

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. 100, SUB 128

In the Matter of) DUKE ENERGY CAROLINAS, LLC'S 2010
Investigation of the Integrated Resource) RENEWABLE ENERGY & ENERGY
Plan in North Carolina for 2010) EFFICIENCY PORTFOLIO STANDARD
)) COMPLIANCE PLAN

**DUKE ENERGY CAROLINAS, LLC'S
2010 RENEWABLE ENERGY AND ENERGY EFFICIENCY
PORTFOLIO STANDARD ("REPS") COMPLIANCE PLAN**

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I. INTRODUCTION

Duke Energy Carolinas, LLC (“Duke Energy Carolinas” or the “Company”) submits its annual Renewable Energy and Energy Efficiency Portfolio Standard (“NC REPS” or “REPS”) Compliance Plan (“Compliance Plan”) in accordance with N.C. Gen. Stat. § 62-133.8 and North Carolina Utilities Commission (the “Commission”) Rule R8-67(b). This Compliance Plan, set forth in detail in Sections II and Section III, provides the required information and outlines the Company’s projected plans for the period 2010-2012.¹ Section IV addresses the cost implications of the Company’s REPS Compliance Plan. Section V describes the Company’s efforts to supply renewable energy resources to its wholesale customers.

The North Carolina General Assembly enacted Session Law 2007-397 (“Senate Bill 3”) also known as N.C. Gen. Stat. § 62-133.8, *et al.*), which includes the NC REPS, on August 2, 2007, in order to:

- Diversify the resources used to reliably meet the energy needs of consumers in the State;
- Provide greater energy security through the use of indigenous energy resources available within the State;
- Encourage private investment in renewable energy and energy efficiency; and
- Provide improved air quality and other benefits to energy consumers and citizens of the State.

Duke Energy Carolinas seeks to advance these State policies by building a diverse portfolio of cost-effective renewable energy and energy efficiency resources. Specifically, the key components of Duke Energy Carolinas’ 2010 Compliance Plan include: (1) Direct investment in renewable energy resources at existing or new Duke Energy Carolinas-owned assets; (2) Partnership with third-party renewable resource suppliers through Power Purchase Agreements (“PPA” or “PPAs”); (3) Purchases of unbundled renewable energy certificates (“REC” or “RECs”) from both in-state and out-of-state suppliers; and (4) Utilization of cost-effective energy efficiency (“EE”) savings.

The Company believes that the implementation of the strategies outlined above will yield a balanced and prudent portfolio of qualifying resources and a flexible mechanism for compliance with the requirements of N.C. Gen. Stat. § 62-133.8. To implement these strategies, the Company has undertaken, and continues to undertake, specific regulatory and operational initiatives, including:

¹ Pursuant to Commission Rule R8-67(b)(1) this Compliance Plan reflects Duke Energy Carolinas’ present planning efforts to meet the REPS requirements for the current year and immediately subsequent two calendar years.

- Submit regulatory applications to pursue renewable resources at existing or new Duke Energy Carolinas sites, such as the Solar Photovoltaic Distributed Generation program (approved in Docket No. E-7, Sub 856²), the registration of Buck and Lee Steam Stations as New Renewable Energy Facilities (pending before the Commission in Docket No. E-7, Sub 939 and Sub 940³), and the Company's energy efficiency program (approved in Docket No. E-7, Sub 831⁴);
- Review proposals from third-party renewable suppliers offering PPA or REC-only renewable resource opportunities and prudently pursue contracts with the most attractive opportunities, as appropriate;
- Offer opportunities for smaller, third-party suppliers to participate in the Company's renewable procurement activities through programs such as the Standard Offer for RECs; and
- Build administrative processes to operate a renewable energy business in North Carolina, including:
 - Develop and operate Company-owned renewable resources;
 - Safely interconnect customer-owned renewable resources;
 - Procure and manage renewable resource contracts;
 - Account for RECs;
 - Report renewable generation to the North Carolina Renewable Energy Tracking System; and
 - Reliably forecast renewable resource availability in the future.

The Company believes these actions collectively constitute a thorough and prudent plan for compliance with NC REPS and demonstrate the Company's commitment to pursue its renewable energy and energy efficiency strategies.

² See *Order Granting Certificate of Public Convenience and Necessity Subject to Conditions*, Docket No. E-7, Sub 856 (December 28, 2008).

³ See Renewable Energy Facility Registration Statements for Buck and Lee Steam Stations, filed March 1, 2010, Docket Nos. E-7, Sub 939 and Sub 940, pending before the Commission.

⁴ See *Order Approving Agreement and Joint Stipulation of Settlement Subject to Certain Commission-Required Modifications and Decisions on Contested Issues* issued February 9, 2010, in Docket No. E-7, Sub 831.

II. REPS COMPLIANCE OBLIGATION

Duke Energy Carolinas calculates its NC REPS Compliance Obligations⁵ in 2010, 2011, and 2012 based on careful interpretation of the statute (N.C. Gen. Stat. § 62-133.8), the Commission's rules implementing Senate Bill 3 (Rule R8-67), and subsequent Commission orders, as applied to the Company's actual or forecasted load in the planning period, as well as the actual and forecasted loads of those wholesale customers for whom the Company is supplying REPS compliance, specifically Rutherford Electric Membership Corporation, Blue Ridge Electric Membership Corporation, City of Dallas, Forest City, City of Concord, Town of Highlands, and the City of Kings Mountain (collectively referred to as "Wholesale" or "Wholesale Customers").⁶ The Table 1 shows the Company's retail and Wholesale customers' REPS Compliance Obligation.

Table 1: Duke Energy Carolinas' NC REPS Compliance Obligation

Compliance Year	Previous Year DEC Retail Sales (MWh)	Previous Year Wholesale Customers' Retail Sales (MWh)	Retail Sales (MWh)	Solar Set-Aside (MWh)	Swine Set-Aside (MWh)	Poultry Set-Aside (MWh)	REPS Requirement (%)	REPS Compliance Obligation (MWh)
2010	53,405,373*	3,608,452*	57,013,825*	11,434	-	-	0.02%	11,402
2011	53,661,493	3,672,118	57,333,611	11,403	-	-	0.02%	11,403
2012	54,510,205	3,719,801	58,230,006	40,134	40,134	78,001	3.00%	1,720,008

*Based on 2009 Retail Sales; for compliance years 2011 and 2012, Compliance Obligation is based on prior year forecasted retail sales.

As shown in Table 1, the Company's requirements in the planning period include resources that meet the solar energy resource requirement ("Solar Set-Aside"), swine waste resource requirement ("Swine Set-Aside"), and poultry waste resource requirement ("Poultry Set-Aside"). In addition, the Company must also ensure that, in total, the renewable resources that it produces or procures, combined with energy efficiency savings, is an amount equivalent to three percent (3%) of its 2011 retail sales in 2012. This amount is the Compliance Obligation.

