OGRR Number	208	OGRR Title	Voltage Ride-Through (VRT) Requirement
Date of Appeal		**October 16, 2008**	
Date of TAC Decision		**October 2, 2008**	
TAC Decision		**Approval of OGRR 208 requiring retrofits of existing wind generation facilities to comply with new zero-voltage ride-through standard without cost or reliability study and without explanation of a special exemption for pre-2003 facilities**	
Operating Guide Sections Requiring Revision		**3.1.4.1, PGC Data Reporting** **3.1.4.6, Protective Relaying Requirement**	
Submitter's Information			
Name		**John Moore**	
E-mail Address		**john.moore@eon.com**	
Company		**E.ON Climate & Renewables North America Inc.**	
Company Address		**812 San Antonio Street, Suite 201, Austin, Texas 78701**	
Phone Number		**512-482-4059**	
Fax Number		**512-494-9581**	

Appeal

Pursuant to ERCOT OPERATING GUIDE §1.3.4.12(3), E.ON Climate & Renewables North America Inc. (E.ON) respectfully appeals the decision by the Technical Advisory Committee (TAC) to apply the newly adopted Voltage Ride-Through (VRT) requirements in OGRR 208 retrospectively to existing wind-powered generating facilities. Without any cost-benefit assessment, the TAC decision mandates compliance not only prospectively by new wind facilities as they come on-line but also retrospectively by all existing wind facilities with interconnection agreements dating to 2003. Conformance to the new VRT standard by existing

wind facilities will require costly retrofitting for which there has been no showing of need. No reliability analysis has been done to determine whether the retrospective application of OGRR 208 is warranted or cost-justified. As it stands, there is no rational basis to support the TAC decision. Moreover, the cost impact at certain wind facilities may be so severe as to make compliance uneconomic or commercially impractical.

The TAC decision is also discriminatory because the retrofit requirement applies selectively to some existing wind generation facilities but not others. While wind facilities with interconnection agreements dating to 2003 must comply as a condition for access to the ERCOT grid, wind facilities with earlier interconnection agreements are exempt. There is no justification for the distinction.

E.ON respectfully requests that the Board remand the matter with instructions to apply the new VRT requirements in OGRR 208 prospectively to new wind facilities and to delete the retrospective provisions that mandate retrofitting of existing wind facilities. E.ON supports the new standards on a prospective basis. The ERCOT Board should direct ERCOT to study whether there remains a need for retrofitting of existing wind facilities. There is ample time for such study. OGRR 208 itself does not require that compliance by existing wind facilities be achieved until 2015. E.ON is willing to help fund such a study whose results could be implemented significantly in advance of that date.

I. Background of OGRR 208

Voltage Ride-Through refers to the capability of a generating facility to remain connected to the transmission system under specified low and high voltage conditions. The need for a prospective VRT standard is undisputed. In 2005, FERC adopted Orders 661 and 661-A establishing a VRT standard for wind generation plants in interstate commerce. The Final Order,

661-A, only applied prospectively to new wind generating facilities. FERC did not retrospectively require that wind facilities interconnected to the network at the effective date of the new VRT standard be retrofitted.

FERC's decision to apply the new VRT requirements prospectively to new generation was carefully considered and included a detailed transition period. The Final Order, adopted in 2005, included a transition period that applied to prospective wind plants that have interconnection agreements (1) signed and filed with the Commission; (2) filed with the Commission in unexecuted form; or (3) filed with the Commission as non-conforming agreements between January 1, 2006 and December 31, 2006, with a scheduled in-service date no later than December 31, 2007.[1] The transition period also applied to wind turbines subject to a procurement contract executed before December 31, 2005 for delivery through 2007.[2]

It is significant that the ERCOT standard is more stringent than the FERC standard. FERC's carefully considered decision to apply its standard prospectively stands in stark contrast to TAC's unstudied determination to apply the stricter ERCOT standard both prospectively and retrospectively.

