

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-7, SUB 1050

In the Matter of:

Application of Duke Energy Carolinas, )  
LLC for Approval of Demand-Side )  
Management and Energy Efficiency )  
Cost Recovery Rider Pursuant to )  
N.C. Gen. Stat. § 62-133.9 and )  
Commission Rule R8-69 )

POST-HEARING BRIEF

**FILED**

JUL 07 2014

Clerk's Office  
N.C. Utilities Commission

**FILED**

JUL 07 2014

Clerk's Office  
N.C. Utilities Commission

NCSEA'S POST-HEARING BRIEF

The North Carolina Sustainable Energy Association ("NCSEA") submits this post-hearing brief in accordance with the 9 June 2014 *Notice of Due Date for Proposed Orders* issued by the North Carolina Utilities Commission ("Commission") in this docket.

NCSEA does not challenge herein as unreasonable or imprudently incurred any costs Duke Energy Carolinas, LLC ("DEC") seeks to recover. NCSEA does, however, seek to provide a temporal context for DEC's proposed DSM/EE charges; furthermore, NCSEA prays the Commission direct DEC to (1) continue to moderate and participate in a CHP discussion at the DEC Collaborative and (2) based in part upon the attached letters from businesses, convene a stakeholder discussion within the next three months for the sole purpose of discussing the regulatory hurdles impeding the design and implementation of a CHP pilot/program in North Carolina.

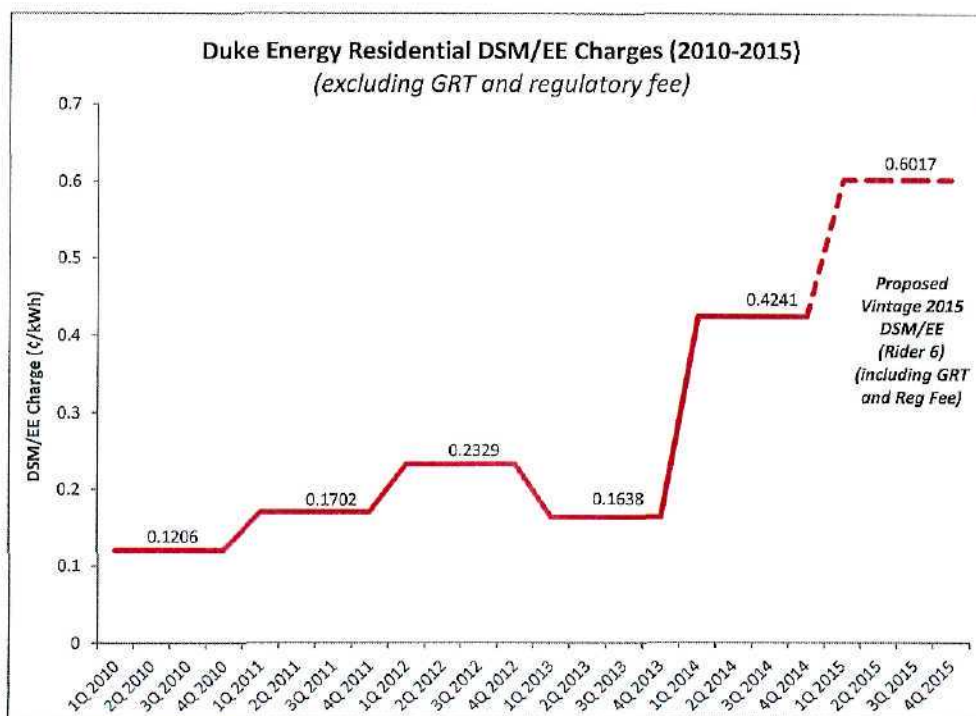
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## DEC'S PROPOSED RIDER CHARGES IN CONTEXT

The proposed Rider 6 consists of components calculated under DEC's "save-a-watt" cost recovery and incentive mechanism approved in Commission Docket No. E-7, Sub 831, as well as under DEC's new cost recovery and incentive mechanism approved in Commission Docket No. E-7, Sub 1032.

As to residential ratepayers, DEC is requesting a 0.6017¢/kWh charge, a 0.1776¢ increment (approximately) from the current DSM/EE charge. This proposed rate is put in temporal context in the figure below.