For clarification, the Company refers to its Compliance Obligation, net of the Solar, Swine, and Poultry Set-Aside requirements, as the General Requirement ("General Requirement"). Appendix Exhibit A provides projections of the Company's future REPS Combined Obligation, including Solar Set-Aside, Swine Set-Aside, Poultry Set-Aside, and General Requirement through 2023.

⁵ For the purposes of this compliance plan, Compliance Obligation is more specifically defined as the sum of Duke Energy Carolinas' obligation and that of wholesale customers for whom the company is supplying REPS compliance.

⁶ For purposes of this compliance plan, Retail Sales is defined as the sum of Duke Energy Carolinas' retail sales and the retail sale of the wholesale customers for whom the company is supplying REPS compliance.

III. REPS COMPLIANCE PLAN

Mindful of both the impact of the cost of compliance on customers, as well as the constraints of each resource type, Duke Energy Carolinas endeavors to build a diverse and balanced portfolio of renewable resources to meet its statutory requirements. Table 2 summarizes the renewable resources available now or in the future in the Carolinas.

Table 2: Renewable Resources in the Carolinas and Compliance Use

Resource Description	Compliance Use
Solar Photovoltaic	Solar Set-Aside, General Req'ment
Solar Hot Water	Solar Set-Aside, General Req'ment
Biomass – Power from direct firing or gasification of poultry litter	Poultry Set- Aside, Gen'l Req'ment
Biomass – Power from gas produced in the anaerobic digestion of poultry litter	Poultry Set-Aside, Gen'l Req'ment
Biomass – Power from gas produced in the anaerobic digestion of swine waste	Swine Set-Aside, Gen'l Req'ment
Energy Efficiency	General Requirement
Hydroelectric Power	General Requirement
Biomass – Landfill Gas to Energy	General Requirement
Biomass – Power from direct firing or co-firing of wood and/or ag fuels	General Requirement
Biomass – Combined heat and power from direct firing of wood and/or ag fuels	General Requirement
Biomass – Power from direct firing or gasification of refuse-derived fuel, MSW	General Requirement
Biomass – Power from gas produced in anaerobic digestion of organic waste	General Requirement
Biomass – Power from gas or waste produced in wastewater treatment	General Requirement
Wind – On-shore	General Requirement
Wind – Offshore	General Requirement

The Company assesses each of these resource types relative to the Compliance Obligation, cost-effectiveness, availability, and risk. Pursuant to the Commission's *Order on Motion for Clarification*, issued in Docket No. E-100, Sub 113 (May 7, 2009), specifying that the Company must prioritize the Set-Aside requirements (Solar, Swine, Poultry), the discussion below addresses Company's efforts to meet those Set-Aside requirements first, and then outlines the Company's efforts to meet its General Requirement obligations.

A. SOLAR ENERGY RESOURCES

Pursuant to N.C. Gen. Stat. § 62-133.8(d), the Company must use solar energy resources equal to a minimum of two hundredths of one percent (0.02%) of the total electric power in kilowatt hours sold to retail customers in North Carolina, or an equivalent amount of energy, in both 2010 and 2011. This requirement for solar energy resources increases to seven hundredths of one percent (0.07%) in 2012.

Based on actual retail sales in 2009, the Solar Set-Aside is approximately 11,402 MWhs in 2010. Based on forecasted retail sales, the Solar Set-Aside is approximately 11,403 MWhs and 40,134 MWhs in 2011 and 2012, respectively.

The Company's plan for meeting the Solar Set-Aside in 2010-2012 is consistent with its plan from the previous year. Specifically, the Company has elected to pursue the following courses of action to acquire solar resources for compliance:

1. Solar Photovoltaic Distributed Generation Program

The Solar Photovoltaic Distributed Generation Program, approved by the Commission in 2009,⁷ refers to solar photovoltaic ("PV") installation across multiple sites, on customer as well as Duke Energy Carolinas-owned sites, totaling not more than 10 megawatts (direct-current) of capacity.⁸ The Company began construction of systems in the fourth quarter of 2009 and anticipates that all sites will be on-line by December 31, 2010. Table 3, below, identifies the sites that encompass the program.

⁷ See *Order Granting Certificate of Public Convenience and Necessity Subject to Conditions*, Docket No. E-7, Sub 856 (December 28, 2008).

⁸ Solar photovoltaic panels produce direct-current energy ("DC") and thus solar PV capacity typically references capacity as DC. When converting this electricity to alternating current or "AC" (the current of the electric distribution system) using an inverter, there is loss. The AC-rated capacity of solar PV is generally 80-85 percent of the DC-rated capacity. Duke Energy Carolinas' Solar Photovoltaic Distributed Generation program is rated 10MW (DC) or 8.0-8.5MW (AC).

Table 3: Duke Energy Carolinas' Solar Photovoltaic Distributed Generation Program

Site Name	City (NC)	Capacity MW (DC)	In-service date
Childress Klein	Charlotte	2.17	Sept 2010
Highwoods	Greensboro	1.50	April 2010
National Gypsum	Mt. Holly	1.21	Feb 2010
Food Lion	Salisbury	1.09	May 2010
Marshall	Terrell	1.01	Oct 2010
Childress Klein	Charlotte	0.53	Jan 2010
Carrier Centers	Charlotte	0.53	Sept 2010
Thomas Built Buses	High Point	0.42	Nov 2010
Freightliner	Barber	0.37	Sept 2010
Liberty Hardware	Winston-Salem	0.31	Aug 2010
Maple View Ag Center	Hillsborough	0.18	Aug 2010
Lincoln Charter School	Denver	0.16	Aug 2010
City of Charlotte	Charlotte	0.11	Aug 2010
EPA	Research Triangle	0.11	April 2010
Kimberly Clark	Hendersonville	0.08	Oct 2010
Gaston County Schools	Lowell	0.07	May 2010
McAlpine	Charlotte	0.05	May 2010
Siemens	Charlotte	0.05	Dec 2010
Residential	Various	0.05	Dec 2010
Total Capacity		10.00	

2. Solar PPA

In 2008, Duke Energy Carolinas signed a twenty-year PPA with SunEdison for the purchase of all electricity generated from a proposed 15.5 MW (AC) solar farm in Davidson County, NC. The initial phase of 3.5 MW (AC) is operational and the remaining capacity is under construction. Duke Energy Carolinas expects the solar farm to be fully operational by year-end 2010 or early 2011.