OGRR 208 as originally proposed would have applied prospectively only. This proceeding began on April 15, 2008, when E.ON and other wind generators working through their Wind Coalition stepped forward to propose a VRT requirement to support reliability in ERCOT. The Wind Coalition drafted OGRR 208 to apply prospectively to all new generating units as they come on-line and not to existing facilities.

On October 2, 2008, TAC adopted OGRR 208 in its modified, final form. The new VRT requirements reflect contributions from ROS, OWG, OGRTF, and individual stakeholders. TAC

[1] *See* Order No. 661-A at 15-16, 49-50.

[2] *Id.*

and the participants are to be commended for reaching consensus on the new standards. For the first time, wind generation facilities must now be designed to remain connected to the grid "for a voltage level as low as zero volts" for a specified duration.[3] The new, zero-voltage ("zero-VRT") ERCOT requirements are even more stringent than FERC's, yet ERCOT has not studied whether there is any justification to apply its stronger standard retrospectively to existing generation. E.ON supports the substantive, stronger standards of OGRR 208. The zero-VRT standard applicable on a prospective basis to new wind facilities is not at issue in this appeal.

What is at issue is an unfortunate and premature by-product of the stakeholder process: the insertion of provisions that unexpectedly apply the new zero-VRT requirements retrospectively to operating wind generating facilities. As adopted, OGRR 208 mandates compliance with the new standards not only by new wind generation facilities with interconnection agreements signed after November 1, 2008, but also by all existing wind facilities with interconnection agreements dating back to January 2, 2003. TAC should not have applied OGRR 208 retrospectively to existing wind facilities. Without studies to determine cost impact and reliability benefits, there is no rational basis for retrospective application.

II. There is no rational basis for TAC's decision because no cost-benefit analysis has been done to justify the retrospective application of OGRR 208.

Most troubling of all, the provisions making OGRR 208 retrospectively applicable to existing generators were added without analysis of any kind and without determination of need or consideration of costs. This is evident on the face of the TAC Action Report. The Report's description of the OGRR and statement of market and consumer impacts are lifted verbatim from

[3] TAC Action Report, 208OGRR-25 (Oct. 3, 2008).

the original OGRR request to apply new VRT standards exclusively to new generators.[4] The Report contains no discussion or analysis of how much it would cost the industry to retrofit existing wind turbines to conform to the new VRT requirements. Nor does the Report address whether doing so would have any benefit. The new VRT requirements should apply to the design of all new generating units going forward. There is no demonstrated reliability need or cost-savings benefit to justify retrofitting.

As to cost, the application of the new zero-VRT requirements to existing wind facilities will have a substantial adverse impact. Stakeholder comments indicate that OGRR 208, if applied retrospectively, will likely require the retrofit of generators, power converters, software and related components of thousands of existing turbines.[5] Precise estimates of total costs are not yet available, but the comments indicate that ERCOT wind generators suddenly now face unanticipated costs of "many millions of dollars."[6] Turbine vendors report that the type of retrofit required by OGRR 208 has never been performed on existing wind generators in the United States.[7] Retrofitting some turbines may be commercially impractical. The Wind Coalition indicated that compliance may be commercially impractical even at some new facilities, where contracting, engineering, and procurement commitments have been made.[8]

---

[4] *Compare* 208OGRR-25 *with* 208OGRR-1. The TAC Action Report's Revision Description states: "This [OGRR] proposes a requirement for VRT capability for all *new generating units*." (Emphasis added.) The statement of Overall Market Benefit is: "The intent of this OGRR is to maintain system reliability *as new generators are added* to the ERCOT System." (Emphasis added.) The statement of Customer Impact anticipates that "[c]onsumers will see reduced costs due to increased reliability *of new generators* . . ." (Emphasis added.) The Overall Market Impact states that companies "will have to *design* their generation plants to meet the new standard" and contains no discussion of any requirement to retrofit existing plants. (Emphasis added.)

[5] Comments of Invenergy, 208OGRR-20, (Sept. 25, 2008).

[6] Comments of E.ON, 208OGRR-23, (Sept. 30, 2008). *See also* Comments of Horizon Wind Energy, 208OGRR-22 (Sept. 30, 2008); Comments of AES Wind Generation, 208OGRR-24 (Oct. 1, 2008).

