NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

December 19, 2008

Ms. Kimberly Bose
Secretary
Federal Energy Regulatory Commission
888 *First* Street, N.E.
Washington, D.C. 20426

Re: NERC Notice of Penalty regarding Duke Energy Carolinas, LLC, FERC Docket No. NP09-_-000

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty regarding Duke Energy Carolinas, LLC,[1] NERC Registry ID NCR01219,[2] in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations and orders, as well as NERC Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).[3]

This Notice of Penalty is being filed with the Commission because, based on information from SERC Reliability Corporation, Duke Energy Carolinas, LLC submitted a self-report on August 27, 2007, of an outage of a 230 kV transmission line possibly caused by flashover between vegetation located inside the right of way and overhead ungrounded supply conductors, which SERC Reliability Corporation determined to be evidence of an alleged violation of FAC-003-1 Requirement (R) 2. SERC Reliability Corporation and Duke Energy Carolinas, LLC have entered into a Settlement Agreement in which Duke Energy Carolinas, LLC has agreed to the proposed penalty of $50,000 to be assessed to Duke Energy Carolinas, LLC, in addition to other remedies which include mitigation actions and actions to prevent recurrence under the terms and conditions of the Settlement Agreement, at issue in this Notice of Penalty. Additional direct costs to Duke Energy Carolinas, LLC are $1.8 million, and indirect costs are $200,000 per year, associated with the mitigation actions and actions to prevent recurrence to be performed by Duke Energy Carolinas, LLC. Accordingly, the alleged violation identified as NERC Violation

[1] *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards* (Order No. 672), III FERC Stats. & Regs. ¶ 31,204 (2006); *Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the North American Electric Reliability Corporation*, Docket No. RM05-30-000 (February 7, 2008). *See also* 18 C.F.R. Part 39 (2008). *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693). *See* 18 C.F.R § 39.7(d)(1).

[2] SERC Reliability Corporation confirmed that Duke Energy Carolinas, LLC was included on the NERC Compliance Registry as a Transmission Owner and was subject to the requirements of NERC Reliability Standard FAC-003-1.

[3] *See* 18 C.F.R § 39.7(c)(2).

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Tracking Identification Number SERC200700008 is being filed in accordance with the NERC Rules of Procedure and the CMEP. SERC Reliability Corporation and Duke Energy Carolinas, LLC entered into a Settlement Agreement executed by the parties as of December 17, 2008 in which Duke Energy Carolinas, LLC accepts the proposed penalty of $50,000 to be assessed to Duke Energy Carolinas, LLC, in addition to the other remedies as discussed in the Settlement Agreement and this Notice of Penalty, to resolve all outstanding issues arising from a preliminary and non-public assessment resulting in SERC Reliability Corporation's determination and findings of an enforceable alleged violation by Duke Energy Carolinas, LLC.[4]

Statement of Findings Underlying the Alleged Violation

This Notice of Penalty incorporates by reference the findings and justifications set forth in the Settlement Agreement, executed as of July 1, 2008, by and between SERC Reliability Corporation and Duke Energy Carolinas, LLC, which is included as Attachment a, and the Supplemental Record Information letter issued by SERC Reliability Corporation to Duke Energy Carolinas, LLC, dated September 23, 2008. The details of the findings and basis for the penalty are set forth in the Settlement Agreement. This Notice of Penalty filing contains the basis for approval of the Settlement Agreement by the NERC BOTCC. In accordance with Section 39.7 of the Commission's regulations, 18 C.F.R. § 39.7 (2007), NERC provides the following summary table identifying the alleged violation of one Reliability Standard resolved by the Settlement Agreement, as discussed in greater detail below.

Region	Registered Entity	NERC Violation ID	Reliability Std.	Req. (R)	VRF	Total Penalty ($)
SERC	Duke Energy Carolinas, LLC	SERC2007-00008	FAC-003-1	2	High	50,000

FAC-003-1 R2 provides that a Transmission Owner shall create and implement an annual plan for vegetation management work. It also provides that each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.

According to the Settlement Agreement, Duke Energy Carolinas, LLC submitted, to SERC Reliability Corporation, a self-report of a lock-out outage that occurred on August 22, 2007 on the white circuit of the Roddey line (Roddey White line). Subsequently, Duke Energy Carolinas, LLC line crews found a substantial growth of vegetation within the right of way between towers 223 and 224 of the Roddey White line and vegetation crews were dispatched to remove all the growth within the right of way between the subject towers. Duke Energy Carolinas, LLC's self-

[4] On May 5, 2008, the NERC Board of Trustees Compliance Committee (BOTCC) considered an initial proposed settlement agreement between SERC Reliability Corporation and Duke Energy Carolinas, LLC, and determined that changes were required prior to a BOTCC decision on the merits of that agreement. The parties agreed to a revised settlement agreement executed by the parties on July 1, 2008. The final BOTCC-approved Settlement Agreement filed with this Notice of Penalty, which addresses the changes required by the BOTCC and was subsequently considered by the BOTCC, was executed by the parties as of December 17, 2008.

report stated that the lock-out outage was potentially the result of a flashover from the line to vegetation located within the right of way associated with the line. According to the Settlement Agreement, SERC Reliability Corporation determined that the proximate cause of the lock-out outage was Duke Energy Carolinas, LLC's failure to maintain, pursuant to NERC Reliability Standard FAC-003-1 R2, the appropriate clearance between a tree and a conductor in accordance with its Vegetation Management Plan. An additional area of vegetation encroachment was also found and addressed.