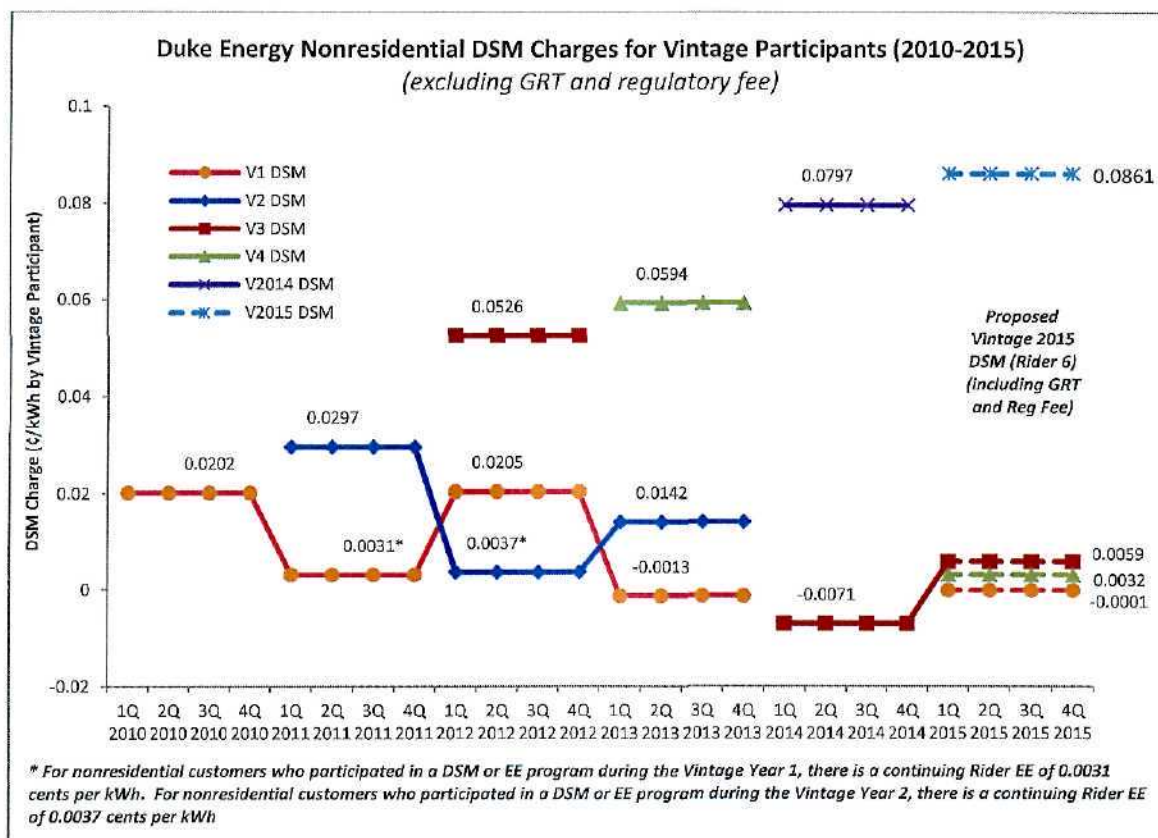
Figure 1<sup>1</sup>



<sup>1</sup> See Duke Energy Carolinas' Revised Tariff for Vintage 1 of Rider EE, p. 3 of 3, Commission Docket No. E-7, Sub 831 (13 August 2010); Order Approving Notice to Customers, Appendix A, Commission Docket No. E-7, Sub 941 (20 September 2010); Order Approving Notice to Customers of Change In Rates, Appendix A, p. 1 of 2, Commission Docket No. E-7, Sub 979 (16 December 2011); Order Approving Notice to Customers, Attachment, p. 1 of 2, Commission Docket No. E-7, Sub 1001 (5 October 2012); Order Approving Notice to Customers, Appendix A, p. 2 of 2, Commission Docket No E-7, Sub 1031 (2 December 2013); Duke Energy Carolinas Supplemental Testimony of Kimberly D. McGee, Supplemental McGee Exhibit 2, Commission Docket No. E-7, Sub 1050 (18 March 2014).

As to DSM for non-residential opted-in ratepayers, DEC is proposing a negative 0.0001¢/kWh charge for V1 DSM participants, a 0.0059¢/kWh charge for V3 DSM participants, a 0.0032¢/kWh charge for V4 DSM participants, and a 0.0861¢/kWh charge for V2015 participants. These proposed charges are placed in temporal context in the figure below.

Figure 2<sup>2</sup>

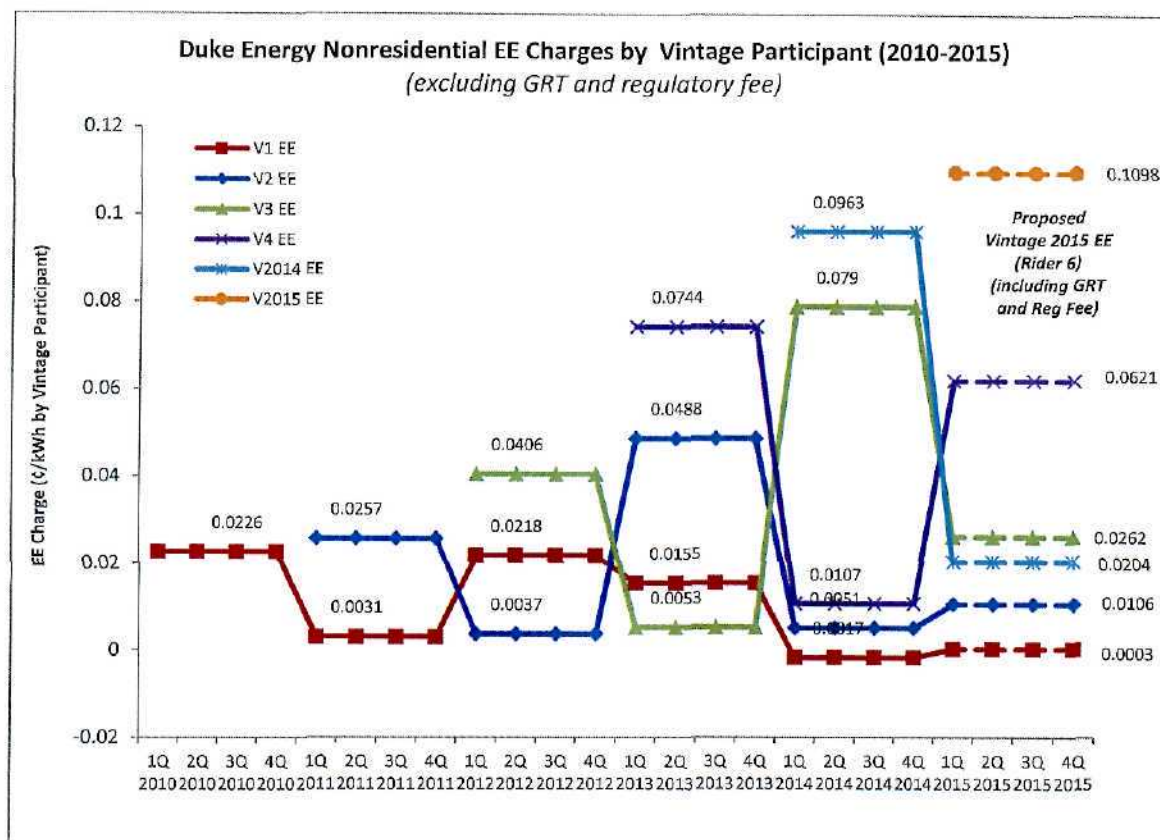


As to EE for non-residential opted-in ratepayers, DEC is proposing a 0.0003¢/kWh charge for V1 EE participants, a 0.0106¢/kWh charge for V2 EE participants, a 0.0262¢/kWh charge for V3 EE participants, a 0.0621¢/kWh charge for V4 EE participants, a 0.0204¢/kWh charge for V2014 EE participants, and a 0.1098¢/kWh

<sup>2</sup> Ibid.

charge for V2015 participants. These proposed charges are placed in temporal context in the figure below.