3. Purchases of Solar RECs, In-State

The Company has entered into a long-term agreement with FLS Energy to purchase solar RECs from water heating installations. As a result of this agreement, FLS has installed solar water heating systems at residences, hotels, universities, and commercial sites across North Carolina and is planning many more installations. Please refer to Table 4, below, for a list of solar water heating projects subject to this agreement, as of this filing.⁹

⁹ To ensure that commitments of confidentiality between FLS Energy and their clients are maintained, Table 4 is filed as a confidential exhibit. The Company's contract with [BEGIN CONFIDENTIAL] [REDACTED], [END CONFIDENTIAL] which was referenced in the 2009 Compliance Plan, has since been terminated. [BEGIN

Table 4: FLS Solar Hot Water Installations

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

4. Purchases of Solar RECs, Out-of-State

The Company has found out-of-state solar RECs to be cost-effective when compared to in-state resources. As such, the Company has entered into agreements to procure out-of-state solar RECs up to the 25 percent out-of-state limitation of this resource. The Company will utilize these out-of-state solar RECs for compliance in the planning period and/or bank them for use in future periods.

CONFIDENTIAL] [REDACTED] **[END CONFIDENTIAL]** defaulted under the contract by failing to deliver the required number of minimum RECs.

5. Estimated Sources of MWhs for Solar Set-Aside Compliance

Table 5 demonstrates how each of the four courses of action outlined above contributes to the Company's compliance with the Solar Set-Aside.

Table 5: Solar Set-Aside Compliance Projections

Source	2010 Energy or RECs (MWh)	2011 Energy or RECs (MWh)	2012 Energy or RECs (MWh)
Solar Photovoltaic Distributed Generation Program	6,941	13,423	13,423
CONFIDENTIAL	8,200	29,200	29,200
CONFIDENTIAL	1,019	5,701	9,991
Out of State REC Purchases**	4,890	1000	-
Total	21,050	49,324	52,614

*Estimates provided by the developer to Duke Energy Carolinas.

**Quantity shown represents actual RECs purchased by Duke Energy Carolinas.

6. Review of Company's Solar Set-Aside Plan

The Company remains confident that it will meet the 2010, 2011, and 2012 Solar Set-Aside requirements. However, Duke Energy Carolinas' strategy for compliance with the Solar Set-Aside requirement is not without risk. The Company has identified specific risks relating to its compliance strategy for the Solar Set-Aside as follows:

- The PPA with SunEdison is projected to supply a material percentage of RECs relative to the Company's Solar Set-Aside requirements in 2010, 2011, and 2012. The size of the SunEdison project heightens the importance of the project's success to the Company's compliance strategy, particularly in the early years. SunEdison brought 3.5 MW AC of capacity online as of January 1, 2010 and has indicated to Duke Energy Carolinas that the project will be built by either year-end 2010 or early 2011. The contract requires SunEdison to bring all capacity online no later than March 31, 2011. SunEdison has stated its intention to complete the project earlier to optimize financing considerations. Both Duke Energy Carolinas and SunEdison remain fully committed to the project and both parties continue to work toward completion.
- In order to meet the requirements of its agreement with Duke Energy Carolinas, FLS Energy must develop multiple additional solar hot water projects within North Carolina beyond the projects noted in Table 4. Thus, Duke Energy Carolinas' ability to meet the Solar Set-Aside requirements is dependent in part on the success of FLS Energy in developing these additional solar water heating projects. The Company's contract with FLS provides protections to the Company if the stated REC delivery targets are not met.

The Company has made and continues to make reasonable efforts to meet the Solar Set-Aside requirement in 2010, 2011, and 2012. Duke Energy Carolinas' compliance with the Solar Set-Aside in the planning period depends, in part, on the performance of third parties. The Company's Solar Photovoltaic Distributed Generation Program remains on schedule as it enters its final stages of completion. As such, Duke Energy Carolinas sees minimal risk in project completion and performance. The Company will continue to monitor the development and progress of solar initiatives and take appropriate actions as necessary.

B. SWINE WASTE-TO-ENERGY RESOURCES

Pursuant to N.C. Gen. Stat. § 62-133.8(e), for calendar year 2012, at least seven hundredths of one percent (0.07%) of total retail electric power sold in aggregate by utilities in North Carolina must be supplied by energy derived from swine waste. As the Company's share¹⁰ of the State's total electric power in kilowatt hours sold to retail electric customers is approximately forty-six percent (46%), the Company's Swine Set-Aside is estimated to be 40,114 MWhs in 2012. The Company does not have a Swine Set-Aside obligation in 2010 or in 2011.

The Company plans to meet the Swine Set-Aside requirement in the planning period through PPAs and/or unbundled REC purchases. To that end, Duke Energy Carolinas has made reasonable efforts to meet the Swine Set-Aside requirement by:

- Meeting with potential suppliers;
- Review proposals from third-party swine waste-to-energy developers offering PPA or REC-only opportunities;
- Investing in research and development opportunities through collaborative efforts with universities and private enterprises;
- Identifying, contacting, and encouraging animal waste-to-energy developers in other states to develop projects in North Carolina;
- Jointly procuring swine waste-to-energy resources with other power suppliers.

1. Primary Strategy for Swine Set-Aside Compliance

Duke Energy Carolinas' primary strategy for compliance is to jointly procure swine waste-to-energy resources with Progress Energy Carolinas, Inc., Dominion North Carolina Power, North

¹⁰ In its *Order on Pro Rata Allocation of Aggregate Swine and Poultry Waste Set Aside Requirements and Motion for Clarification* in Docket No. E-100, Sub 113 (March 31, 2010), the Commission approved the electric power suppliers' proposed pro-rata allocation of the statewide aggregate swine and poultry waste set-aside requirements, such that the aggregate requirements will be allocated among the electric power suppliers based on the ratio of each electric power supplier's prior year retail sales to the total statewide retail sales.

Carolina Electric Membership Corporation, North Carolina Eastern Municipal Power Agency, and North Carolina Municipal Power Agency Number 1 (“Electric Power Suppliers”).

As required by the Commission’s May 7, 2009 *Order on Duke Energy Carolinas, LLC, Motion for Clarification*, this joint business arrangement received prior approval from the Commission. Following the Commission’s issuance of its *Order on Withdrawal of Joint Motion, Issuance of Joint Request for Proposals, and Allocation of Aggregate Set-Aside Requirements*, Docket No. E-100, Sub 113 (February 12, 2010) (“RFP Approval Order”), Duke Energy Carolinas and the other Electric Power Suppliers have undertaken a coordinated effort to procure renewable energy and renewable energy certificate proposals from swine waste-to-energy developers in North Carolina. The Electric Power Suppliers recently filed an update in Docket No. E-100, Sub 113, pursuant to the RFP Approval Order, to provide the Commission with a specific update and overview of the execution of the joint swine RFP to date. The specific activities that have occurred to date, pursuant to the Commission’s approval of the joint swine RFP, are as follows:

- Issued an RFP soliciting energy and/or REC proposals from swine waste-to-energy facilities. The RFP was posted locally, as well as nationally, including the websites of the Electric Power Suppliers, and on the websites of the National Renewable Energy Laboratory and the Electric Power Research Institute;
- Conducted economic analyses of proposals and solicited additional information, as needed, to better understand the proposals;
- Engaged a third-party consultant to conduct technical analyses of proposals and rank proposals based on relative economic and technical viability;
- Generated short-list of cost-effective proposals;
- Notified these developers of initiation of negotiations relating to power and REC purchase agreements with the individual Electric Power Suppliers; and
- Commenced negotiations with the short-listed developers in August 2010.

