol where you

1 can ask ERCOT legal to issue an interpretation of the
2 protocols, came from an interested party who was
3 looking at building generation, and we replied to it
4 and published an interpretation, and it said this is
5 what we think the PRR -- the protocols existing
6 protocols mean.

7 Wind generators took that, appealed it
8 to the PUC, requested relief, essentially stating that
9 the triangle was the appropriate -- or the cone was
10 the appropriate interpretation, and we kind of went
11 back and forth on that. We both mutually updated it,
12 tried to resolve the issues. We were unable to do so.

13 That docket has been dismissed, and the
14 dismissal was upheld by the Commissioners. On a
15 procedural basis, you know, I can't discuss any
16 pending ADRs or whether there will be a future
17 commission action. I also can't discuss any referrals
18 to Texas Regional Entity and whether or not there is
19 or may ever be an enforcement action related to any of
20 this, but there's nothing public at this point in time
21 on those fronts.

22 CHAIRMAN NEWTON: I appreciate that. I
23 think it's important for the Board to understand kind
24 of all of the activities that are going on relative to
25 these issues.

1 Okay. We've had a lot of discussion.
2 What I'll do at this point is bring up the
3 recommendation by TAC for approval of PRR 830 and see
4 if we have any further discussion among the Board
5 members, and then I will see whether there will be a
6 motion for approval.

7 So, Bob, do you want to start?

8 MR. HELTON: Yeah, I can start. I'm
9 sure cards are going to come up all over here in a
10 minute.

11 From listening to all this -- and I know
12 there's been a lot of confusion, there's been a lot of
13 miscommunications, and a lot of what I was sitting
14 here and watching and saw what we had going on was it
15 was basically -- I felt like I was an appellate Judge
16 there for a while on making a decision, and that's
17 kind of the way I felt about it. Are the protocols
18 right or wrong is really a lot of what I heard today.

19 So what I see is in 830, so I'll talk
20 about that first. 830 sits out there and says here
21 is -- as John and Kent have said, "Here is what the
22 requirement was, and here is a way to comply," and
23 says there's people out there that do not comply.

24 My problem with that is, if we have
25 people out there that aren't complying with the

1 protocols, as written, as you guys define them, you
2 need to be filing notices of violations. Okay? That
3 needs to be done, referred to -- or not ERCOT do that.
4 They are referred to the TRE for that. I'll get the
5 procedure correct, and the TRE takes that.

6 As part of the NOV process, you figure
7 out who is right, who is wrong, what those are. And
8 then if there's mitigation that needs to take place,
9 that's done through that process to get people to
10 where the protocols are -- or tell you you have to be,
11 and if that's retrofit, that's retrofit.

12 What I think that 830 does for the
13 retrofit piece is circumventing that process. I
14 understand what it was trying to do. It was trying to
15 give people an avenue out there in the protocols to do
16 that, but it also looks like ERCOT is changing the
17 rules and trying to make entities retrofit, and I
18 think doing this process takes that away. Let that be
19 thought out through the NOV process, who is right, who
20 is wrong and then what has to take place. That would
21 be my suggestion, let the process work instead of
22 circumventing it with a 30 on the retrofit.

23 The other side going forward, if we feel
24 the need, which I think we might want to ensure that
25 from this point forward it needs to be clarified to

1 say it is the rectangle, then we can do that. But,
2 you know, my first thought when I first saw this whole
3 thing was 830 isn't needed. If you say that this is
4 what the protocols say, that's what they say.
5 Everybody has to comply, period. And then if there's
6 a disagreement with that, there are processes to take
7 care of that. You don't have to -- you would not need
8 this at all for retro or moving forward. But I can
9 see with everything going on we might want to go ahead
10 and push 830 back to do -- make sure that it addresses
11 only the going forward part and letting the NOV ADR
12 processes take their place and let the process work
13 rather than circumventing it. So that's kind of where
14 I would kind of throw out right now.

15 CHAIRMAN NEWTON: So can I put that in
16 other words? I think what you're saying is you're
17 recommending that the Board remand back the
18 prospective decision, that the rectangle applies to
19 everyone, all generation types, but remand it back
20 from some period of time so it can come back to be
21 explicit about the prospective piece --

22 MR. HELTON: Be prospective, right.

23 CHAIRMAN NEWTON: -- but not to address
24 the retroactive piece, let that go through the NOV
25 process?

1 MR. HELTON: We've already heard from
2 ERCOT staff, from the TAC representative that that's
3 what they believe the requirements were, were
4 rectangle. So protocols in their eyes and what they
5 said are there. There are processes to get that taken
6 care of, which is, you turn it over to the TRE, the
7 TRE makes a determination, and then they fight it out
8 wherever -- in whatever venues that is, and whoever
9 wins, wins. If there's retrofit, then retrofit takes
10 place through mitigation plans that are done through
11 that process. It takes us from being looking like
12 that we are turning around and changing the rules and
13 making retrofits. It allows the process to work, and
14 I think this circumvents it the way it's written.