Figure 3<sup>3</sup>



## CONDUCTING A STUDY OR SURVEY OF OPTED-OUT CUSTOMERS

### a. *Procedural History*

Last year, the Commission directed in its final order

[t]hat DEC shall through a collaborative stakeholder group explore and develop a consensus position regarding the merits of conducting a study or survey of opted-out customers, and if deemed to be a prudent endeavor, the parameters of such a study.

<sup>3</sup> Ibid.



*Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice*, p. 23, Commission Docket No. E-7, Sub 1031 (29 October 2013). The collaborative stakeholder group convened on 24 January 2014. In last year's final order, the Commission also directed DEC, as part of this year's application, to "file . . . an update regarding the outcome of the opt-out study discussions[.]" *Id.* Complying with the order, DEC filed the following update (in pertinent part):

On January 24, 2014, Duke Energy Carolinas convened a meeting of interested stakeholders to explore and develop a consensus position regarding the merits of conducting a study or survey of opted-out customers, and if deemed to be a prudent endeavor, the parameters of such a study. Prior to conducting this meeting, Duke Energy Carolinas noticed all of the parties to Docket No. E-7, Sub 831 (i.e., the save-a-watt docket), as well as the members of its Collaborative regarding the meeting in efforts to ensure that it had a broad and diverse set of stakeholders participating in the discussion. At the onset of the meeting, there was some general discussion regarding the purpose of the meeting, and Duke Energy Carolinas established that . . . this meeting was to focus on the need and feasibility of conducting a survey or study of opted-out customers related to their decision to opt out. A number of parties including, but not limited to, SACE, NCSEA, and NRDC stated that they believed a survey or study of opted-out customers would have merit because it would allow the Company to have better insight into what customers that opted out were doing on their own with respect to EE, as well as creating greater clarity around customers' rationale for electing to opt out rather than participating in Duke Energy Carolinas' programs. With this information that they believe would be obtained through the study or survey, they contended that the Company would be able to better reflect the impacts of EE in the IRP process, as well as potentially improve the Company's EE and DSM programs. A number of parties that were representing opt-out eligible customers . . . stated their opposition to the need or merit of conducting such a study. . . . After considering all of the discussion related to the merits of conducting a survey or study of opted out customers occurred, Duke Energy Carolinas took a poll to determine if there was a consensus as to the merits of conducting a study or survey. After conducting the poll, it was clear that there was not a consensus among the parties, as some parties seemed to feel the study was warranted and others including the non-residential customer representation, South Carolina Office of Regulatory Staff, and Public Staff did not believe that there was enough merit to justify conducting such a survey. Since there was not a

consensus, we did not continue down the path of discussing feasibility and the parameters of the study.

*Direct Testimony of Timothy J. Duff for Duke Energy Carolinas, LLC*, pp. 22-23,

Commission Docket No. E-7, Sub 1050 (5 March 2014).

b. NCSEA's Position – Then

Prior to DEC's writing of the foregoing update, NCSEA was invited to share with DEC a written articulation of the position NCSEA took during the collaborative stakeholder discussion. On 7 February 2014, NCSEA shared the following articulation of its position (at the time):

NCSEA would like to see [DEC] conduct a survey, but NCSEA understands that its position is the minority position. NCSEA believes a survey would supplement DEC's upcoming investigation of the impact . . . incentives could have on opt-out customer participation and NCSEA therefore believes a survey would play a positive role in DEC beginning to engage more successfully with its opt-out customers. NCSEA believes a survey should focus on three areas of inquiry:

- (1) How can existing programs and measures be improved through incentive changes or other changes?
- (2) What programs or measures that currently do not exist would induce you to opt-in, consider opting-in, or remain opted-in?
- (3) Beyond programs and measures, can you identify any "structural" impediments that could be changed to induce you to opt-in, consider opting-in, or remain opted-in?

NCSEA believes a survey could be completed by a sample of DEC's opt-out eligible customers directly or it could be completed by DEC's large customer account managers indirectly sharing what the customers are telling them.

**Exhibit A.** Interestingly, on the very same day – 7 February 2014 – DEC reaffirmed its obligation to survey its customers on an ongoing basis. In a filing in a separate docket, DEC commented, in relevant part, that

[t]he Commission approved . . . Regulatory Conditions in its June 29, 2012 *Order Approving Merger Subject to Regulatory Conditions and Code of Conduct*. Specifically, Section XI of the Regulatory Conditions governs Service Quality. The intent of this section is to ensure that DEC

and DEP “continue to implement and further their commitment to providing superior public utility service by meeting recognized service quality indices and implementing the best practices of each other and their Utility Affiliates, to the extent reasonably practicable. To that end, the Regulatory Conditions provide that *the Companies shall, among other things: . . . continue to survey their customers regarding their satisfaction with public utility service and incorporate this information into their processes, programs and services.* (Reg. Con. 11.10).

*Duke Energy Carolinas, LLC and Duke Energy Progress, Inc.’s Joint Comments*, pp. 3-4, Commission Docket No. E-100, Sub 138 (7 February 2014) (emphasis added). Given the Regulatory Condition, NCSEA believed a survey of customers (or even just a survey of large account managers regarding what they were hearing from customers) was a worthwhile endeavor. NCSEA’s position has, however, changed in the interim.