Based on Duke Energy Carolinas’ analysis of the short-listed proposals, the Company believes that compliance with the 2012 Swine Set Aside requirement is possible, as the identified proposals appear to be capable of delivering sufficient RECs to meet the 2012 requirements of all of the Power Suppliers. However, the Company feels that it is too early to conclude that the 2012 targets will be met, simply because many uncertainties remain that will be addressed in negotiations and subsequent project development.

2. Review of Company's Swine Waste Set-Aside Plan

While the Company endeavors to meet the 2012 swine waste-to-energy resource requirement, Duke Energy Carolinas notes several fundamental challenges and risks remain with respect to procuring this resource:

- The relatively high price of swine waste-to-energy RECs and wide variance in price reflects the immaturity of the market in North Carolina;
- The swine waste-to-energy industry is in its infancy in North Carolina and proven developers and operators of swine waste-to-energy projects are few;
- Based on response to the Joint Swine RFP, there appears very little diversity in waste-to-energy technology. Anaerobic digestion of swine waste to create biogas appears to be the dominant, yet unproven on a commercial scale, technology;
- Swine waste-to-energy-technology has never been deployed on this scale in a single region (*i.e.*, Eastern North Carolina) in the United States. Overlap in fuel supply assumptions among developers of this resource continues to be a risk; and
- Individual project opportunities tend to be quite small in scale relative to the REPS swine requirements.

Despite these challenges, Duke Energy Carolinas continues to pursue the above-mentioned strategies to meet the Swine Set-Aside requirement. In addition, the Company has partnered with Duke University to fund a pilot-scale, on-farm, swine waste-to-energy development at Loyd Ray Farm in Booneville, NC. The project also has received grants from the United States Department of Agriculture and the North Carolina Department of Environment and Natural Resources. Swine Waste-to-Energy development at Loyd Ray Farm represents an opportunity to demonstrate a low capital cost, environmentally beneficial (*e.g.*, reduced runoff, lower ammonia emission, lower odor), farmer-operated swine waste-to-energy facility that, in the future, could serve as a model for other hog farmers seeking to manage waste while also developing on-farm renewable generation. The targeted date of commercial operation is February 15, 2011 and the project is expected to yield 512 – 639 MWhs of renewable energy annually. Duke Energy receives all of the RECs generated from this project for a period of ten years; Duke University receives the Carbon Offsets; and the energy is primarily consumed on-farm.

Taking all of these factors set forth above into account, Duke Energy Carolinas will continue to make all reasonable efforts to meet the Swine Set-Aside in 2012.

C. POULTRY WASTE RESOURCES

Pursuant to N.C. Gen. Stat. § 62-133.8(f), at least 170,000 MWhs of the total electric power sold to retail electric customers in the State shall be supplied, or contracted for supply in each year, by

poultry waste combined with wood shavings, straw, rice hulls, or other bedding material. As the Company's retail sales share of the State's total retail kWh sales is approximately forty-six percent (46%), the Company's Poultry Set-Aside in 2012 is approximately 78,001 MWhs. The Company does not have a Poultry Set-Aside requirement in 2010 or in 2011.

1. Primary Strategy for Poultry Set-Aside Compliance

The Company plans to meet the Poultry Set-Aside through bundled PPAs and/or by purchasing unbundled RECs. To that end, Duke Energy Carolinas has made reasonable efforts to meet the Poultry Set-Aside requirement by:

- Continuing to meet with potential suppliers;
- Reviewing proposals from third-party developers offering PPA or REC-only opportunities that qualify for the Poultry Set-Aside;
- Identifying, contacting, and encouraging animal waste-to-energy developers in other states to develop projects in North Carolina; and
- Initiating negotiation with all known, qualified suppliers of resources that qualify for the Poultry Set-Aside.

2. Review of Company's Poultry Set-Aside Plan

Duke Energy Carolinas has not reached agreement with any particular supplier of resources that meet the Poultry Set-Aside due to several factors, including but not limited to:

- The relatively high price of RECs that meet the Poultry Set-Aside and wide variance in price reflects the immaturity of the market in North Carolina; thus determination of a prudent poultry REC cost is challenging;
- The poultry waste-to-energy industry is in its infancy in North Carolina and proven developers and operators of poultry waste-to-energy projects are few;
- Structuring large, twenty-year PPAs prudently, such that they do not put the Company at risk of exceeding the fixed cost caps specified in N.C. Gen. Stat. § 62-133.8(h), is a time-consuming and challenging endeavor for all parties;
- Changes in law (*i.e.*, Senate Bill 886) or changes in interpretation of law stand to alter the landscape of renewable resources that would qualify toward the Poultry Set-Aside. The company believes that full evaluation of the costs and risk of all known suppliers of RECs that could be used to satisfy the Poultry Set-Aside is prudent and in the best interests of customers; and

- Emerging regulatory challenges with respect to emissions from biomass facilities is a clear and present risk for most of the developers with whom the Company is negotiating; structuring a long-term contract to mitigate such risk is both prudent and challenging.

Taking all of the factors set forth above into account, Duke Energy Carolinas will continue to make all reasonable efforts to meet the Poultry Set-Aside in 2012.

D. GENERAL REQUIREMENT RESOURCES

Pursuant to N.C. Gen. Stat. § 62-133.7(b)(1), in 2012, Duke Energy Carolinas must generate or procure renewable energy or energy efficiency resources equal to three percent (3%) of its 2011 estimated retail sales, or approximately 1,720,008 MWhs. This requirement, net of the Solar, Swine, and Poultry Set-Aside requirements, is 1,561,739 MWhs. The Company refers to this as the General Requirement. The Company has a General Requirement in 2012, but does not have a General Requirement in 2010 or in 2011. Discussed below are the resource options available to the Company to meet the General Requirement, as well as the Company's plan to meet the General Requirement with these resources.

1. Energy Efficiency

The Company plans to meet a material portion of the General Requirement through energy efficiency savings. Duke Energy Carolinas projects that, in concert with its customers, it will achieve more energy efficiency savings than can be utilized under REPS for the foreseeable future. Thus, the Company plans to utilize energy efficiency to the fullest extent possible, accounting for 25 percent of the compliance requirement beginning in 2012.¹¹ The Company introduced its energy efficiency programs in mid-2009 and will bank energy efficiency savings achievements in the 2009-2011 period. Duke Energy currently plans to utilize its banked energy efficiency savings in 2012 and thereafter.