Status of Mitigation Plan[5]

Duke Energy Carolinas, LLC's Mitigation Plan is embodied in Section IV of the Settlement Agreement. In addition to the removal of the encroaching vegetation, the Settlement Agreement obligates Duke Energy Carolinas, LLC to undertake certain activities to prevent recurrence of a similar violation and improve reliability of the bulk-power system that will directly cost Duke Energy Carolinas, LLC approximately $1.8 million, plus an estimated additional indirect cost of $200,000 per year.

Activities performed in August 2007 include: (i) clearing the right of way beneath the affected section of Roddey line and any other vegetation that encroaches in Duke Energy Carolinas, LLC's Clearance 2 distances; (ii) inspecting all the other 230 kV and 525 kV sections of line for similar issues; (iii) reducing aerial inspection flight speed (to be evaluated annually for effectiveness of its relationship to the overall program); (iv) instructing/training vegetation observers to be more conservative in vegetation reporting (continuous process); and (v) automating the reporting request for a ground patrol during an aerial patrol via Duke Energy Carolinas, LLC's work management processes for reporting and recording vegetation issues in the field (continuous process).

On or after the effective date of the Settlement Agreement, Duke Energy Carolinas, LLC also agreed to complete the following activities, which are summarized below: (i) implementing a special "Vegetation Summer Aerial Patrol" for the 230 kV and 525 kV transmission systems in 2008, 2009 and 2010 with reports provided to SERC Reliability Corporation on key findings; (ii) implementing LiDAR (Light Data and Ranging) technology in 2008 for the Duke transmission system 230 kV/525 kV system for vegetation management of all of its 230 kV/525 kV transmission system in the SERC Reliability Corporation region and to aid the industry in understanding the benefit on the use of this technology, the potential reduction in human error in clearance measurement and effectiveness associated with aerial vegetation patrols. Duke Energy Carolinas, LLC must provide a technical report to SERC Reliability Corporation's Compliance Enforcement on the effectiveness of this technology on November 30, 2009; (iii) developing and implementing training for applicable Duke internal personnel for educational purposes of FAC-003-1; (iv) initiating a new "230 kV/525 kV Ground Maintenance Patrol" for its grid transmission system with three patrols to be completed in 2008, 2009 and 2010; and (v) providing reports to SERC Reliability Corporation as required.

[5] *See* 18 C.F.R § 39.7(d)(7).

Duke Energy Carolinas, LLC attested to the completion of the actions required to date under the Settlement Agreement. SERC Reliability Corporation did a thorough review of the actions performed through the time of the July 1, 2008 execution of the Settlement Agreement. SERC Reliability Corporation confirms those actions required under the Mitigation Plan have been completed satisfactorily. With regard to the actions required since the July 1, 2008 execution of the Settlement Agreement, Duke Energy Carolinas, LLC has confirmed, in a letter from a company official dated December 19, 2008, its adherence to the terms and, consistent with paragraph 22. SERC Reliability Corporation will conduct an onsite review in early 2009, after the Settlement Agreement is filed with the Commission, to confirm the actions to date have been completed as agreed. The Settlement Agreement also includes several reports and "check-points" within the text of the Settlement Agreement itself to ensure SERC Reliability Corporation is aware of Duke Energy Carolina, LLC's progress in completing the agreed upon actions.

Statement Describing the Proposed Penalty, Sanction or Enforcement Action Imposed[6]

FERC Order Excerpts

In Order No. 693, the Commission provided guidance to NERC and the industry on the determination of penalties during the first six month period of mandatory and enforceable Reliability Standards:

> 222. . . . In light of commenters' concerns, including the fact that there are new aspects to the Reliability Standards and the proposed compliance program that will apply to all users, owners and operators of the Bulk-Power System, *the Commission directs the ERO and Regional Entities to focus their resources on the most serious violations during an initial period through December 31, 2007*. This thoughtful use of enforcement discretion should apply to all users, owners and operators of the Bulk-Power System, and not just those new to the program as originally proposed in the NOPR. This approach will allow the ERO, Regional Entities and other entities time to ensure that the compliance monitoring and enforcement processes work as intended and that all entities have time to implement new processes.
>
> 223. *By directing the ERO and Regional Entities to focus their resources on the most serious violations through the end of 2007, the ERO and Regional Entities will have the discretion necessary to assess penalties for such violations. . . .*
>
> 224. *The Commission believes that the goal should be to ensure that, at the outset, the ERO and Regional Entities can assess a monetary penalty in a situation where, for example, an entity's non-compliance puts Bulk-Power System reliability at risk.* Requiring the ERO and Regional Entities to focus on the most serious violations will allow the industry time to adapt to the new regime while also protecting Bulk-Power System reliability by allowing the ERO or a Regional

[6] *See* 18 C.F.R § 39.7(d)(4).