*c. NCSEA’s Position – Today*

Relatively recently, DEC has implemented two measures that could help mitigate the opt-out “problem” that NCSEA (and others) have documented in filings made in past DEC DSM/EE cost recovery proceedings. First, DEC has implemented its annual March opt-in window. “During the 2014 March opt-in window, 101 customer accounts that were previously opted out elect[ed] to opt in and participate in the Company’s DSM/EE programs.” **Exhibit B** (DEC response to an NCSEA data request). Second, last year, in Commission Docket No. E-7, Sub 1032, the Commission approved a revised Non-Residential Smart Saver Program “which offers an incentive up to 75% of the cost difference between new standard equipment and new higher efficiency equipment . . . [and t]he Company is currently applying the 75% cap to eligible incentive payments not to exceed the approved incentive amount[.]” **Exhibit C** (3 June 2014 DEC presentation to convened stakeholder group focused on investigating the impact that increasing

incentives would have on opt-out eligible customer participation).<sup>4</sup> Additional time is needed to better understand the impacts of these two changes on the opt-out “problem.”

DEC will be in a better position to present information about the impacts of these two changes in its next DSM/EE cost recovery rider application proceeding. Similarly, NCSEA will be in a better position next year to determine whether these two changes, plus some material advancement of the combined heat and power (“CHP”) discussion, *see infra*, present significant enough steps forward to obviate the need for a survey. In sum, at this time, NCSEA withdraws its request for a survey, reserving the right to revisit the issue in a future proceeding.

#### **TOWARD A COMBINED HEAT AND POWER-SPECIFIC PILOT/PROGRAM**

##### *a. Procedural History*

NCSEA witness Isaac Panzarella, a licensed professional engineer, explained that

[m]ost of the parties in Docket No. E-7, Sub 1032[, including NCSEA,] entered into a stipulated settlement. As described on page 12 of the Public Staff’s September 26, 2013 *Proposed Order* filed in that docket, the stipulated settlement provided that [combined heat and power (“CHP”)] was to be discussed in DEC’s Carolinas Energy Efficiency Collaborative (“Collaborative”) no later than December 31, 2013 with the results of the discussion (or a status update) being reported to the Commission in this docket.

*Transcript of Testimony Heard June 3, 2014, Raleigh* (“Tr. at p. \_\_”), p. 122, Commission Docket No. E-7, Sub 1050 (6 June 2014). Pursuant to the stipulated settlement agreement, DEC moderated a discussion of CHP at its 13 December 2013 quarterly Collaborative meeting. In his testimony, DEC witness Duff provides a summary of the *one hour* CHP discussion that occurred at the Collaborative, Tr. at pp.

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<sup>4</sup> DEC witness Tim Duff mentions the stakeholder meeting at which Exhibit C was presented. *See Transcript of Testimony Heard June 3, 2014, Raleigh* (“Tr. at p. \_\_”), pp. 35-36, Commission Docket No. E-7, Sub 1050 (6 June 2014).



43-44; NCSEA witness Panzarella provides additional detail about the *one hour* CHP discussion in his testimony. Tr. at pp. 123-125.

b. Next Steps

As DEC witness Duff recounts in his testimony, “[a]ll parties [to the Collaborative discussion] agreed that further discussion regarding a CHP-focused program may be warranted[.]” Tr. at p. 44. NCSEA believes further CHP-focused discussion is warranted both at the Collaborative (with the understanding that this discussion will always be somewhat superficial because of time constraints) and outside the Collaborative, in a stand-alone forum where some of the “thornier” issues can be discussed in greater detail. As NCSEA witness Panzarella testified:

I believe the discussion of CHP taking place at the Collaborative should continue. The participants in the December 2013 meeting seemed to agree that there is value in continuing the discussion. The Commission should encourage the discussion of CHP to continue at the Collaborative.

...

I believe the discussion of CHP at the Collaborative should be supplemented with at least one stakeholder meeting that is dedicated solely to discussing CHP. I hold this belief for several reasons. First and foremost, CHP is a complex topic and seizing the opportunity around CHP will require more than an ongoing quarterly one-hour discussion at the Collaborative. Second, the Collaborative does not permit attorney attendance. The stakeholders' attorneys can, however, play a constructive role. At a meeting outside of the Collaborative, the attorneys could help all of the stakeholders better understand the two most immediate barriers that I identified: (1) The uncertainty around “topping cycle” CHP eligibility, and (2) the uncertainty around how to calculate CHP energy efficiency savings. A stakeholder meeting attended by attorneys would help the stakeholders better understand these issues and, to the extent the Commission can provide certainty, could help the stakeholders come to consensus on the best method for bringing these issues before the Commission.<sup>5</sup> Third, a separate stakeholder meeting to discuss CHP

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<sup>5</sup> As shown on page 2 of **Exhibit D** – a DEC response to an NCSEA data request that was entered into the record as NCSEA witness Panzarella Exhibit IP-2 – DEC faces uncertainty with regard to CHP: “The customer did not definitively indicate that the additional CHP capacity would not be biogas-fired, therefore it was *unclear* whether the expansion would qualify for energy efficiency incentives. Duke had informal discussions with external parties to gain their perspective on the

would provide the opportunity for several end-users to participate in the discussion. The Southeast CHP TAP has held stakeholder workshops that have involved end-users from industrial sites in the pulp and paper food and beverage, textiles and chemical sectors, as well as institutional and commercial sites. These companies represent potential CHP program participants and would provide valuable input with regard to the design of a pilot or initiative. Finally, I believe the stakeholder process envisioned by DEC for the CHP Working Group could be discussed at a meeting dedicated solely to CHP and, if adopted in whole or in part, could help secure a CHP energy efficiency pilot program design that has support from multiple stakeholders. The Commission should direct the parties to convene a stakeholder discussion within the next three months for the sole purpose of discussing CHP in North Carolina.

Tr. at pp. 128-129. As evidenced by the three letters attached hereto as **Exhibit E**, a number of companies operating in North Carolina – including Carolina CAT, Broad U.S.A., Inc., and Carolina Cooling LLC -- are supportive of further CHP discussions.