The Commission approved the Company's energy efficiency plan in its *Order Approving Agreement and Joint Stipulation of Settlement Subject to Certain Commission-Required Modifications and Decisions on Contested Issues* issued February 9, 2010, in Docket No. E-7, Sub 831. The Company's Energy Efficiency Programs include: Residential Energy Assessments, Smart \$aver® for Residential Customers, Low Income Services, Energy Efficiency Education Programs for Schools, Non-Residential Energy Assessments, Smart \$aver® for Non-Residential Customers, as well as additional programs that are under development and pending approval by the Commission.

2. Hydroelectric Power

Duke Energy Carolinas plans to use hydroelectric power from three sources to meet the General Requirement obligation in 2012: (1) small Company-owned hydro stations; (2) Wholesale

¹¹ See N.C. Gen. Stat. § 62-133.8(b)(2)c.

Customers' Southeastern Power Administration ("SEPA") allocation; and (3) small hydroelectric facilities that are not Company-owned ("QF Hydro").

To date, the Company has received Commission approval of six (6) of its hydro stations as renewable energy facilities.¹² The Company intends to use a pro-rata portion of the RECs generated by these facilities for compliance in 2012 and beyond to meet the General Requirements of Duke Energy Carolinas' Wholesale Customers, pursuant to N.C. Gen. Stat. 62-133.8(c)(2)c. Wholesale Customers may also bank and utilize hydroelectric resources arising from their full allocations of SEPA. When supplying compliance for the Wholesale Customers, the Company will ensure that hydroelectric resources do not comprise more than thirty percent (30%) of each Wholesale Customers' compliance portfolio, pursuant to N.C. Gen. Stat. 62-133.8(c)(2)c.

The Company has purchased RECs from twenty-one (21) small QF Hydro power facilities in the Carolinas which qualify as new renewable energy facilities. The Company will bank these RECs to be used in 2012 and beyond to meet its General Requirement.

3. Biomass Resources

Duke Energy Carolinas plans to meet a material portion of the General Requirement obligation through a risk-adjusted portfolio of biomass resources, among them:

- Landfill Gas to Energy
- Combined heat and power from direct firing of wood and agricultural fuels
- Power from direct firing or co-firing of wood and agricultural fuels
- Power from direct firing or gasification of refuse-derived fuel or municipal solid waste
- Power from gas produced in anaerobic digestion of organic waste
- Power from gas produced in wastewater treatment

Duke Energy Carolinas is evaluating a variety of biomass PPA proposals, including landfill gas, wood biomass combustion, biomass gasification, and biomass anaerobic digestion. The Company also intends to self-supply a portion of the biomass portfolio through the co-fire and/or re-power of existing coal stations with renewable fuel.

¹² Duke Energy Carolinas has resubmitted registration statements for its remaining hydro stations where all units together are less than 10 MW in capacity, and will use this generation to meet the REPS requirements of its full requirements wholesale customers. See Docket Nos. E-7, Subs 942 through 946.

At present, the Company has contracted for and banked resources sufficient to meet the General Requirement in 2012. As discussed below, Duke Energy Carolinas continues to seek out, assess, and procure or develop resources for future General Requirement compliance. The Company believes that a diversified mix of biomass technologies, fuel suppliers, and sites creates a reasonable and balanced portfolio of cost-effective resources for compliance with REPS.

a. Landfill Gas to Energy

Landfill gas (“LFG”) to energy is a cost-effective resource for renewable generation. The Company plans to rely on LFG to meet a certain portion of the General Requirement. To date, Duke Energy Carolinas has signed long-term agreements for renewable energy with multiple LFG developers, as shown in Appendix B. While attractively priced and operating at high capacity factors, LFG is limited in future potential by the number, size, and age of the landfills in the Carolinas. Although the Company continues to explore additional contracts for electricity and RECs from landfill gas facilities, Duke Energy Carolinas expects that development rights (*i.e.*, gas rights) to most, if not all, landfills of significant size located in the Carolinas will be sold or under contract within the 2010-2012 period, at which time this resource will effectively be fully subscribed. In light of this estimation, the Company has begun pursuing other resource types for future compliance, as explained below.

b. Direct Firing, Combined Heat and Power, and Gasification

The Company plans to rely upon biomass direct firing, combined heat and power (“CHP”), and/or biomass gasification facilities to meet a material portion of its General Requirement in 2012. A primary benefit of these types of facilities, as compared to other renewables, is their size and capacity factor. They are typically greater than twenty (20) MW, can be up to one hundred (100) MW in size, and are capable of capacity factors of eighty-five to ninety percent (85-90%). Thus, one facility can deliver hundreds of thousands of megawatt-hours of renewable energy annually. Such an amount equates to a material portion of the Company’s General Requirement, and thus, the Company feels it is prudent to closely examine the risks and benefits that such projects would bring to the Company’s portfolio of resources.

c. Duke Energy Carolinas’ Biomass Initiatives at Fossil Units

Pursuant to N.C. Gen. Stat. § 62-133.8(b)(2)b, the Company’s strategy for using biomass to comply with General Requirement obligations includes efforts to co-fire biomass with fossil fuel at existing Company facilities and to potentially repower an existing coal-fired unit(s) to burn solely biomass fuel. The Company estimates that repowering projects could deliver up to one million RECs annually. Both co-firing and repowering are considered “brownfield” projects because they utilize existing infrastructure, and thus, they are expected to be more cost-effective than “greenfield” biomass projects.

As discussed below, Duke Energy Carolinas has undertaken significant and comprehensive economic and technical analyses related to biomass development at existing coal stations and has made regulatory applications to enable implementation of these projects.

i. Economic and Technical Analyses of Biomass Initiatives at Fossil Units

The Company's approach to evaluation of "brownfield" biomass projects is multi-phase, multi-year, beginning with low-capital, proof-of-concept assessments of a wide variety of options and moving to specific, more permanent, higher capital projects. The strategy is designed with multiple decision points in order to adapt to emerging issues, as discussed below.