15 CHAIRMAN NEWTON: Okay. Brad?

16 MR. COX: Yeah, I think, you know, we've
17 seen the split into the two pieces obviously, the
18 prospective piece and what do we do with the existing
19 system and the existing wind farms, and I'm fine
20 with -- and it seems like everyone that's spoke is
21 fine with having this requirement on a prospective
22 basis for new facilities, I guess.

23 So the question is, what do we do with
24 the system as it exists today, and the thing that
25 concerns me is I would -- you know, I would really

1 like to see some type of a study that says, "Here are
2 the problem areas, and here is the most cost-effective
3 way to deal with those." And I don't -- I don't think
4 we have that, at least I haven't heard or seen
5 anything about that, that type of an analysis.

6 You know, I think Bob makes a good point
7 about letting the ADR process play itself out. I
8 don't have a problem with that, but I would -- you
9 know, if we decide to go down that path, let's go
10 ahead and figure out what the circumstances are and
11 what needs to be done and what's the most
12 cost-effective way to -- you know, if there are
13 changes that need to be made so that we don't, you
14 know, lose time, you know, in respect to that.
15 That's -- you know, after listening to all the
16 discussion and reading the materials, that's where --
17 it seems to me the most reasonable approach.

18 CHAIRMAN NEWTON: Charles?

19 MR. JENKINS: I was going to talk on a
20 slightly different issue, and that was the WGR
21 definition issue that Walter Reid brought up. And if
22 we do end up sending this back to TAC, I guess I would
23 encourage them to address the point he made. I think
24 it was a pretty valid one.

25 If we go the direction Bob is suggesting

1 of just letting the ADR process -- those that are
2 appealing 830 are sort of rolling the dice. Right now
3 they've been offered somewhat of an "It's okay," and
4 you've just got to get in compliance by this date out,
5 and so the mitigation is sort of already worked out
6 and it's known.

7 If we just let it go, what does the
8 existing rule require, and if it's determined that it
9 does require something different than what they can
10 deliver today, you know, I don't know what the
11 mitigation is going to be. It may be worse or better
12 than what's in 830 today.

13 So I sort of don't know how -- how to
14 deal with that. I don't like the position that the
15 Board is in on this matter. I think we need to remand
16 at least on the issue that Walter raised. I'm
17 still -- I'm still not sure where I am on the broader
18 issue.

19 CHAIRMAN NEWTON: Okay. Mark?

20 MR. ARMENTROUT: I'd just like to point
21 out that Chairman Smitherman is not in the room for a
22 reason, and that reason is that the Commission will
23 rule on the retroactive issues, so just to put a
24 leveling agent and how much time we want to put in to
25 voting that piece.

1 The second point I wanted to make -- and
2 Charles has made some comments that made me rethink
3 this, but I'll say it anyway. We could do what you
4 said, Bob, here in this meeting right now without
5 remanding it to TAC. I'm not recommending it. I'm
6 just pointing it out.

7 CHAIRMAN NEWTON: John?

8 MR. DUMAS: Just one comment on the --
9 something that Brad said about studies. Obviously I
10 think John Houston made the point earlier that we have
11 standards that apply to generators and apply to loads,
12 and we've studied the transmission system to determine
13 what variability, what variable equipment we need
14 there.

15 I think we don't want to get in the
16 position where in the future -- you know, the system
17 is dynamic, the system changes, the needs change all
18 the time. I think Charles alluded to that earlier.
19 Needs are constantly changing. We don't want to be in
20 a position where the standard gets challenged and
21 we're asked, "Well, okay, show me a study where I have
22 to put this in or I have to meet this standard."
23 That's a bad position for ERCOT to be in, number one.

24 Number two, we are making some
25 assumptions. We have been making some assumptions

1 about the capability of resources in all our planning
2 studies going forward. We will be doing the CREZ
3 reactive study, and we will be making assumptions in
4 that study as to what the capabilities are of
5 generators moving forward. So it's important that,
6 you know, we make the right assumptions and don't have
7 to go back and redo some of those analysis.