> Entity *to take an enforcement action against an entity whose violation causes a significant disturbance.* Our approach strikes a reasonable balance in ensuring that the ERO and Regional Entities will be able to enforce mandatory Reliability Standards in a timely manner, while still allowing users, owners and operators of the Bulk-Power System time to acquaint themselves with the new requirements and enforcement program. In addition, our approach ensures that all users, owners and operators of the Bulk-Power System take seriously mandatory, enforceable reliability standards at the earliest opportunity and before the 2007 summer peak season.[7]

According to SERC Reliability Corporation, it reviewed Duke Energy Carolinas, LLC's relevant documents and found that the alleged violation resulted from Duke Energy Carolinas, LLC's failure to maintain, pursuant to NERC Reliability Standard FAC-003-1, Requirement R.2, the specified minimum clearance of 15 feet, called for in Duke Energy Carolinas, LLC's Vegetation Management Plan. The clearance between the offending vegetation and the energized, ungrounded conductor of the 230 kV Roddey White line was found to be between 2 to 7 feet. Duke Energy Carolinas, LLC claimed that, at or around the time of the incident, the property owner was in the process of excavating and clearing land adjacent to and under the Roddey line between towers 223 and 224 and there was smoke from adjacent brush piles in the right-of-way and believes this was a contributing factor to the outage. As set forth in the Settlement Agreement, SERC Reliability Corporation found that the proximate cause of the outage was the encroaching vegetation. An additional area of encroachment that was subsequently identified and rectified also was factored in to the penalty and other terms and conditions set forth in the Settlement Agreement.

The Settlement Agreement states that aerial patrols of the Roddey line were conducted in April 2007 and October 2006 and the vegetation was apparently overlooked by the observer according to the Settlement Agreement. Regarding the duration of the alleged violation, SERC Reliability Corporation determined that the clearance between the vegetation involved and the Roddey White line conductor on August 22, 2007, could have been between 2 and 7 feet and was there for "some time." Given the extent of this encroachment into the minimum 15 foot clearance zone and the timing of the outage in August 2007, NERC believes it is reasonable to conclude that the encroachment constituted an enforceable alleged violation of standard FAC-003-1 beginning at least as early as June 18, 2007, the date the standard became mandatory and enforceable in the U.S., and continued until the offending vegetation was removed on August 23, 2007.

As discussed in the Settlement Agreement, SERC Reliability Corporation determined a "High" VRF Violation Risk Factor (VRF) for the alleged violation. SERC determined to assess Duke Energy Carolinas, LLC a direct financial penalty of $50,000 and noted that the additional terms and conditions in the Settlement Agreement, in aggregate, will directly cost Duke Energy Carolinas, LLC approximately $1.8 million, plus an estimated additional indirect $200,000 cost per year, to implement.

[7] Order No. 693 at PP 222-224 (emphasis added).

Basis for Determination

Taking into consideration the Commission's direction in Order No. 693 and the NERC Sanction Guidelines, the NERC BOTCC reviewed the Settlement Agreement and supporting documentation on October 7, 2008 at which time the BOTCC approved the Settlement Agreement which resolves the alleged violations of SERC Reliability Corporation and includes the assessment a direct financial penalty of $50,000 and additional terms and conditions in the Settlement Agreement, in aggregate, that will directly cost Duke Energy Carolinas, LLC approximately $1.8 million, plus an estimated additional indirect $200,000 cost per year, to implement. In doing so, the NERC BOTCC reviewed the applicable requirements of the Commission-approved Reliability Standards and the underlying facts and circumstances of the alleged violation.[8]

In reaching this decision, the NERC BOTCC considered the following factors:

- On May 5, 2008, the NERC BOTCC considered an initial proposed settlement agreement between SERC Reliability Corporation and Duke Energy Carolinas, LLC, and determined that changes were required prior to a BOTCC decision on the merits of that agreement. The parties agreed to a revised settlement agreement executed by the parties on July 1, 2008. The final BOTCC-approved Settlement Agreement filed with this Notice of Penalty, which addresses the changes required by the BOTCC and was subsequently considered by the BOTCC, was executed by the parties as of December 17, 2008.
- The NERC BOTCC is satisfied that the $50,000 penalty and the $1.8 million in mitigation plan costs, as well as the ongoing annual $200,0000 indirect costs, are appropriate based on the specific facts and circumstances.
- At the time of the outage, the Roddey White line was loaded at 35% of its rating. Flows were instantaneously re-distributed to other lines, including the adjacent Roddey Black line and SERC Reliability Corporation did not find evidence that the outage overloaded any transmission elements, created voltage violations or led to generation re-dispatch.
- Duke Energy Carolinas, LLC self-reported the alleged violation, acted quickly to eliminate the encroaching vegetation and to undertake other immediate mitigation actions to determine if there were other areas of encroaching vegetation, and upon identifying an additional area of encroaching vegetation also acted quickly to eliminate it as well.
- Duke Energy Carolinas, LLC has committed to increase its patrols and to implement LiDAR technology and additional training to help early identification of encroaching or potentially encroaching vegetation in violation of its vegetation program and policies.
- Duke Energy Carolinas, LLC's personnel cooperated with SERC Reliability Corporation during all aspects of the investigation.
- With respect to its region SERC Reliability Corporation found no repetitive violations, no negative relevant compliance history and no applicable compliance directives. SERC

[8] *Mandatory Reliability Standards for the Bulk-Power System*, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693).