- The Company conducted Phase 1 scoping-level assessments of co-firing in the spring of 2009, evaluating co-milling, direct injection, and gasification technologies for all the Duke Energy Carolinas' system coal-fired units. Phase 1 also included evaluation of repowering one unit to utilize 100 percent biomass fuel using stoker-fired or bubbling fluidized bed technology at three different unit capacities.
- The Company then conducted more detailed Phase 2 technical analyses of high-potential options identified in the Phase 1 screening. The Company based selection of projects for Phase 2 analysis on a variety of factors such as cost, available fuel supply, REC production, and operational risk. The Company conducted the following Phase 2 evaluations: (1) one co-milling project; (2) one direct injection project; and (3) the bubbling fluidized bed technology test for the repowering project. Duke Energy Carolinas is finalizing technical evaluations and, upon completion of Phase 2 analyses, will make decisions to proceed/not proceed with engineering and permitting for the selected options.
- In 2010, Duke Energy Carolinas transitioned the co-firing project at Lee Steam Station from a test application to production mode. Co-firing began in early May on all three units and utilizes existing infrastructure to blend biomass with coal on the reclaim belt as fuel is being loaded to the units. The equipment that is being used was originally installed in the mid-1990's when co-firing was first tested at Lee Steam Station. This production project allows Duke to further develop the biomass fuel supply chain, operational experience, and internal systems.
- Also in 2010, the Company is developing a biomass planting project on Company-owned land to demonstrate the viability of sustainable biomass fuel supplies. This project will contain a variety of "next generation" trees and perennial crops planted using biomass-specific planting techniques. This site will be used for research and development purposes, and as a potential demonstration site for landowners and loggers interested in cultivation and harvesting for bioenergy purposes.

ii. Regulatory Applications to Enable Biomass Initiatives at Fossil Units

Duke Energy Carolinas proposes to use a variety of biomass fuels, including whole trees, for its co-firing and potential repowering generation projects. The Company believes the logic behind its proposal to be prudent: a capital investment to re-purpose an existing fossil generation unit to exclusively burn biomass fuel, or to accommodate biomass fuel in addition to coal, must be supported by adequate relevant fuel supplies to support the operation of the repowered or co-fired unit over the course of its new useful life. Importantly, the same basic fuel supply requirements would also hold true for the development of a “greenfield” biomass facility proposed by a third party developer.

Given the critical nature of fuel supply to success of these projects, Duke Energy Carolinas submitted applications to the Commission to register Buck Steam Station and Lee Steam Station as new renewable energy facilities, in Docket Nos. E-7, Sub 939 and 940, and cited, in those applications, its plans to use a variety of biomass fuels, including whole trees. The applications have been contested by several intervenors that object to the use of whole trees as “biomass resources” under Senate Bill 3. The Commission conducted an evidentiary hearing and heard oral arguments on the matter on July 14 and 15, 2010. Proposed orders must be filed with the Commission after the deadline for submission of this plan and the outcome of that proceeding will have a significant impact on the Company’s REPS compliance strategy.

Duke Energy Carolinas projects that a limiting interpretation of biomass resources within Senate Bill 3 will result in a practical reduction of approximately 80 percent of projected REC generation from Company-owned wood biomass projects. Importantly, a limiting interpretation would effectively cap the potential of all wood biomass resources, both Company-owned and third-party-owned, as a significant source of REPS-compliant generation and economic development in North Carolina.

If faced with the limitation of woody biomass development, Duke Energy Carolinas anticipates that it will look to next-most-cost-effective fuels or resources to meet the potential shortfall in the General Requirement RECs. These “next-in-stack” resources include, for example, other, more costly biomass fuels, solar resources (Company-owned and third-party), wind, and anaerobic digestion. The move to these resources is likely to be necessary, despite their premium cost implications, given the lack of mature, viable technologies available for ready installation in the Carolinas that are as cost-effective as direct-firing of woody biomass. This change in strategy will implicate the statutory per-account cost caps much sooner than previously anticipated and may eliminate the prospect of Duke Energy Carolinas achieving the public policy objectives of Senate Bill 3, specifically the MWh requirements.

Duke Energy Carolinas is taking great care to carefully balance the need to meet the REPS statutory renewable energy resource requirements with the very important concerns of impacts to existing forestry market participants, to the environment, and to all customers.

d. Anaerobic Digestion

Duke Energy Carolinas views anaerobic digestion as a new, potentially scalable form of renewable generation that could assist in diversifying risk in the General Requirements portfolio. In contrast to the biomass firing and gasification facilities discussed above, anaerobic digestion facilities are much smaller in capacity (typically one to five (1-5) MW) yet share with biomass firing and landfill gas a high capacity factor (~0.85). The smaller size of anaerobic digestion projects as compared to projects involving direct firing or gasification of biomass makes anaerobic digestion less risky from a portfolio perspective. However, the technology is somewhat less proven and is less cost-effective than direct firing.

4. Wind

Duke Energy Carolinas continues to be actively involved in several efforts to better understand the wind resources available in North Carolina. The Company believes that North Carolina possesses wind resources in the mountains, on the coast, and offshore that are sufficient for the construction of wind turbines on a material scale in the future. To date, however, the Company has not received viable third-party development proposals from wind developers seeking to site significant turbine installations or “wind farms” in North Carolina. The Company nonetheless has engaged in conversations with developers of this resource in order to better understand its benefits and limitations.

Currently, there are several challenges that have limited the development of commercial wind farms in the state. As with other renewable developments of material scale, wind projects are capital intensive and require relatively long lead times for equipment and permitting. Notably, commercial development of wind turbines in the mountains is severely limited by North Carolina’s Ridge Law. Pursuant to Session Law 2009-451, Duke Energy Carolinas and the University of North Carolina at Chapel Hill entered into an agreement in September 2009 to develop a pilot coastal wind demonstration project of up to three turbines in the Pamlico Sound. Since then, the Company has conducted in-depth analysis, engineering, and permitting studies that helped define and revise the scope and cost estimate of the demonstration project. In August 2010, Duke Energy Carolinas concluded that the significantly increased cost estimates associated with such a small-scale demonstration project outweighed the benefits its customers would receive, and the Company exercised its right to terminate the contract. Despite the termination of this pilot project, Duke Energy Carolinas learned a great deal about the permitting and engineering process for water-based wind turbines and has committed to fund further research into the long term viability of offshore wind in the ocean where greater development potential exists.

The Company has found out-of-state wind RECs to be cost-effective when compared to in-state General Requirement resources. As such, the Company has entered into agreements to procure out-of-state wind RECs up to the 25 percent out-of-state limitation. The Company will utilize these RECs for compliance in the planning period and/or bank them for use in future period. The Company has entered into contracts for the purchase of 1,395,544 RECs, which the Company

purchased with the intent to bank these RECs for compliance within seven years of cost recovery. These out-of-state wind RECs represent the most cost-effective General Requirement resource available in the out-of-state REC markets. The Company seeks to procure additional out-of-state RECs to continue to capitalize on the availability of these low-cost environmental attributes.

5. Use of Solar Resources for General Requirement

Duke Energy Carolinas continues to monitor the global solar marketplace and observes that the downward trend in solar equipment costs over the past several years is a positive development for Duke Energy Carolinas customers. Also, the Company continues to investigate the addition of more solar resources for use in meeting the General Requirement, beginning in 2012, or meeting the Company's increased Solar Set-Aside requirements beyond the planning horizon of this document.