For all of the reasons articulated by NCSEA witness Panzarella, NCSEA believes the Commission should direct the stakeholders to continue discussing the design and implementation of a CHP-specific pilot/program.

### CONCLUSION

NCSEA does not challenge herein as unreasonable or imprudently incurred any costs DEC seeks to recover in its REPS rider application. NCSEA does, however, pray the Commission direct DEC to (1) continue to moderate and participate in a CHP discussion at the DEC Collaborative and (2) convene a stakeholder discussion within the next three months for the *sole* purpose of discussing the regulatory hurdles impeding the design and implementation of a CHP pilot/program in North Carolina.

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*question of whether incentives could be applied to the pro-rata non-renewable energy portion of a CHP installation, however no definitive answers have been obtained."*

Respectfully submitted,

Michael D. Youth  
Counsel for NCSEA  
N.C. State Bar No. 29533  
P.O. Box 6465  
Raleigh, NC 27628  
(919) 832-7601 Ext. 118  
michael@energync.org

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**CERTIFICATE OF SERVICE**

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing Post-Hearing Brief, with attached exhibits, by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 6 of July, 2014.

Michael D. Youth  
Counsel for NCSEA  
N.C. State Bar No. 29533  
P.O. Box 6465  
Raleigh, NC 27628  
(919) 832-7601 Ext. 118  
michael@energync.org



Hoover, Kacey &lt;kacey@energync.org&gt;

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**NCSEA's position following the Duke Energy Carolinas Opt Out Meeting**

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Hoover, Kacey &lt;kacey@energync.org&gt;

Fri, Feb 7, 2014 at 4:43 PM

To: Bo.Somers@duke-energy.com, "Duff, Tim" &lt;Tim.Duff@duke-energy.com&gt;

Cc: Michael Youth &lt;michael@energync.org&gt;

Tim and Bo,

I've included in this email NCSEA's position concluding the January 24th discussion of conducting a study or survey of Duke Energy Carolinas' opted-out customers.

Please see below for NCSEA's position for Duke's report:

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NCSEA would like to see Duke Energy Carolinas, Inc. (DEC) conduct a survey, but NCSEA understands that its position is the minority position. NCSEA believes a survey would supplement DEC's upcoming investigation of the impact of incentives could have on opt-out customer participation and NCSEA therefore believes a survey would play a positive role in DEC beginning to engage more successfully with its opt-out customers. NCSEA believes a survey should focus on three areas of inquiry: (1) How can existing programs and measures be improved through incentive changes or other changes? (2) What programs or measures that currently do not exist would induce you to opt-in, consider opting-in, or remain opted-in? (3) Beyond programs and measures, can you identify any "structural" impediments that could be changed to induce you to opt-in, consider opting-in, or remain opted-in? NCSEA believes a survey could be completed by a sample of DEC's opt-out eligible customers directly or it could be completed by DEC's large customer account managers indirectly sharing what the customers are telling them.

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If you have any questions, please let me know.

Regards,  
Kacey

**Kacey Hoover**  
**Regulatory and Policy Analyst**  
**NC Sustainable Energy Association**  
1111 Haynes Street, Suite 109  
Office: (919)-832-7601 ext. 120  
Fax: (919) 832-6967

Email: [kacey@energync.org](mailto:kacey@energync.org)[www.energync.org](http://www.energync.org)**EXHIBIT****A**



**DUKE ENERGY CAROLINAS**

**Request:**

Please explain what effect, if any, Duke has observed as a result of the additional early March opt-in window (i.e., have any customers made use of the window and if so how many). NCSEA understands this additional opt-in window was added in response to customer feedback indicating that such a window might better align with customer ability to make an opt-in decision and thus might lead to an increase in the number of customers opting-in.

**Response:**

Duke Energy Carolinas believes that the annual March opt-in window proved to be effective. During the 2014 March opt-in window, 101 customer accounts that were previously opted out elect to opt in and participate in the Company's DSM/EE programs.







## Duke Energy Carolinas

June 3, 2014



EXHIBIT

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## Agenda

- Background
- Non-Residential Smart \$aver Program
- Impact of increasing incentive levels
- Questions

## Background

- In Docket No. E-7, Sub 1031, several parties expressed concerns about the amount of eligible non-residential load that has elected to opt-out the Company's EE and DSM programs.
- In the Order for Docket No. E-7, Sub 1031, the Commission noted the Company's commitment to convene a stakeholder group focused on investigating the impact that increasing incentives above their current levels would have on opt-out eligible customer participation, program cost-effectiveness, and the potential freed-ridership.



## Non-Residential Smart \$aver Program

- The Commission approved the Company's new portfolio filing, Docket No. E-7, Sub 1032, which offers an incentive up to 75% of the cost difference between new standard equipment and new higher efficiency equipment.
- The Company is currently applying the 75% cap to eligible incentive payments not to exceed the approved incentive amount
- Additional time is needed to understand the impact if any on an opt-out customer's decision to opt-in

## Impact to incentive changes

- Increasing the amount of the incentive amount may have a negative impact on the cost-effective measures
  - Measures may result in being non-cost effective
- Increasing the incentive could have a negative impact on free ridership therefore jeopardize the program offering
  - Paying people more than necessary to motivate them to invest in the measure
  - Currently, opted-out customers will not know about increases, as it is difficult to market increases
- Increase the overall amount of the EE rider
  - Opt-out customers conduct analysis comparing the cost of installing measures on their own versus paying the rider which will allow them to participate in the utility offered program



**DUKE ENERGY CAROLINAS**

**Request:**

The following requests are submitted in an effort to resolve DEC's objections to certain data requests contained in NCSEA's first set of data requests:

- a. Please provide the compiled "informational reports and studies" referenced in the DEC DR 1-2 response.
- b. For DR 1-3, please provide, in the aggregate, a list of the number of customers who approached Duke about CHP during the 2012 and 2013 exploratory CHP "program design" discussion.
- c. In connection with DRs 1-3 to 1-5, please provide the last two versions of the exploratory CHP "program design" document.
- d. In connection with DR 1-6, please provide any preliminary cost effectiveness analysis DEC completed in connection with the exploratory CHP "program designs." (It is hoped that, at a minimum, any disclosed document will identify/characterize the critical factors DEC examines in evaluating the cost effectiveness of a CHP program).