Reliability Corporation also determined that there was no evidence that Duke Energy Carolinas, LLC tried to conceal the violation or that it committed the violation intentionally.

- This alleged violation occurred during the initial six-month period in which the Commission encouraged NERC and the Regional Entities to focus on the most serious violations.
- The actions taken or to be taken by Duke Energy Carolinas, LLC pursuant to this Settlement Agreement will ensure that reliability is maintained.

Therefore, NERC believes that the proposed $50,000 penalty and other remedies included in the Settlement Agreement are appropriate and consistent with NERC's goal to ensure reliability of the bulk power system.

Pursuant to Order No. 693, the penalty will be effective upon expiration of the thirty (30) day period following the filing of this Notice of Penalty with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

The Record of the Proceeding[9]

The record of the proceeding includes the following documents and material:

a) Settlement Agreement by and between Duke Energy Carolinas, LLC and SERC Reliability Corporation, which is included in Attachment a; and

b) Supplemental Information letter to Duke Energy Carolinas, LLC from SERC Reliability Corporation.

A Form of Notice Suitable for Publication[10]

A copy of a notice suitable for publication is included in Attachment b.

[9] *See* 18 C.F.R § 39.7(d)(5).
[10] *See* 18 C.F.R § 39.7(d)(6).

Notices and Communications

Notices and communications with respect to this filing may be addressed to the following:

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*Persons to be included on the Commission's service list are indicated with an asterisk.

Conclusion

NERC respectfully requests that the Commission accept this Notice of Penalty as compliant with its rules, regulations and orders.

Respectfully submitted,

/s/ Rebecca J. Michael

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cc: Duke Energy Carolinas, LLC
SERC Reliability Corporation

Attachment(s)

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Attachment a

Settlement Agreement by and between

SERC Reliability Corporation

and

Duke Energy Carolinas, LLC

SETTLEMENT AGREEMENT
OF
SERC RELIABILITY CORPORATION
AND
DUKE ENERGY CAROLINAS, LLC

I. Introduction

1. SERC Reliability Corporation ("SERC") and Duke Energy Carolinas, LLC ("Duke") enter into this Settlement Agreement ("Agreement") to resolve all outstanding issues arising from a non-public, preliminary assessment resulting in SERC's determinations and findings, pursuant to the North American Electric Reliability Corporation ("NERC") Rules of Procedure, of a violation by Duke of the NERC Reliability Standard FAC-003-1 *Transmission Vegetation Management Program*. This Settlement Agreement replaces the settlement agreements executed by the parties on March 14, 2008 and July 1, 2008, which are hereby cancelled and shall be of no force or effect.

II. Stipulation

2. The facts stipulated herein are stipulated solely for the purpose of resolving, between SERC and Duke, the matters discussed herein and do not constitute stipulations or admissions for any other purpose. Duke and SERC hereby stipulate and agree to the following:

Background

3. Duke is a regulated public utility engaged in the generation, transmission, distribution, and sale of electricity to retail and wholesale customers in North Carolina and South Carolina. In North Carolina and South Carolina, its facilities serve approximately 2.2 million customers with a generating capability of approximately 19,900 MW. Its principal executive offices are located in Charlotte, North Carolina.

4. Duke owns and operates 3,225 circuit miles of 230kV and 525kV transmission within the SERC footprint. In addition to other assets, Duke owns the Roddey Line, which is a double circuit, 230 kV line between Catawba Switchyard and Pacolet Tie Substation located in South Carolina about 40 miles southwest of Charlotte.

Alleged Violation(s)

5. NERC Reliability Standard FAC-003-1, Requirement R1.2 states that a Transmission Vegetation Management Program (TVMP) requires, among other things, that "the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply conductors."[1] With respect to an annual plan for vegetation management work, in Requirement 2 of FAC-003-1 the Reliability Standard also requires that "[e]ach Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications."[2]

6. On August 27, 2007, Duke self-reported an outage and a potential violation of FAC-003-1. Duke reported a lock-out outage on the white circuit of the Roddey line (Roddey White circuit or line) occurring on August 22, 2007, stating it was potentially the result of a flashover from the line to vegetation located within the right of way associated with the line. At the time of the self-report, Duke was uncertain of the actual cause of the outage but explained that it believed the circumstances of the incident warranted a self-report.

7. Duke immediately dispatched crews to where the outage was determined to have occurred between towers 223 and 224. The site of the alleged violation is in a low-lying wetland area in an active pasture with intermittent wooded areas. Duke line crews found a substantial growth of vegetation within the right of way between towers 223 and 224.

8. The line crews could not confirm the cause of the outage but were concerned with the height of the vegetation at the alleged site. They contacted management in Vegetation Management Services who responded and went to the site that evening. Due to the uncertainty of the outage and the height of the vegetation, Vegetation Management Services identified the vegetation growth as a concern and initiated a

[1] NERC Standard FAC-003-1 — Transmission Vegetation Management Program, Approved by NERC Board of Trustees on February 7, 2006, Approved by FERC effective June 18, 2007, Requirement R1.2.