E. Summary of Renewable Resources

Through this REPS Compliance Plan, the Company has attempted to illustrate the evolution of its evaluation of renewable resource types, particularly with respect to the benefits, challenges, and practical considerations for each as a potential REPS compliance tool. The Company would like to emphasize that while nearly all renewable resources remain premium resources in terms of cost, these costs vary significantly among the resource types. Similarly, resource potential and development risk profile both vary significantly among the different resources. As is true in so many other contexts, there is no magic bullet for REPS compliance. Each renewable resource carries limitations and inherent risks, and those factors must be considered and stressed in the development of any reasonable and thorough strategic planning initiative. Duke Energy Carolinas submits that it has crafted a prudent, reasonable plan with a diversified balance of renewable resources that will allow the Company to comply with its REPS obligations over the planning period.

IV. COST IMPLICATIONS OF REPS COMPLIANCE PLAN

A. CURRENT AND PROJECTED AVOIDED COST RATES

The current and projected avoided cost rates represent the annualized avoided cost rates in Schedule PP-N (NC), Distribution Interconnection, approved in the 2008 avoided cost filing.

Table 6: Annualized Capacity and Energy Rates (cents per KWh)

	2010 (Current)	2011 (Projected)	2012 (Projected)
Variable Rate	6.40¢	6.40¢	6.40¢
5 Year	6.39¢	6.39¢	6.39¢
10 Year	6.42¢	6.42¢	6.42¢
15 Year	6.56¢	6.56¢	6.56¢
20 Year (extrapolated)	6.96¢	6.96¢	6.96¢
25 Year (extrapolated)	7.42¢	7.42¢	7.42¢

B. PROJECTED TOTAL NORTH CAROLINA RETAIL AND WHOLESALE SALES AND YEAR-END NUMBER OF CUSTOMER ACCOUNTS BY CLASS

The tables below reflect the inclusion of the Wholesale Customers in the Compliance Plan. See Section V for more information regarding Wholesale Customer compliance.

Table 7: Retail Sales for Retail and Wholesale Customers

	year	2010*	2011	2012
Retail MWh Sales		53,405,373	53,661,493	54,510,205
Wholesale MWh Sales		3,608,452	3,672,118	3,719,801
Total MWh Sales		57,013,825	57,333,611	58,230,006

*Based on 2009 actual sales; for compliance years 2011 and 2012, forecast is used.

Table 8: Retail and Wholesale Year-end Number of Customer Accounts

	year	2010*	2011	2012
Residential Accts		1,740,219	1,754,143	1,771,508
Commercial Accts		238,628	240,895	243,141
Industrial Accts		5,802	5,784	5,768

*Based on 2009 actual customer accounts; for compliance years 2011 and 2012, forecast is used.

C. PROJECTED ANNUAL COST CAP COMPARISON OF TOTAL AND INCREMENTAL COSTS, REPS RIDER AND FUEL COST IMPACT

The table below reflects the inclusion of the Wholesale Customers in the compliance plan. Projected compliance costs for the period 2010 – 2012 are comprised of the following: the cost of solar energy from the Company's Solar Photovoltaic Distributed Generation Program, the cost of the Company's biomass initiatives at fossil units, the cost of energy purchases, and the cost of REC purchases. Cost data in the table are presented by calendar year, whereas projected REPS rider amounts will capture costs for the billing period for which the rate will be in effect. The cost cap data is based on the method of reporting customer accounts described above.

Table 9: Projected Annual Cost Caps, Fuel Related Cost Impact, Annual REPS Rider

year	2010	2011	2012
Projected Annual Cost Caps	\$32,334,475	\$32,478,330	\$32,756,206
Total projected compliance costs	\$11,938,130	\$23,751,567	\$49,224,106
Total incremental costs	\$6,196,090	\$7,548,127	\$25,082,056
Recovered through the Fuel Rider	\$5,232,100	\$15,293,170	\$23,231,780
Recovered through the Fuel Rider	.0066¢/kWh	.0194¢/kWh	.0294¢/kWh
Annual REPS Rider - Residential	\$ 1.97	\$ 2.38	\$ 7.83
Annual REPS Rider - General	\$ 9.83	\$ 11.89	\$ 39.16
Annual REPS Rider - Industrial	\$ 98.35	\$ 118.86	\$391.66

V. WHOLESALE CUSTOMER COMPLIANCE

As part of its portfolio of resources, Duke Energy Carolinas will provide services including delivery of renewable energy resources to Wholesale Customers who request the Company's assistance in meeting the REPS requirements. These Wholesale Customers, including electric membership corporations ("EMCs"), municipalities, and other wholesale customers, may rely on Duke Energy Carolinas to provide this renewable energy delivery service in accordance with N.C. Gen. Stat. § 62-133.8(c)(2)e.

Currently, Duke Energy Carolinas plans to supply all of the renewable energy resources for the following Wholesale Customers:

- Rutherford Electric Membership Corporation
- Blue Ridge Electric Membership Corporation
- City of Dallas
- Forest City
- City of Concord
- Town of Highlands
- City of Kings Mountain.