[7] Comments of Invenergy, 208OGRR-20 (Sept. 25, 2008).

[8] *See* 208OGRR-01 Voltage Ride-Through (VRT) Requirement (April 15, 2008).

Wind generators were not the only ones to recognize these cost concerns. In comments on a precursor to OGRR 208, Luminant Generation explained that "it would be inappropriately expensive to require changes in standards for any generation project (wind or conventional)" for which wind turbines, turbine generators, or other major equipment have already been acquired.[9]

The costs of retrofitting will impact consumers. The retrospective application of OGRR 208 to existing wind generating facilities may well be of unprecedented magnitude in costs for ERCOT compliance. The TAC Action Report acknowledged "some potential that increased capital cost of complying with the [new VRT] standard will be passed on to consumers."[10] As explained above, that conclusion assumed the standard would apply prospectively to new generating facilities only, and did not contemplate higher costs to consumers from expensive retrofits. The potential for higher consumer costs increases significantly if retrofitting of existing facilities is mandated.

Imposing costs on existing generation without any analysis of negative consequences may also have serious implications for long-term investment in ERCOT. Before committing funds to develop generation sources of any type, investors would certainly consider the precedent set by OGRR 208. The added risk of unanticipated costly retrofit requirements imposed without analysis or evidence of need can only discourage future investment in the State.

If the cost impact proves sufficiently severe, it may constitute a compensable regulatory taking.[11] Following TAC's recent decision to adopt the retrospective provisions of OGRR 208,

---

[9] *Responses to ROS Request for Comments on "Low Voltage Ride Through" Wording Proposal* (compiled Feb. 29, 2008).

[10] TAC Action Report, 208OGRR-25 (October 3, 2008).

[11] A regulatory taking occurs when a law or regulation deprives a property owner of all economically beneficial use of the property or unreasonably interferes with the property owner's legitimate investment-backed expectations in the use of the property. *See Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 537-40 (2005); *Mayhew v. Town of Sunnyvale*, 964 S.W.2d 922, 935 (Tex. 1998).

E.ON engaged consultants to assist in determining how many of its turbines will be affected and at what cost. E.ON believes this cost to be in the millions of dollars and will provide a better estimate in time for the hearing of this appeal if available.

This is not to say that the retrospective application of new standards can never be justified. However, in the case of OGRR 208, just as the cost of compliance by existing wind facilities has not been evaluated, neither has a need been shown. Here again, the TAC Action Report states only that prospective application of the VRT requirements to new facilities would benefit reliability. There is no statement or analysis to suggest the need for retrofitting. In fact, OGRR 208 effectively disavows any need for retrofits for the reasonably foreseeable future because it defers all compliance by existing generation until January 2015. By requiring costly retrofits without a showing of need, the TAC decision is arbitrary and capricious, lacks rational basis, and violates due process.[12]

There has been no cost-benefit study to justify the retrospective application of OGRR 208 to existing wind facilities. Just as FERC determined that its Orders 661 and 661-A should apply prospectively to new wind generation, so should the more stringent zero-VRT requirements in OGRR 208 apply prospectively.

III. The retrospective provisions of OGRR 208 raise a secondary concern about discriminatory access to the grid because they apply selectively to some existing generating facilities but not others.

Deleting the retrospective provisions of OGRR 208 for the reasons stated above would resolve this appeal. Left in place, the retrospective provisions would raise an additional concern because they do not apply uniformly. On one hand, OGRR 208 provides that wind generation

[12] *See also Satterfield v. Crown Cork & Seal Co., Inc.*, 2008 WL 3984390, at *9, 2008 LEXIS 7473 (Tex. App.–Austin Aug. 29, 2008, no pet. h.) (explaining that "[r]etroactivity is generally disfavored in the law").

facilities that are part of an interconnection agreement signed *prior to January 1, 2003* are exempt from the new zero-VRT requirements. On the other hand, wind facilities that are part of an interconnection agreement signed *after January 1, 2003* must meet the new requirements. The TAC Action Report offers no explanation for this distinction. No study or analysis has been conducted to demonstrate why the retrofit burden should fall on existing wind generating facilities with an interconnection agreement signed between 2003 and 2008 but not those with an interconnection agreement signed in 2002 or earlier.