[2] NERC Standard FAC-003-1 — Transmission Vegetation Management Program, Approved by NERC Board of Trustees on February 7, 2006, Approved by FERC effective June 18, 2007, Requirement R2.

work request to remove the vegetation growth from the right of way. The morning following the outage of the circuit, Duke dispatched vegetation crews to remove all the vegetation from within the right of way, found the previous day between the subject towers. Vegetation crews removed all the growth from within the right of way. Among the numerous trees of similar height, the tallest vegetation removed from within the right of way corridor varied between 28 and 30 feet in height, once felled and measured on the ground. The onsite measurements of the trough of the subject line, obtained via a hand-held laser surveying device, found the line height to be between 32 and 35 feet above ground level. Depending on the exact location of the tallest vegetation across the right of way, the clearance between the conductor and the vegetation beneath the line in some locations could have been between approximately 2 and 7 feet.

9. Duke performed an internal investigation to determine the cause of the outage, but the definitive cause of the outage could not be determined by Duke's investigation. In the opinion of the internal investigation team, the cause of the outage was vegetation that either contacted or came within a distance allowing for a flashover to vegetation. The report concluded the previous aerial inspections did not identify the vegetation encroachment. In addition, the team report identified that smoke from adjacent brush piles burning in the right-of-way may have contributed to the event. Duke stated at or around the time of the incident, the property owner was in the process of excavating and clearing land adjacent to and under the Roddey line between towers 223 and 224.

10. Duke performs aerial inspections of all its 230kV and 525kV transmission lines twice per year by helicopter. The Roddey section of line had been the subject of aerial inspection both in the April of 2007 and October of 2006. The vegetation found between towers 223 and 224 was not reported and was apparently overlooked by the attending observer in the aircraft.

11. Duke further completed aerial inspection of all its 230 kV and 525 kV transmission lines within 5 days of identifying the area of overlooked vegetation in the transmission right of way. No additional areas of concern were noted on the Roddey Line. Throughout the Duke footprint, any vegetation close to the specified clearance distance was immediately removed. One area within the Duke footprint was identified for same day follow-up by field crews. This area of vegetation could be reasonably judged to encroach within Duke's Clearance 2. However, this area of vegetation growth was limited to a very small number of trees in a small area and was immediately rectified by removal of the encroaching vegetation. No outage was associated with this vegetation growth.

12. SERC confirmed Duke's NERC Registration Status as a Transmission Owner ("TO") and that Duke, therefore, was subject to the Requirements of NERC's

Standard FAC-003-1. SERC reviewed Duke's outage and Vegetation Management Program, which included a review of Duke's internal investigation report, Duke's Transmission Vegetation Management Program documentation (Vegetation Maintenance Practices and Policies), Helicopter Patrol Norms and Follow Up document, Digital Fault Recorder data for the relevant location and times; and conducted several teleconferences with various Duke employees, and an on-site inspection of the area where the fault is believed to have occurred and where the vegetation encroachment is alleged to have occurred. Duke supplied its internal document titled *Vegetation Maintenance Practices and Policies* as its documentation supporting Duke's compliance with NERC Standard FAC-003-1.

13. SERC initiated a thorough review of Duke's current documentation supporting Duke's compliance with FAC-003-1. FAC-003-1 requires a formal transmission vegetation management program that:
    - Identifies objectives, practices, approved procedures, and work specifications, schedule for and the type of ROW vegetation inspections.
    - Describes the methods used for vegetation work.
    - Identifies and documents clearances between vegetation and any overhead, ungrounded supply conductors of differing voltages, under varying condition present in the field.
    - Includes systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.
    - Provides mitigation measures to achieve sufficient clearances for the protection of the transmission facilities when it identifies locations on the ROW where the Transmission Owner is restricted from attaining the clearances specified.
    - Includes a documented process for the immediate communication of vegetation conditions that present an imminent threat of a transmission line outage.

14. Duke's *Vegetation Maintenance Practices and Policies* requires Duke to manage the vegetation on its rights of way through an integrated vegetation management program. This program utilizes various right of way management tools including mowing, hand-cutting, and cutting down dead trees or other trees that pose a danger to facilities and equipment, and the use of environmentally safe herbicides. SERC's review found Duke's documentation of its program, *Vegetation Maintenance Practices and Policies*, complied with the requirements for FAC-003-1 shown above. However, SERC found the implementation of Duke's program in violation of the requirement to maintain vegetation outside of its Clearance 2.

15. Duke was required by FAC-003-1 R1.2. to have a program to establish and maintain a clearance known as Clearance 2 between any 200 kV or greater transmission line and any vegetation surrounding that line. Duke's *Vegetation Maintenance Practices and Policies* specifies Clearance 2 as 15 feet for 230 kV voltage lines such as the

Roddey 230 kV line. In light of the 2-7 foot clearances reported by Duke, and as described above and further supported in SERC's *Compliance Assessment Report*, SERC determined that Duke did not maintain its Clearance 2 minimum value of 15 feet as specified in Duke's *Vegetation Maintenance Practices and Policies* on this section of 230 kV line between towers 223 and 224.