8 CHAIRMAN NEWTON: Mike?

9 MR. GRABLE: Yeah, I first want to say
10 something real quick that I should have said at the
11 beginning, and that is I think you-all know I wear two
12 hats when I sit here, one is as counsel to the
13 corporation and this Board, and the another is an
14 officer of ERCOT similar to the other officers sitting
15 at the table. I think you understand I've spoken
16 today as an ERCOT staff member and on behalf of the
17 ERCOT staff a proponent of PRR 830, but I just want to
18 be absolutely clear on that, except for asking people
19 to give a business card to the court reporters.

20 Bob, I want to go back to why we filed
21 this PRR and explain why, from a staff perspective, we
22 would have concerns with sending this back to TAC to
23 be rewritten to be prospective. I'm certainly glad
24 the wind generators are okay with prospective for new
25 units rather.

1 But I kind of had three thoughts in
2 mind. One was create a grace period for compliance
3 for the generators that we know today are not
4 compliant with our version of how things should be,
5 and we understand there are major capital investments
6 that would be facing them to get compliant.

7 The second was to clarify and increase
8 the flexibility that we already have, but to kind of
9 spell it out a little better, to help wind generators
10 who can't do fuel dynamic with a mix of dynamic and
11 static or other alternatives to more better explain
12 the process by which we will be open to negotiations
13 on alternative compliance.

14 And third, do our best, as John Dumas
15 just said, to avoid erroneous assumptions flowing into
16 the CREZ studies, fully understanding that the
17 Commission and possibly beyond the Commission are the
18 ultimate decisionmakers on all of these points. We do
19 want to try to get it right, if we can.

20 To do any of those three things, we have
21 to understand what the protocols require today. If
22 the protocols do not support -- you know, if the Board
23 does not share our sense of the protocols, we can't
24 accomplish any of the goals for which this PRR was
25 filed. So that would be my concern with that

1 approach, and obviously NOV's from TRE or PUC
2 enforcement, there are none that I know of today and
3 PUC appeals on this or other matters, ADRs and the
4 like are certainly not precluded.

5 CHAIRMAN NEWTON: Bob, do you want to
6 address that?

7 MR. HELTON: Yeah, I do actually because
8 there's actually something you said there that
9 concerns me greatly, and I'll address just 2 and 3
10 first.

11 I think that it's great to increase --
12 part of what 830 and looking forward, I think it's
13 great to increase that flexibility of the mix of what
14 they could do to comply with the protocols, and you're
15 absolutely right, you need to avoid. And I think
16 you're looking at this wrong. I think that if -- if
17 the Board says, "Let the NOV process work," we're not
18 disagreeing with you. We're saying, "You said the
19 protocols are that, go file and put that over to the
20 TRE and do what the protocols say."

21 My problem with No. 1 is, is I don't
22 believe ERCOT has the leeway on any compliance issue
23 to create a grace period. You find a protocol
24 violation, you file and turn it in, and then you let
25 the TRE and the process work. I'm really concerned

1 about the grace period piece because then you're
2 making it to where I'm saying, "Well, you, I'm going
3 to give you a grace period." "You, no, I'm not giving
4 you a grace period on this assumption," and I have a
5 real issue with that.

6 That's why I'm saying -- for right now I
7 could say I agree with your interpretation even though
8 I know that's going to be challenged. I could say it
9 right now if I wanted to. I agree with where you're
10 at. Go file with the TRE and say you have protocol
11 violations. Let that process work. That's why I'm
12 saying that 830 -- and I understand what you're trying
13 to do. You're trying to help.

14 The wind -- you know, talking about what
15 Charles was talking about, this is -- there's a roll
16 of the dice. The winds are -- the wind group says
17 "We're right, they are wrong." Let them have their
18 day in court, go through the process.

19 By doing this, I think you're trying to
20 help it with them, but you're boxing them in and
21 circumventing that NOV process. I think we need to
22 let the process work, and there is no grace period, as
23 far as I'm concerned. That's the only reason I was
24 trying to push that out there.

25 MR. GRABLE: Yeah, respectfully I think

1 you misunderstood --

2 MR. HELTON: I was hoping I did.

3 MR. GRABLE: -- what my intent was and
4 really what I said. If this protocol revision request
5 passes today and creates a 12-month, or whatever the
6 time period is, timeline for compliance could -- you
7 know, was the protocol what it was in November,
8 October, September? Yes. Could Texas Regional Entity
9 or PUC enforcement and oversight bring an action based
10 on noncompliance in October of 2009, you know, if they
11 agree with ERCOT staff's position? Yes. Does it
12 color their evaluation of whether to do so if we have
13 a plan for compliance and ERCOT operations have signed
14 off on it as acceptable down the road? Yes.