**Response:**

A. The attached file named Coal Retirements CHP Investment Opportunities is the study/report referenced in DEC DR 1-2 response.

B. Duke had discussions with four customers. Because each of those discussions were only preliminary in nature and revealed significant barriers, Duke did not retain documentation of those discussions. Furthermore, the identity of those customers is not being disclosed to protect their commercial interests. The recollection of the Duke participant(s) still employed by the Company is as follows:



Response Continued:

One customer opportunity was deemed not be viable for a pilot test case because the customer indicated that their interest in CHP in the Duke territory was being driven by a larger corporate initiative, and that the customer was likely to continue its pursuit of CHP opportunities regardless of whether Duke Energy were to offer incentives. Therefore, Duke representatives were concerned that a pilot project with this customer would fail the free-ridership test. Two customers were proposing to use biogas-fired processes, which are designated for possible renewable energy credits under NC Senate Bill 3 and therefore not eligible for energy efficiency incentives. The fourth customer was proposing to expand an existing biogas-fired CHP facility. The customer did not definitively indicate that the additional CHP capacity would not be biogas-fired, therefore it was unclear whether the expansion would qualify for energy efficiency incentives. Duke had informal discussions with external parties to gain their perspective on the question of whether incentives could be applied to the pro-rata non-renewable energy portion of a CHP installation, however no definitive answers have been obtained.

C. See the attached files named DRAFT- Duke Energy Proposed CHP Pilot Guidelines V2 and DRAFT- Duke Energy Proposed CHP Pilot Guidelines V3. These documents are a product of the work group and do not reflect an energy efficiency program design or proposed offering by Duke Energy Carolinas.

D. DEC has not performed analysis to determine the cost effectiveness of a CHP program offering. The total program cost in comparison to the avoided cost benefit will drive the overall cost effectiveness. The working group discussed a pay-for-performance model under which the incentive would be calculated uniquely for each project based on the verified energy and capacity savings each year. In such a model, the desired cost-effectiveness is an input to the calculations, rather than a result. It was Duke's vision that the working group and other stakeholders would reach a consensus on the desired cost effectiveness of the pilot program, which would then be used to determine the size of the incentives that could be offered. The attached file named Two Incentive Options is a product of the work group and does not reflect an energy efficiency program design or proposed offering by Duke Energy Carolinas. This file shows for illustrative purposes results of two incentive payment options. Option 1: 100% pay as we go and Option 2: Upfront incentive payment and pay as we go.



Coal Retirements  
CHP Investment Opp



DRAFT- Duke  
Energy Proposed CHP



DRAFT- Duke Energy  
Proposed CHP Pilot G



Two Incentive  
Options.xlsx

# Carolina



25 June 2014

Chairman Ed Finley  
North Carolina Utilities Commission  
430 North Salisbury Street  
Raleigh, North Carolina 27603

RE: Energy Efficiency Incentive Programs for Combined Heat and Power in North Carolina

Dear Chairman Finley:

We, the undersigned, express our interest in advancing the use of combined heat and power (CHP) as an energy efficiency measure in North Carolina and our support for the eventual development of an energy efficiency incentive program for CHP consistent with Commission Rule 8-69 allowing cost recovery for energy efficiency measures of electric public utilities.

As business and institutional energy users in North Carolina, we have applications that are technically suitable for CHP but the substantial up-front investment cost represents a barrier to our adopting the technology. Providing utility customers with an option to apply for an energy efficiency incentive that is based on the capacity and energy benefits that CHP delivers would help these investments to move forward and we would be interested in participating in a CHP incentive pilot program. The benefits from CHP systems are measurable and verifiable, and incentives could be structured to take into consideration the actual performance of installed CHP systems.

By concurrently producing useful electric and thermal output, CHP systems typically operate at high efficiencies of 70-80%, equivalent to a heat rate of 4,265-4,874 Btu/kWh. This is a large efficiency improvement over natural gas fueled combined cycle power plants, which in the U.S. for the year 2012 had average heat rates of 7,615 Btu/kWh<sup>1</sup>.

North Carolina shows great potential for CHP to provide a highly energy efficient source of electricity and thermal energy for manufacturers, commercial businesses, and institutions including hospitals, college campuses and military installations. CHP currently represents 1,541

<sup>1</sup> U.S. Department of Energy Energy Information Administration Table 8.2. Average Tested Heat Rates by Prime Mover and Energy Source, [http://www.eia.gov/electricity/annual/html/epa\\_08\\_02.html](http://www.eia.gov/electricity/annual/html/epa_08_02.html)

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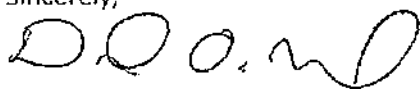
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megawatts<sup>2</sup> of power capacity in North Carolina, with an estimated technical potential of 4,072 megawatts<sup>3</sup> in the industrial commercial and institutional sectors.

North Carolina's utilities and electric customers have achieved great progress towards energy efficiency and the cost recovery mechanism provides a collaborative path for continued progress by enabling these parties to work together on CHP system deployment in a manner consistent with North Carolina's energy goals.

We therefore support continued discussion of a potential CHP energy efficiency incentive at the Duke Energy Carolinas Collaborative and ask for your and the Commission's continued attention to the development of this program.

Sincerely,



*David A. Morel*

*Carolina CAT*

*Gas Engine Business Development Manager*

---

<sup>2</sup> Combined Heat and Power Database, <http://www.eea-inc.com/chpdata/States/nc.html>

<sup>3</sup> ICF International Estimates for U.S. Department of Energy, 2013.