III. PARTIES' SEPARATE REPRESENTATIONS

STATEMENT OF SERC AND SUMMARY OF FINDINGS

16. In light of the evidence and circumstances described above and further supported in SERC's *Compliance Assessment Report*, SERC finds on August 22, 2007, and for some time preceding this incident, Duke did not maintain its specified clearance of 15 feet between the energized, ungrounded conductor and the vegetation within the right of way on its Roddey Line. This failure to maintain its specified clearance was the proximate cause leading to the August 22, 2007 outage of the Roddey White Line. One additional area of encroachment into Clearance 2, as noted in paragraph 11, was factored into the penalty and this settlement. A failure to maintain Clearance 2 is a violation of FAC-003-1, R2, because it is a failure to ensure that the vegetation management work was completed according to work specifications, in this case, a clearance of 15 feet between the energized, ungrounded conductor and the vegetation within the right of way. In basic terms, the Standard requires any entity subject to the Requirements of FAC-003-1 to determine (subject to a minimum[3] clearance) and maintain its Clearances 1 and 2. Clearance 1 is the minimum clearance between vegetation and the conductor to which the entity is to trim vegetation at the time work is completed. Clearance 2 is the minimum clearance between vegetation and conductor that should never be encroached. Although the entity is free to determine these Clearances appropriate for conditions unique to each entity, Clearance 2 is subject to an IEEE required minimum of approximately 5.1 feet for a 230 kV line.

17. SERC agrees that this agreement is in the best interest of the parties and in the best interest of maintaining a reliable electric infrastructure. SERC acknowledges Duke's history of reliable operation of its electric franchise within the region and its desire to maintain a leadership role in the industry.

STATEMENT OF DUKE

[3] Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.

18. Duke neither admits nor denies that the facts set forth and agreed to by the parties for purposes of this Agreement constitute violations of FAC-003-1. Duke believes if the outage occurred at the alleged site that third party human activity by the property owner was a contributing factor of the outage. The property owner was in the process of clearing land adjacent to and under the line at the time of the outage. At the time of the incident, the state of South Carolina was in a severe drought condition and a brush fire occurred in the pasture and low-lying wetland brush under the line. Per the State's Fire Investigation report, which was received by Duke after the internal investigating team reported its findings, the fire was initiated from a smoldering brush pile in the pasture associated with the property owner's land clearing activity. Within a few days after the outage, the property owner completed digging a drainage ditch, grubbing, and planting grass on the right of way at the site. Per Requirement R3.2 of FAC-003-1, the standard states "Vegetation-related outages due to human or animal activity shall not be considered reportable."

19. Although Duke does not admit to, nor does it deny, the alleged violation, Duke has agreed to enter into this Settlement Agreement with SERC to avoid extended litigation with respect to the matters described or referred to herein, to avoid uncertainty, and to effectuate a complete and final resolution of the issues set forth herein. Duke agrees that this agreement is in the best interest of the parties and in the best interest of maintaining a reliable electric infrastructure.

IV. MITIGATING ACTIONS, REMEDIES AND SANCTIONS

20. In response to the outage, and in addition to the other remedies, sanctions and actions discussed below as a result of this Settlement, Duke has either performed or will perform the following mitigating and actions in the following table to prevent recurrence.

Activity	Date completed
• Clearing the right of way beneath the affected section of Roddey line and any other vegetation that encroaches in Duke's Clearance 2 distances.	August 2007
• Inspecting all the other 230 kV and 525 kV sections of line for similar issues.	August 2007
• Reducing aerial inspection flight speed.	August 2007 (to be evaluated annually for effectiveness of its relationship to the overall program)
• Instructing/training vegetation observers to be	August 2007

more conservative in vegetation reporting.	(continuous process)
• Automating the reporting request for a ground patrol during an aerial patrol via Duke's work management processes for reporting and recording vegetation issues in the field.	August 2007 (continuous process)

21. For purposes of settling any and all disputes arising from SERC's assessment and review of the matters reported by Duke in its Self-Report on August 27, 2007, SERC and Duke agree that, on and after the effective date of this Agreement, Duke shall take the following actions:

- Complete any remaining open items from paragraph 20 above and, in addition complete the activities listed in the following table.

Activity	**Dates to be completed**
i. Duke will implement a special "Vegetation Summer Aerial Patrol" for the 230 kV and 525 kV transmission systems. Duke will target performing this patrol in the month of June 2008 and completing it no later than the first week of July 2008. This patrol is in addition to the two current annual Spring and Fall aerial patrols that will remain unchanged. Any vegetation findings will be reported for work execution through Duke's work management system. This additional patrol will be done annually for the earlier of the next three years or until the patrol is deemed non-beneficial by SERC due to technology changes or other program changes. Duke will provide SERC with a review of the results from this patrol. The review will include a report of the findings and supporting documentation for any key findings. Duke will provide this report to SERC by September 1st each year 2008 to 2010.	First patrol: June 2008 but no later than July 7, 2008 Second patrol: June 2009 but no later than July 7, 2009 Third patrol: June 2010 but no later than July 7, 2010
ii. Duke will implement LiDAR (Light Data and Ranging) technology in 2008 for the Duke transmission 230/525 kV system for vegetation management of all of its 230/525 kV transmission system in the SERC region to aid the industry in understanding the benefit on the use of this technology, the potential reduction in human error in clearance measurement and effectiveness associated with aerial vegetation patrols. Duke will work with SERC Compliance Enforcement to develop a mutually acceptable report with sufficient content	Aerial Survey and data processing to be completed by December 31, 2008 Technical report (paper) due to SERC Compliance Enforcement on