15 So don't misunderstand. I'm not
16 offering on behalf of staff or anyone else carte
17 blanche for interpretation of the existing protocol.
18 I'm just suggesting that it would -- that's our plan,
19 is to develop a path to meet them over time, granted
20 with our interpretation, and I think that that would
21 color any enforcement decision. I don't think it's a
22 given that NOVs must come first.

23 CHAIRMAN NEWTON: Okay. Danny?

24 MR. BIVENS: This may have been covered
25 already, but I just -- you know, to the extent that

1 there's been a circumvention of a process that's
2 already in place, you know, I kind of thought the same
3 thing at first, but as many of you in the room -- my
4 background comes from a lot of years of just being in
5 the regulatory world, and that world, to try these
6 things on a case-by-case basis instead of coming up
7 with a rule, and in this case protocol, that would
8 apply to all so that everyone applies with the same
9 rules of the road, I think is always superior.

10 And I don't know what ERCOT's thinking
11 was in coming up with this protocol, but, you know,
12 when you go to doing the NOV process and start taking
13 each one of these -- and how many of those generators
14 are noncompliant? What was the number? You know, you
15 start doing that, you know, everyone is going to be
16 done on a different timeline. You're going to expend
17 a lot of resources, and December 2010 gets here, which
18 is the date that's in the protocol, you're not even
19 going to be close. So I don't know, for whatever
20 that's worth. I don't prefer piecemeal or a
21 piece-by-piece approach to a rule.

22 CHAIRMAN NEWTON: Andrew?

23 MR. DALTON: Yeah, Kent, I have kind of
24 a question for you or for John. We're talking about
25 potentially having the wind folks spend a nontrivial

1 sum of money. We already have the LVRT study
2 underway. Would it be even possible to add the
3 reactive power issues to the LVRT study without
4 delaying the LVRT study? Is that a possibility, or is
5 that not a possibility?

6 MR. SAATHOFF: Let me get Dan up here.
7 He's more familiar with the LVRT study.

8 MR. WOODFIN: Yeah, I think at this
9 point we've made a lot of the assumptions about what
10 the characteristics of the units are and those kinds
11 of things. As a part of that process, they are
12 gathering the information. It's going to be a dynamic
13 study. So it's going to include -- essentially it's
14 looking at the actual requirements, the actual
15 capabilities, I believe, in that study from a dynamic
16 perspective, so -- and it's only studying the
17 timeframe. It's studying a topology that's pre-CREZ,
18 and that was specified in how the study was set up.

19 So it may study kind of the in between
20 now and CREZ requirements. I don't think it would be
21 that difficult to actually address that issue in the
22 LVRT study for that timeframe. It will not cover the
23 ongoing needs of the system post-CREZ. We'd have to
24 include that in as an additional work item somehow to
25 the CREZ reactive study to look at kind of the

1 incremental needs if the -- that generation doesn't --
2 isn't able to meet the protocol requirements.

3 MR. DALTON: What's the timeframe for
4 the CREZ study, the reactive study?

5 MR. WOODFIN: The current scope of it is
6 intended to be completed mid July of next year.

7 MR. DALTON: July 2010?

8 MR. WOODFIN: Yes.

9 MR. DALTON: So it's basically on a
10 similar timeframe as the LVRT study.

11 MR. WOODFIN: A little longer, yes.

12 MR. DALTON: A little longer, okay.

13 CHAIRMAN NEWTON: Okay. Nick?

14 MR. WOODFIN: Okay. Thank you.

15 MR. FEHRENBACH: And this has indeed
16 been a nice, long discussion, and it's always good to
17 see energetic discussion on an issue. And, you know,
18 I listened to all the presentations, and the one thing
19 I was looking for is really an explanation from the
20 wind resources on why they thought this triangle or
21 cone applied. When you get down to it and you read
22 the actual existing protocol language that's been
23 there since 2004, I concur with ERCOT that it's a
24 rectangle, and it's always been a rectangle.

25 I have a problem if we decide to remand

1 this or pass on it or drag this out further that, you
2 know, we have a group of entities that have
3 essentially been in noncompliance with the protocols.
4 And should we send an NVI? Probably. And even if we
5 pass this PRR, we can still do the notice of violation
6 for October or prior months, and that certainly can be
7 done. Do they have -- if they are complying with this
8 timeframe or window to get in compliance, that would
9 probably be a good defense to the NVI, but it
10 shouldn't -- it doesn't stop the process from going
11 through.