**BROAD U.S.A., INC.**

401 Hackensack Avenue, Suite 503, Hackensack, NJ 07601 Phone: (201) 678-3010 Fax: (201) 678-3011 [WWW.BROADUSA.COM](http://WWW.BROADUSA.COM)

July 2, 2014

Chairman Ed Finley  
North Carolina Utilities Commission  
430 North Salisbury Street  
Raleigh, NC 27603

RE: Energy Efficiency Incentive Programs for Combined Heat and Power in North Carolina

Dear Chairman Finley:

We, the undersigned, express our interest in advancing the use of combined heat and power (CHP) as an energy efficiency measure in North Carolina and our support for the eventual development of an energy efficiency incentive program for CHP consistent with Commission Rule 8-69 allowing cost recovery for energy efficiency measures of electric public utilities.

As business and institutional energy users in North Carolina, we have applications that are technically suitable for CHP but the substantial up-front investment cost represents a barrier to our adopting the technology. Providing utility customers with an option to apply for an energy efficiency incentive that is based on the capacity and energy benefits that CHP delivers would help these investments to move forward and we would be interested in participating in a CHP incentive pilot program. The benefits from CHP systems are measurable and verifiable, and incentives could be structured to take into consideration the actual performance of installed CHP systems.

By concurrently producing useful electric and thermal output, CHP systems typically operate at high efficiencies of 70-80%, equivalent to a heat rate of 4,265-4,874 Btu/kWh. This is a large efficiency improvement over natural gas fueled combined cycle power plants, which in the U.S. for the year 2012 had average heat rates of 7,615 Btu/kWh<sup>1</sup>.

<sup>1</sup> U.S. Department of Energy Energy Information Administration Table 8.2. Average Tested Heat Rates by Prime Mover and Energy Source, [http://www.eia.gov/electricity/annual/html/epa\\_08\\_02.html](http://www.eia.gov/electricity/annual/html/epa_08_02.html)

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**BROAD U.S.A., INC.**

401 Hackensack Avenue, Suite 503, Hackensack, NJ 07601 Phone: (201) 678-3010 Fax: (201) 678-3011 [WWW.BROADUSA.COM](http://WWW.BROADUSA.COM)

North Carolina shows great potential for CHP to provide a highly energy efficient source of electricity and thermal energy for manufacturers, commercial businesses, and institutions including hospitals, college campuses and military installations. CHP currently represents 1,541 megawatts<sup>2</sup> of power capacity in North Carolina, with an estimated technical potential of 4,072 megawatts<sup>3</sup> in the industrial commercial and institutional sectors.

North Carolina's utilities and electric customers have achieved great progress towards energy efficiency and the cost recovery mechanism provides a collaborative path for continued progress by enabling these parties to work together on CHP system deployment in a manner consistent with North Carolina's energy goals.

We therefore support continued discussion of a potential CHP energy efficiency incentive at the Duke Energy Carolinas Collaborative and ask for your and the Commission's continued attention to the development of this program.

Sincerely,

Douglas Davis  
Director of Marketing & Account Manager

<sup>2</sup> Combined Heat and Power Database, <http://www.eea-inc.com/chpdata/States/nc.html>

<sup>3</sup> ICF International Estimates for U.S. Department of Energy, 2013.

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# BROAD U.S.A.

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Jul 07 2014

BROAD U.S.A. INC  
401 HACKENSACK AVE  
SUITE 503  
HACKENSACK NJ 07601  
T: 201-678-3010  
F: 201-678-3011  
E: SALES@BROADUSA.COM

750 TERRADO PLAZA  
SUITE 243  
COVINA, CA 91723  
T: 626-967-8651  
F: 626-967-8654



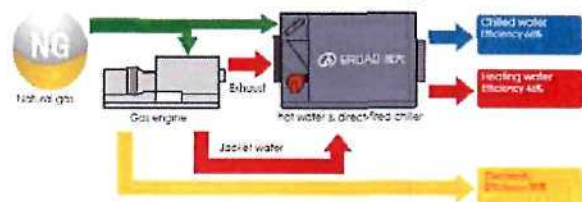
## THE “GOLD STANDARD” IN SUPERMARKET HVAC DESIGN PRE-PACKAGED CHILLER/HEATER ABSORPTION PLANT WITH CCHP

ENVIRONMENTAL LEADERSHIP CAN BE CONSISTENT WITH STRATEGIC BUSINESS MASTER PLANNING. WHEN IT WAS TIME TO BUILD A NEW SUSTAINABLE SUPERMARKET IN BROOKLYN NEW YORK WHOLE FOODS WANTED TO ACHIEVE THE FOLLOWING GOALS WITH THE DESIGN OF THE HVAC/CCHP PLANT.

- GRID INDEPENDENCE AND FUEL FLEXIBILITY
- RESILIENT BY DESIGN — ROOFTOP PACKAGE
- EXTREMELY LOW OPERATING COST
- HIGH RELIABILITY EASY TO MAINTAIN & OPERATE
- LOW CO2 EMISSIONS
- NO CHEMICAL REFRIGERANTS IN STORE
- ABLE TO OPERATE BUSINESS WITHOUT GRID POWER
- ISLAND MODE OPERATION WHEN DESIRED
- DEMAND RESPONSE “PARTICIPANT” WITH CON ED
- 60% MORE EFFICIENT THE CURRENT BUILDING CODE\*\*