and detail to illustrate the benefits and issues with this technology. Duke will deliver and present to SERC Compliance Enforcement a technical report on the effectiveness of this technology for vegetation management in Duke 230/525 kV transmission system. This technical report will be due to SERC by November 30, 2009.	November 30, 2009
iii. With mutual agreement with SERC Compliance Enforcement, Duke will develop and implement training for applicable Duke internal personnel for educational purposes of FAC-003-1. This training will include a review of Duke's own Transmission Vegetation Management Plan. In addition, Duke will develop an appropriate training package containing learning objectives and the appropriate delivery methods, periodicity for training its contract vegetation crews. This training package will outline the expectations associated with their work and compliance with FAC-003-1. These goals of the training will be understanding Clearance 1, and Clearance 2, notifications to Duke when Clearance 1 cannot be obtained, and reporting process for an imminent threat or Clearance 2 encroachment.	Develop training packages by April 30, 2008 Delivery of training is within a prescribed timeframe of new personnel arrival but, no less frequently than annually.
iv. Duke will initiate a new "230/525 kV Ground/Maintenance Patrol" for its Grid Transmission system. The ground patrol will initially consist of six two-person vegetation crews. The objective will be to identify and mitigate (through pruning, removal, or other means) any potential vegetation encroachment for the 3,225 miles of the 230 and 525 kV transmission lines. For work that these crews are not equipped to execute, they will report for follow-up by properly equipped vegetation crews. It is anticipated Duke's crews will be able to access more than 95% of Duke's 230/525 kV transmission lines with these patrols and Duke intends to complete this patrol by the end of May each year. Duke will report to SERC a listing of any inaccessible lines, the reason for the inability to access, and any mitigating actions taken to inspect the inaccessible sections. This patrol will be done annually for earlier of, the end of the next three years or until the patrol is deemed by SERC that it is non-beneficial due to technology changes or other program changes.	First Patrol to be completed by June 1, 2008 Second Patrol to be completed by June 1, 2009 Third Patrol to be completed by June 1, 2010

In order to facilitate SERC's need to communicate the status and provide accountability to the ERO (NERC), Duke will provide quarterly or more frequently, upon request by SERC, updates using the forms and format in Attachment A. Duke

will submit these status updates to SERC in accordance with the confidentiality provisions of Section 1500 of the NERC Rules of Procedure.

22. It is understood that SERC Compliance staff will periodically visit the sites of the work and witness the progress. Due to field safety requirements, SERC will coordinate all field visits with designated Duke Personnel to support these visits. SERC Compliance Enforcement will provide at least 24 hours notice to Duke.

23. The use of LIDAR (Light Detection and Ranging) for determining the line to vegetation clearance has the potential to increase the accuracy of measurements and to reduce the potential for human error in the field. Duke and SERC believe potential exists for increasing the reliability of the bulk electric through more precise measurements of line to vegetation clearances. Duke and SERC also recognize with new technology offering more precise measurements, there exists a potential to discover clearances in the Right of Way that previously were considered adequate now measured as inadequate. In order to balance accuracy and innovation in the industry and encourage innovation and advancement of newer technologies to improve reliability, the following stipulations and conditions are agreed to:

    - Duke will not be subject to sanctions or penalties for any potential violations discovered by LIDAR activities during 2008 for side encroachments, provided such encroachments, do not extend within the IEEE minimum distance referenced in paragraph 16.

    - Duke expressly understands that vegetation within the ROW that causes flashover or outage from any orientation will be pursued as new possible alleged violations, according to the NERC Rules of Procedure. Duke shall retain all rights to defend against such enforcement actions, also according to the NERC Rules of Procedure.

    Except as expressly provided in this paragraph, Duke agrees it is the sole responsibility of Duke to maintain compliance with the current FAC-003-1 and any successor reliability standard as approved by NERC and Federal Energy Regulatory Commission ("Commission").

24. Duke shall pay a monetary penalty of $50,000 (US) to SERC, via wire transfer to a SERC account that will be outlined in an invoice sent to Duke. Payment of this invoice will be made within twenty days after the receipt of the invoice, and SERC shall notify NERC if the payment is not received. SERC shall not send the invoice until both NERC and the Commission have approved this Settlement Agreement. However, if Duke fails to complete the actions described above, SERC reserves the right to assess and collect additional monetary penalty, to impose a sanction or otherwise to impose other enforcement action. Duke shall retain all rights to defend

against such enforcement actions in accordance with NERC Rules of Procedure. The estimated direct costs to Duke to implement the agreed to actions in Section IV are $1,800,000. Duke estimated the indirect costs to implement these actions at $200,000 annually. Funding and programs associated with this settlement agreement will be above the original planned budget and programs for the 2007 Transmission Vegetation Management Work Plan.

V. ADDITIONAL TERMS

25. The signatories to the Agreement agree that they enter into the Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer or promise of any kind by any member, employee, officer, director, agent or representative of SERC or Duke has been made to induce the signatories or any other party to enter into the Agreement.