12 But, you know, the only explanation
13 people could say why they misinterpreted is some
14 errant slide that may or may not have been in an ERCOT
15 presentation that was corrected or some other language
16 dealing with deployment rather than the actual
17 requirement, and to me that's not compelling, and I
18 think the protocols were clear that it should have
19 been a rectangle. I'm sorry if that costs money to,
20 you know, the wind generation folks to retrofit, but
21 the protocols have been there since 2004. It
22 shouldn't be a retrofit. It should have been stalled
23 initially, and I think it's time to move forward. If
24 through the ADR process or NV --

25 MR. DALTON: NOV.

1 MR. FEHRENBACH: -- NOV process, you
2 know, people seek to get some other mitigation, they
3 can certainly do that, and they can do that even if we
4 adopt this and -- just to see if we can get a second
5 and move forward, I will move that we adopt PRR 830
6 and reject the appeal.

7 MR. DOGGETT: I'll second.

8 CHAIRMAN NEWTON: Okay. We have a
9 motion from Nick Fehrenbach, and we have a second from
10 Trip Doggett. Charles?

11 MR. MANNING: I was just going to say
12 I'm going to support that motion.

13 CHAIRMAN NEWTON: And I'm sorry to
14 interject. Just for clarification, it was kind of a
15 double motion. It was a motion to approve the PRR and
16 reject the appeal. Correct?

17 MR. FEHRENBACH: Which I think actually
18 by approving the PRR we pretty much reject the appeal,
19 but I just wanted to make it clear that we were doing
20 both.

21 (inaudible)

22 CHAIRMAN NEWTON: I think we probably
23 need to do both. We have them both noted for vote.

24 MR. JENKINS: I think the quickest path
25 to resolution on this is for us to put this PRR

1 forward. I agree with Mark the decision is going to
2 be made down the street, and kicking it back to TAC is
3 not going to accomplish anything other than spend more
4 time.

5 CHAIRMAN NEWTON: Dan?

6 MR. WILKERSON: I just wanted to say I
7 support the motion. I believe reactive capability
8 curves are a standard, and you don't really mess with
9 standards. If it's going to be messed with, it needs
10 to be done down the street, and that's -- kicking it
11 back to the technical folks who sent it to us with an
12 overwhelming majority doesn't accomplish anything.

13 CHAIRMAN NEWTON: Okay. Trip?

14 MR. DOGGETT: I was going to clarify
15 that I would be flexible on the -- Walter's issue of
16 WGR if there was an interest in a friendly amendment
17 to ask TAC to revisit that issue. I talked to Walter
18 and John out in the hall, and I think there might be
19 an opportunity to have further discussion on that
20 issue.

21 CHAIRMAN NEWTON: Okay. Before we
22 continue with comments, Nick, you made the motion.
23 Would you be amenable to that friendly amendment?

24 MR. FEHRENBACH: I don't have issue with
25 that --

1 CHAIRMAN NEWTON: Okay.

2 MR. FEHRENBACH: -- if, you know, we
3 want to fix that little piece of it.

4 CHAIRMAN NEWTON: Okay. We'll continue.
5 Bob?

6 MR. HELTON: Yeah, just real quickly I
7 agree that sending it back to TAC is not the right
8 thing to do. It was just one of the thoughts I had.
9 We could fix it like you had talked about, Mark, doing
10 that prospectively here.

11 And I understand what's trying to be
12 done. I'm having a problem. I still believe that the
13 retrofitting piece in this, while I understand the
14 full thing, I think it is a circumvention of the
15 process, and I don't think I can support it for that
16 reason. But I also know that this is a faster way of
17 getting it over to the Commission because no matter
18 what we do here, it's going to get there. I was just
19 trying to get it through a process that when they get
20 over there it's not going to be kicked back over an
21 appeal on a procedural issue because it didn't go
22 through the right process, like they had on the other
23 side whenever they tried to circumvent the process to
24 get it over there the first time. And I'm concerned
25 that by doing that, it could end up back again over --

1 over a procedural issue. So that's my concern with
2 that.

3 CHAIRMAN NEWTON: Okay. Bob Thomas?

4 MR. THOMAS: Thank you. I'm going to
5 support Nick's motion. I think the Board is good at
6 setting policy and rules, but it's not good at
7 resolving legal and factual disputes that we have in
8 front of us. We need to get this out of here up to
9 the Commission and let them apply their process to the
10 dispute.

11 One thing I'll be listening for in that
12 proceeding is the following: Very clear positions
13 that the requirement has been set for a number of
14 years, and I guess one question that hasn't been
15 answered today that I'm going to be listening for is
16 why would -- if it's so clear, why would anyone spend
17 all that money knowing they were making a mistake?