Perhaps the unspoken goal is to excuse existing facilities for which retrofitting would be commercially impractical. If so, some effort should be made to identify those facilities with reasonable specificity, such as by wind turbine design or manufacture date. Instead, OGRR 208 establishes an unstudied, across-the-board cut-off based on the date an interconnection agreement was signed.

This blanket approach to require costly retrofits from some existing generators and not others leaves unanswered basic cost-benefit questions. Does tying compliance to interconnection agreements signed on and after January 1, 2003 but not earlier really achieve any, let alone substantial, cost-savings? Does drawing that distinction make sense for reliability? As discussed above, there is no study to warrant any requirement for retrofit. But if such a need were shown, these issues would have to be addressed.

As it is, OGRR 208 creates discriminatory impacts. A wind generator that operates a facility under an interconnect agreement signed after January 1, 2003 will lose access to the transmission grid unless the facilities' turbines are retrofitted. But another wind generator that operates a facility in the same area under an interconnect agreement signed one month earlier has no retrofit obligation. It makes no difference that the turbines at both facilities may have the

same pre-retrofit voltage capability and would incur the same expense to retrofit to meet the new zero-VRT standard. One facility must comply or else lose transmission access while the other bears no burden.

As an Independent System Operator, ERCOT has a statutory responsibility to ensure access to the transmission grid for market participants on nondiscriminatory terms."[13] The TAC-approved OGRR 208 does not meet this standard and contravenes equal protection principles because it makes retrofitting a more onerous condition of continued access to the transmission grid for some wind generators than for others similarly situated.

It is also important to recognize that OGRR 208, while originally drafted by the Wind Coalition to apply both to wind and non-wind generation, was adopted by TAC to apply only to wind generation. E.ON understands that VRT standards applicable to non-wind generation will be considered in a separate OGRR so as to ensure evenhanded treatment and avoid any question of discrimination between types of generation.

IV. Conclusion

The Wind Coalition proposed OGRR 208 in recognition that reliability is and must remain paramount as increasing levels of wind energy are integrated in ERCOT. OGRR 208 as applied prospectively serves that purpose by establishing strong voltage ride-through requirements for wind generation facilities – indeed, the strongest of any in the nation. Those requirements are now in place as of November 1, 2008, and apply to all new wind facilities as they come on-line.

---

[13] PURA § 39.151(a)(1). *See also id.* § 31.002(9) (charging the Independent System Operator with "nondiscriminatory coordination of market transactions, system-wide transmission planning, and network reliability.")

The retrospective provisions of OGRR 208, however, lack justification and should be deleted. There has been no showing that retrofitting is needed for reliability. There has been no analysis to measure the cost and consumer impact of such an undertaking. There has been no cost-benefit comparison study of any kind.

Late in the TAC process a remark was made that it would be harmless enough to leave the retrospective provisions in place for the time being, conduct a study, and then take corrective action ahead of the January 2015 compliance deadline. E.ON respectfully disagrees. Decisions of significant economic consequence should not be made first and studied later, particularly when they can effectively deny existing generators access to the ERCOT grid. Retaining provisions that are facially discriminatory only compounds the concern.

The proper remedy is clear and straightforward: apply the new VRT requirements in OGRR 208 prospectively to new wind generation facilities and delete the provisions requiring compliance by existing wind facilities. If future study shows the need and cost justification for retrofitting, a new OGRR can address the matter in a non-discriminatory manner at the appropriate time. As stated at the outset, E.ON would be willing to help fund such a study.[14]

For the foregoing reasons, E.ON respectfully requests that the Board remand this matter to TAC with instructions to delete the provisions that require retrospective application of OGRR 208 to existing generation.

[14] When the retrospective provisions were presented late in the process, the Wind Coalition responded with a proposal for funding a study. The proposal was not adopted.