26. The Regional Entity shall report the terms of all settlements of compliance matters to NERC. NERC will review the settlement for the purpose of evaluating its consistency with other settlements entered into for similar violations or under other, similar circumstances. Based on this review, NERC will either approve the settlement or reject the settlement and notify the Regional Entity and the Registered Entity of changes to the settlement that would result in approval. If NERC rejects the settlement, SERC will attempt to negotiate a revised settlement agreement with Duke including any changes to the settlement specified by NERC. If a settlement cannot be reached, the enforcement process shall continue to conclusion. If NERC approves the settlement, NERC will (i) report the approved settlement to the Commission for the Commission's review and approval by order or operation of law and (ii) publicly post the alleged violation and the terms provided for in the settlement.

27. This Agreement shall become effective upon the Commission's approval of the Agreement by order or operation of law as submitted to it or as modified in a manner acceptable to the parties.

28. Duke agrees that this Agreement, when approved by NERC and the Commission, shall represent a final settlement of all matters set forth herein and Duke waives its right to further hearings and appeal, unless and only to the extent that Duke contends that any NERC or Commission action on the Agreement contains one or more material modifications to the Agreement. SERC reserves all rights to initiate enforcement, penalty or sanction actions against Duke in accordance with the NERC Rules of Procedure in the event that Duke fails to comply with the mitigation plan and compliance program agreed to in this Agreement. In the event Duke fails to comply with any of the stipulations, remedies, sanctions or additional terms, as set forth in this Agreement, SERC will initiate enforcement, penalty, or sanction actions

against Duke to the maximum extent allowed by the NERC Rules of Procedure, up to the maximum statutorily allowed penalty. Duke shall retain all rights to defend against such enforcement actions, also according to the NERC Rules of Procedure.

29. Each of the undersigned warrants that he or she is an authorized representative of the entity designated, is authorized to bind such entity and accepts the Agreement on the entity's behalf.

30. The undersigned representative of each party affirms that he or she has read the Agreement, that all of the matters set forth in the Agreement are true and correct to the best of his or her knowledge, information and belief, and that he or she understands that the Agreement is entered into by such party in express reliance on those representations, provided, however, that such affirmation by each party's representative shall not apply to the other party's statements of position set forth in Section II of this Agreement.

31. The Agreement may be signed in counterparts.

32. This Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

Agreed to and accepted:

Gerald W. Cauley
President and CEO
SERC Reliability Corporation

12/17/2008
Date

Daltrum H. Poston
Vice President, Central Operations
Duke Energy Carolinas, LLC

12/17/2008
Date

Attachment 1

Action 1: Vegetation Summer Aerial Patrol" for the 230 kV and 525 kV transmission systems (Complete one form for each day of flight)	
Date of Aerial Patrol:	
Type of aircraft:	
Name of personnel on board:	
Areas patrolled (include approximate mileage):	
Field findings: • A daily report of key findings • Summary of findings at end of patrol • Details of any key findings at the end of patrol	

Comments (weather and flying conditions)	

Action 2: LiDAR (Light Data and Ranging) technology in 2008 in the Duke transmission 230/525 kV system for vegetation management of all of its 230/525 kV transmission system in the SERC region	
Summary of Work Planned for last Quarter:	
Accomplishments last quarter	
Present Issues/Status of Project:	

Look Ahead (Planned work for next quarter)	

Action 3: Develop and implement (document) a FAC-003-1 Training plan for pertinent internal and contact Vegetation Management personnel	
Summary of Training Planned for Last Quarter:	
Accomplishments last quarter.	
Present Issues/Status of Project:	
Look Ahead (Planned work for next Quarter)	

Names of personnel trained this quarter	

Action 4: Vegetation Ground Patrol for the 230 kV and 525 kV transmission systems	
Report for the Quarter:	
Names of Ground Patrol personnel	
Areas patrolled (include approximate mileage):	
Field findings: • Current Excel reports which contains date, type of vegetation identified, etc. • Summary of findings • Details on any key findings including supporting documentation (i.e. pictures, associated investigation report	
Overall project status:	

Comments	

Expenditures	**Last quarter's cumulative balance**	**This Quarter's expenditures**	**Cumulative Total to Date**
Action 1: Vegetation Summer Aerial Patrol" for the 230 kV and 500 kV transmission systems. Including Follow-up costs			$
Action 2: LiDAR (Light Data and Ranging) technology in 2008 in the Duke transmission 230/500 kV system for vegetation management of all of its 230/500 kV transmission system in the SERC region. Including Follow-up costs			$
Action 3: Train Vegetation Management Personnel			$
Action 4: Vegetation Ground Patrol for the 230 kV and 500 kV transmission systems (Complete one form for each day of flight). Including Follow-up costs.			$
Total			**$**

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Attachment b

Notice of Filing

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Duke Energy Carolinas, LLC Docket No. NP09-___-000

NOTICE OF FILING
(DATE)

Take notice that on December 19, 2008, the North American Electric Reliability Corporation (NERC), filed a Notice of Penalty regarding Duke Energy Carolinas, LLC in the SERC Reliability Corporation region.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at http://www.ferc.gov. Persons unable to file electronically should submit an original and 14 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426.

This filing is accessible on-line at http://www.ferc.gov, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, D.C. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email FERCOnlineSupport@ferc.gov, or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: [BLANK]

Kimberly D. Bose,
Secretary