18 CHAIRMAN NEWTON: Andrew?

19 MR. DALTON: Yeah, I guess I have kind
20 of a more pragmatic concern to address. I mean, it
21 seems any way you look at this PRR, we were going to
22 potentially give wind until December 31, 2010 to kind
23 of build in to compliance. We have two studies
24 underway right now that might be able to give us a
25 very good picture of what compliance really ought to

1 look like from a standpoint of total system
2 reliability.

3 You know, we're going to have a lot of
4 issues integrating more and more wind through the CREZ
5 process, integrating the wind that's on there now as
6 we increase our transmission capabilities to move that
7 wind to market. In doing so, it's going to cost money
8 to wind generators, to everybody else on the system to
9 make that.

10 Before we would embark on spending a
11 hundred million dollars or anything in that ballpark,
12 I would like to know that we are spending that money
13 in the most wise and efficient manner possible to the
14 ultimate benefit of the grid long term. If there is a
15 way to address this type of issue in the ongoing
16 studies without prejudicing whatever this PRR does, I
17 would strongly recommend to ERCOT staff to take that
18 into consideration because I don't think whatever --
19 when this gets over to the Commission, this isn't
20 going to be resolved by April or May. We're going to
21 have these studies coming out June and July. They
22 might give us the picture of what the grid really
23 ought to look like going forward, and we ought to be
24 working towards that as a solution because the
25 Commission solution isn't going to help us fix the way

1 the grid ought to look and what wind generators ought
2 to do going forward.

3 We've been talking about getting the
4 right metrics and the right requirements for wind for
5 the better part of a year now. I think we have an
6 opportunity to work that in, regardless of what we do
7 with this PRR, and I think we should take it.

8 CHAIRMAN NEWTON: All right. Thank you,
9 Andrew?

10 Clifton?

11 MR. KARNEI: Yeah, I support the motion,
12 but I guess my question is a little bit different, and
13 it's to Grable. Since it's clear that ERCOT staff has
14 a position in this and since Trip is technically an
15 ERCOT staff member, I question whether he should be
16 the second on the motion and should vote on this or
17 possibly recuse himself. I'm just raising that as a
18 procedural thing for the second to the motion and
19 would like your comments on that, Mike.

20 MR. PATTON: I'll second that.

21 MR. KARNEI: If Trip withdraws his
22 motion -- I'm not one to put Trip on the spot. I'm
23 just saying --

24 MR. GRABLE: There's no distinction
25 really in terms of importance between being the second

1 and being a voting person. Let's say it were a Brazos
2 line and you were either an affirmative vote, say, ten
3 to five vote, and you were either the second or just
4 an affirmative vote, it would be a problem either way.

5 I will say that the duties with which
6 ERCOT staff are charged are public interest and
7 reliability duties, and although Trip is an ERCOT
8 staffer and is voting in alignment with those
9 interests, I do not read any of our conflict rules or
10 any general ethical dictate to require that the ERCOT
11 CEO recuse himself because ERCOT staff is a proponent.
12 The ERCOT CEO has voted on countless ERCOT
13 staff-sponsored PRRs, OGRRs, everything. If you were
14 to set that precedent, you might as well just
15 decree -- you might as well -- we've got the bylaws
16 coming up in a bit. You might as well make the CEO a
17 nonvoting member because any action this Board votes
18 on almost by definition has an impact on ERCOT staff.

19 MR. KARNEI: I'll withdraw my comment.

20 Thank you.

21 CHAIRMAN NEWTON: All right. Brad?

22 MR. COX: Yeah, I'm largely in agreement
23 with the direction we're headed. I'll tell you the
24 one thing that I'm hung up on, and it's similar to
25 what Andrew discussed earlier, is, you know, it's less

1 than certain -- I mean, if we didn't have some
2 ambiguity here, we wouldn't be spending all this time
3 discussing what the requirement is in the protocols as
4 they are written today. And the concern I have is
5 that if the -- you know, if whatever procedural route
6 this takes after it leaves here the -- you know, if
7 the Commission determines that, yeah, there is
8 ambiguity or whatever, you know, it would seem to me
9 there ought to be, again, the flexibility to deal with
10 the existing system as opposed to imposing a blanket
11 requirement over the existing system, so I -- because
12 there may be more cost-effective ways to remedy, you
13 know, whatever problems may exist.

14 I doubt that my request for that type of
15 flexibility as a friendly amendment would be
16 entertained. I'll throw it out and make -- make that
17 request, Nick, and see what your thoughts are. Do you
18 understand what I'm saying? It's -- they were getting
19 pretty complicated here, but I'm just -- the track
20 we're on right now really will put all of these
21 resources on a -- on this rectangle standard with a
22 grace period. Is that -- would you agree?