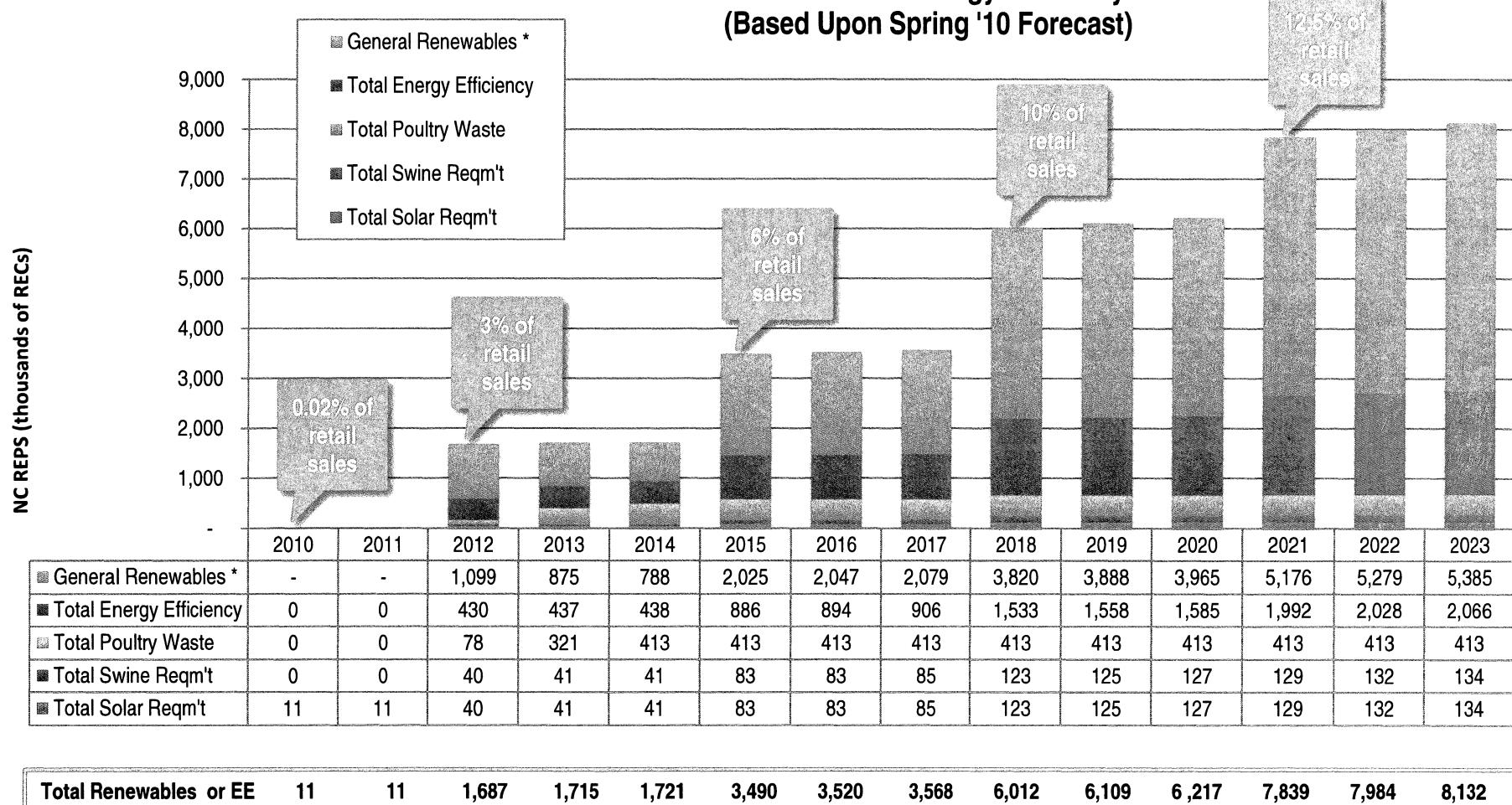
The forecasted North Carolina retail sales, for these Wholesale Customers, in aggregate, for each of the years in the planning period is approximately 3,600,000 MWh, or six percent (6%) of the Company's total Retail Sales. The Company has aggregated the information required by Rule R8-67 for these Wholesale Customers into its compliance plan.

Respectfully submitted, this 31st day of August 2010.

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Exhibit A: Duke Energy Carolinas Renewable Energy Projected REPS Requirement

Duke Energy Carolinas Renewable Energy Requirements (thousands of RECs)
Includes Schedule 10A, Rutherford, City of Highlands, and Blue Ridge Requirements
Assumes 25% Energy Efficiency
(Based Upon Spring '10 Forecast)



* Reduced - Net of wholesale SEPA & Duke-owned hydro used for Wholesale compliance

Exhibit B: Duke Energy Carolinas' Renewable Resource Procurement from 3rd Parties (signed contracts)

Resource Supplier	Contract Duration	Estimated MWhs or RECs		
		2010	2011	2012
<u>SOLAR RESOURCES - 3rd Party</u>				
CONFIDENTIAL	20 years	8,200	29,200	29,200
CONFIDENTIAL	10 years	1,019	5,701	9,991
CONFIDENTIAL	One time REC purchase	2,890	-	-
CONFIDENTIAL	One time REC purchase	2,000	1,000	-
<i>Total 3rd party solar resources</i>		14109	35901	39191
<u>BIOMASS RESOURCES - 3rd Party</u>				
CONFIDENTIAL	One time REC purchase	450,000	150,000	-
CONFIDENTIAL	5 years	23,000	23,000	23,000
CONFIDENTIAL	20 years	21,300	22,000	22,000
CONFIDENTIAL	20 years	-	41,700	71,400
CONFIDENTIAL	15 years	-	14,600	17,500
CONFIDENTIAL	20 years	-	12,800	12,800
CONFIDENTIAL	20 years	22,700	22,700	22,700
CONFIDENTIAL	10 years	-	25,500	34,000
<i>Total 3rd party biomass resources</i>		517,000	312,300	203,400
<u>WIND RESOURCES - 3rd Party</u>				
CONFIDENTIAL	One time REC purchase	50,000	-	-
CONFIDENTIAL	One time REC purchase	60,000	-	-
CONFIDENTIAL	One time REC purchase	75,000	-	-
CONFIDENTIAL	One time REC purchase	-	50,000	-
CONFIDENTIAL	One time REC purchase	157,281	-	-
CONFIDENTIAL	One time REC purchase	50,000	-	-
CONFIDENTIAL	One time REC purchase	75,361	-	-
CONFIDENTIAL	One time REC purchase	50,000	-	-
CONFIDENTIAL	One time REC purchase	78,892	-	-
<i>Total 3rd party wind resources</i>		596,534	50,000	-

HYDRO ELECTRIC RESOURCES- 3rd Party

CONFIDENTIAL	5 years	781	781	781
CONFIDENTIAL	5 years	6,095	6,095	6,095
CONFIDENTIAL	5 years	17,685	17,685	17,685
CONFIDENTIAL	5 years	700	700	700
CONFIDENTIAL	5 years	1,950	1,950	1,950
CONFIDENTIAL	5 years	5,600	5,600	5,600
CONFIDENTIAL	5 years	5,000	5,000	5,000
CONFIDENTIAL	5 years	3,640	3,640	3,640
CONFIDENTIAL	5 years	4,760	4,760	4,760
CONFIDENTIAL	5 years	3,440	3,440	3,440
CONFIDENTIAL	5 years	6,160	6,160	6,160
CONFIDENTIAL	8 years	6,590	6,590	6,590
CONFIDENTIAL	8 years	13,120	13,120	13,120
CONFIDENTIAL	8 years	6,275	6,275	6,275
CONFIDENTIAL	8 years	13,855	13,855	13,855
CONFIDENTIAL	5 years	7,910	7,910	7,910
CONFIDENTIAL	5 years	9,129	9,129	9,129
CONFIDENTIAL	5 years	1,920	1,920	1,920
CONFIDENTIAL	5 years	650	650	650
CONFIDENTIAL	5 years	1,390	1,390	1,390
CONFIDENTIAL	5 years	9,850	9,850	9,850
CONFIDENTIAL	Open ended	59,000	58,000	58,000
Total 3rd party hydroelectric resources		185,500	184,500	184,500
TOTAL 3RD PARTY RESOURCES		1,313,143	582,701	427,091