23 MR. FEHRENBACH: I would concur, but, of
24 course, I also think that under the current protocols
25 they should already be there.

1 MR. COX: Right. And, you know, I'm
2 only trying to leave enough flexibility to -- you
3 know, if circumstances are such that that flexibility
4 is warranted to allow for a more cost-effective
5 solution down the road, and I'm -- this would be --
6 I'm having a difficult time communicating this
7 perhaps, but that's the one issue I have left with
8 where we're headed.

9 MR. FEHRENBACH: And, you know, in
10 reading 830 the way it was written, one of the things
11 that I thought was sort of innovative, and Bob Helton
12 would probably say is one of those problematic things,
13 that it allowed the wind generators to come in
14 compliance by actually paying the T&D utility to
15 install devices to make them compliant. And that's
16 sort of a stretch for us because I don't think we've
17 done that in the past, let entities pay someone else
18 to install devices to make them compliant, but -- and
19 I thought that was innovative, and that probably gets
20 into a cost-effective solution for some of those
21 entities, but even that, you'll probably have people
22 not wanting to go that route and possibly going
23 through one of these other processes that are open to
24 them under law.

25 CHAIRMAN NEWTON: Okay. So I'm assuming

1 that that is not an acceptable friendly amendment.

2 MR. FEHRENBACH: And again, I'm not sure
3 exactly what the friendly amendment would be. So I
4 can't really accept it.

5 CHAIRMAN NEWTON: Okay. John, your card
6 has been up -- down there for a while. I've been
7 trying to take the Board members first.

8 MR. HOUSTON: Yes. No, and I appreciate
9 that, madam Chairman, and I just wanted to add my view
10 that we really need to address the issue of what is
11 the standard. This Board needs to take a position, if
12 nothing else, for future generators who are walking in
13 the door asking to connect. It needs to be clear.
14 Certainty needs to be taken, and I think our whole
15 compliance regime of both ERCOT and participants is at
16 risk if we do anything other than approve this going
17 forward.

18 CHAIRMAN NEWTON: Well, I've been
19 relatively quiet here, and I'm speaking as just a
20 Board member myself here, but after listening to the
21 debate, that's where I fall out, is that I
22 specifically asked most of the commenters, and
23 everyone seems to be in agreement, that prospectively
24 everyone getting on the same page relative to this
25 requirement is critical. And based upon that, it

1 looks like the big issue, in my mind, is the
2 retroactive piece.

3 I fully understand the heartburn that
4 creates for the wind generators from an investment
5 perspective. However, it looks like this thing is
6 going to get resolved, and the fastest way to get that
7 piece resolved is for us to move forward. So I will
8 be supporting it as an independent Board member.

9 Dee?

10 MR. PATTON: Madam, I call the question.

11 CHAIRMAN NEWTON: Okay. I've got one
12 other card, Dee. Can I -- can I just get Miguel's?
13 He's been pretty quiet, too.

14 MR. PATTON: I call the question.

15 CHAIRMAN NEWTON: Okay.

16 (Laughter)

17 MR. GRABLE: That's a motion that
18 requires a second and would have to be voted on to
19 determine if Miguel is heard or not. So is there a
20 second for the calling?

21 CHAIRMAN NEWTON: Miguel --

22 MR. ESPINOSA: Thank you.

23 CHAIRMAN NEWTON: -- real quickly
24 lets --

25 MR. ESPINOSA: I support the motion as

1 proposed. A, it seems to me like we should have been
2 there already, and we're not. I'm heartened by the
3 fact that nobody has gotten up and spoken against the
4 prospective issues for us. And if the looking back
5 the issue has to be resolved at 17th and Congress,
6 sobeit.

7 CHAIRMAN NEWTON: Okay. We have a
8 motion. We have a second. Everyone clear on the
9 motion?

10 (No response)

11 CHAIRMAN NEWTON: And with the friendly
12 amendment. Okay?

13 MR. GRABLE: And, Madam Chair, let me --
14 was there a second friendly amendment?

15 CHAIRMAN NEWTON: No, just -- no, he's
16 talking about the motion included --

17 (Simultaneous discussion)

18 MR. GRABLE: Oh, I see, right. The two
19 pieces being approval under Item 12(a) of the protocol
20 revision request and rejection of the appeal under
21 12(b). And I want to ask Mr. Doggett so we're
22 perfectly clear, his friendly amendment was to clarify
23 that the PRR 830 would be approved "as is" but a
24 separate instruction given to TAC to revisit the WGR
25 issue.

1 MR. DOGGETT: That's affirmative.

2 CHAIRMAN NEWTON: Okay. I won't repeat
3 that. We now have a motion and a second for approval
4 of PRR 830 and rejection of the appeal to that PRR.

5 MR. ESPINOSA: And I accept Dr. Patton's
6 calling of the order.

7 (Laughter)

8 CHAIRMAN NEWTON: All in favor?

9 (All those in favor of the motion so
10 responded)

11 CHAIRMAN NEWTON: Opposed? We have
12 one -- two oppositions, one from Andrew Dalton and one
13 from Bob Helton.

14 Abstentions?

15 (No response)

16 CHAIRMAN NEWTON: The motion passes.
17 Andrew?

18 MR. DALTON: One final point. I would
19 sincerely hope that no one who is a generator comes
20 forward after this meeting today and expresses any
21 confusion or concern that everyone expects the
22 rectangle will be implemented on a going-forward
23 basis.

24 (Laughter)

25 MR. DALTON: And if it comes up, we're

1 going to pull this transcript out.

2 MR. HELTON: Yes.

3 CHAIRMAN NEWTON: Okay. Thank you very
4 much.

5 All right. Mr. Bruce, it's back to you.

6 MR. BRUCE: Thank you, Madam Chairman.

7 That completes all of the PRRs for Board discussion
8 today.

EXHIBIT D

Exhibit D

The graphic below depicts the Notrees wind project and its 96 separate generators. The situation below occurred on December 20, 2009 at approximately 21:30 EST. The site was completely off-line due to low wind conditions. As the wind speed started to increase, the turbines on the South end of the site began to synchronize to the grid first. At this point in time, the total site had reached the 10% generation threshold (15MW; highlighted by the arrow), but only 52 of the 96 turbines had reached their minimum generation setpoint (100kW) that would allow for reactive power control.

POWER OUTPUT		kW	m/s	kW	m/s	kW	m/s		
HPJ	7.67 MW	4	3.2	NOT 43	21	4.3	NOT 85	32	7.4
OCO	31.0 MW	5	3.1	NOT 44	89	2.6	NOT 86	38	7.5
NOT	15.0 MW	3	2.3	NOT 45	127	4.0	NOT 87	57	8.0
NAW	33.85 MW	3	2.4	NOT 46	118	3.7	NOT 88	45	8.1
SSW	5.44 MW	3	2.6	NOT 47	328	6.6	NOT 89	38	8.0
SSW BHP	3.80 MW	2	3.5	NOT 48	139	5.9	NOT 90	37	8.0
SSW PRPA	1.48 MW	3	3.2	NOT 49	318	7.1	NOT 91	37	8.7
HJ & SSW	12.21 MW	3	3.5	NOT 50	333	6.5	NOT 92	77	8.3
CHW	73.31 MW	5	3.5	NOT 51	402	7.3	NOT 93	73	7.6
ERCOT PRICE	\$ 38.14	7	3.6	NOT 52	41	5.4	NOT 94	21	8.4
		16	3.5	NOT 53	31	4.6	NOT 95	77	1.9
		21	3.7	NOT 54	5	4.8	NOT 96	100	7.8
		14	3.2	NOT 55	284	6.2			
		29	3.8	NOT 56	146	5.0			
		5	4.2	NOT 57	145	5.3			
		45	3.8	NOT 58	240	5.4			
		5	4.1	NOT 59	246	4.9			
		8	3.4	NOT 60	218	5.3			
		6	3.8	NOT 61	110	3.1			
		34	4.2	NOT 62	116	4.8			
		3	2.6	NOT 63	277	5.7			
		42	4.4	NOT 64	274	6.3			
		71	4.8	NOT 65	256	5.6			
		36	4.7	NOT 66	264	5.6			
		0	3.8	NOT 67	279	5.6			
		48	4.7	NOT 68	254	5.8			
		54	3.7	NOT 69	113	3.7			
		3	4.4	NOT 70	234	6.0			
		95	5.3	NOT 71	247	5.4			
		25	3.5	NOT 72	231	5.8			
		156	5.8	NOT 73	158	4.8			
		3	2.4	NOT 74	283	6.5			
		149	5.6	NOT 75	38	1.8			
		250	6.3	NOT 76	215	5.2			
		251	6.1	NOT 77	337	6.0			
		277	6.2	NOT 78	5	6.1			
		32	4.7	NOT 79	116	3.9			
		5	3.6	NOT 80	346	6.4			
		37	3.7	NOT 81	347	6.7			
		1	3.3	NOT 82	380	6.5			
		140	5.5	NOT 83	134	7.0			
		219	4.2	NOT 84	342	7.0			