### • BROAD CHP Exhaust & Hot water type







BROAD U.S.A.  
401 HACKENSACK AVE  
SUITE 503  
HACKENSACK NJ 07601

PHONE:  
201 678 3010

FAX:  
201 678 3011

E-MAIL:  
SALES@BROADUSA.COM

**ENERGY  
CONSERVATION IS A  
PRIORITY OF HVAC**

**WE PRESERVE LIFE**

## SYSTEM SUMMMARY DETAILS:

150 KW OF CCHP

250 KW OF "DEMAND RESPONSE" WITH BLACK START CAPABILITY

100 TONS OF MULTI-ENERGY HEAT RECOVERY & NG CHILLER / HEATER W/DHW

168 TONS OF DIRECT FIRED CHILLER / HEATER W/DHW

SUB-COOLING TO LOW TEMPERATURE CO2 BASED REFRIGERATION SYSTEM

FACTORY BUILT AND TESTED SYSTEM IN THE USA AND ASIA

CHEMICAL FREE COOLING TOWER SYSTEM

\*\* TO LEARN MORE ABOUT WFM LEADERSHIP SEE BELOW LINK

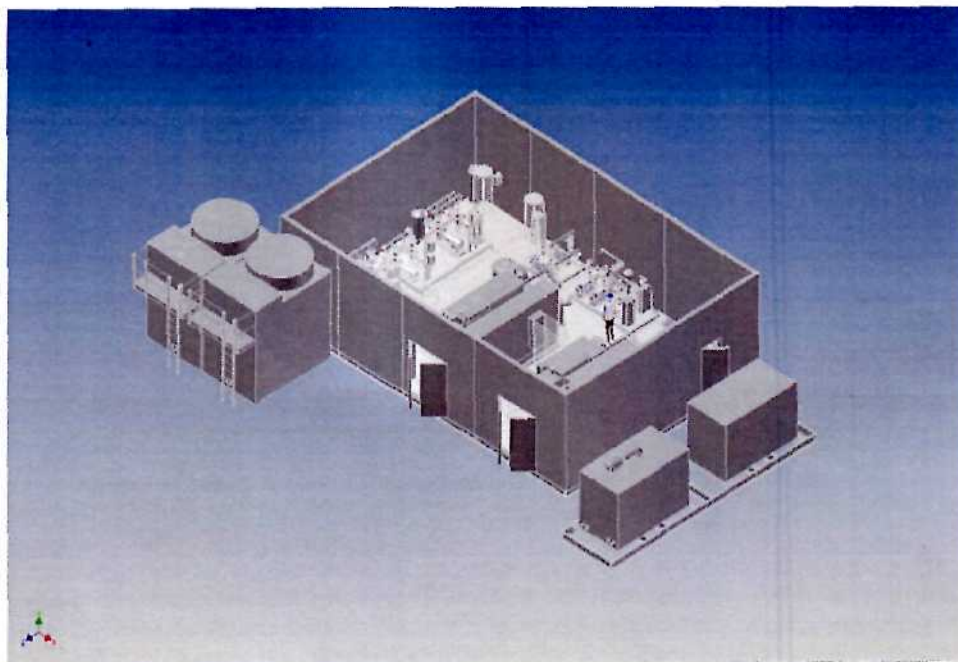
[HTTP://MEDIA.WHOLEFOODSMARKET.COM/NEWS/](http://media.wholefoodsmarket.com/news/)

## LOW CO2 EMISSIONS, AFFORDABLE OPERATING COST AND TOTAL COST OF OWNERSHIP

BY DIRECTLY BURNING NATURAL GAS ON SITE IN CHILLER/HEATER ABSORPTION UNITS AS OPPOSED TO ONLY UTILIZING GRID POWER MOST BUILDINGS CAN DRAMATICALLY LOWER THEIR CARBON FOOTPRINT WHILE SIGNIFANCTLY REDUCING THE COST TO OPERATE VS GRID POWERED SYSTEMS.

### ABOUT BROAD U.S.A.

BROAD U.S.A. IS A PRIVATELY HELD COMPANY HEADQUARTER IN NEW JERSEY SUPPORTING THE SALES AND SERVICE TO OUR CUSTOMERS IN NORTH AMERICA. BROAD ABSORBERS ARE CURRENTLY OPERATING IN OVER 70 COUNTRIES WITH OVER 30,000 INSTALLATIONS WORLDWIDE. BROAD IS THE WORLD LARGEST MANUFACTURER OF ABSORPTION CHILLERS RANGING IN SIZE UP TO 3300 TONS AND A MARKET LEADER IN CCHP SALES AND SERVICE.



[WWW.BROADUSA.COM](http://WWW.BROADUSA.COM)



## CAROLINA COOLING LLC

July 2, 2014

Chairman Ed Finley  
North Carolina Utilities Commission  
430 North Salisbury Street  
Raleigh, North Carolina 27603

RE: Energy Efficiency Incentive Programs for Combined Heat and Power in North Carolina

Dear Chairman Finley:

We, the undersigned, express our interest in advancing the use of combined heat and power (CHP) as an energy efficiency measure in North Carolina and our support for the eventual development of an energy efficiency incentive program for CHP consistent with Commission Rule 8-69 allowing cost recovery for energy efficiency measures of electric public utilities.

As business and institutional energy users in North Carolina, we have applications that are technically suitable for CHP but the substantial up-front investment cost represents a barrier to our adopting the technology. Providing utility customers with an option to apply for an energy efficiency incentive that is based on the capacity and energy benefits that CHP delivers would help these investments to move forward and we would be interested in participating in a CHP incentive pilot program. The benefits from CHP systems are measurable and verifiable, and incentives could be structured to take into consideration the actual performance of installed CHP systems.

By concurrently producing useful electric and thermal output, CHP systems typically operate at high efficiencies of 70-80%, equivalent to a heat rate of 4,265-4,874 Btu/kWh. This is a large efficiency improvement over natural gas fueled combined cycle power plants, which in the U.S. for the year 2012 had average heat rates of 7,615 Btu/kWh<sup>1</sup>.

North Carolina shows great potential for CHP to provide a highly energy efficient source of electricity and thermal energy for manufacturers, commercial businesses, and institutions including hospitals, college campuses and military installations. CHP



currently represents 1,541 megawatts<sup>2</sup> of power capacity in North Carolina, with an estimated technical potential of 4,072 megawatts<sup>3</sup> in the industrial commercial and institutional sectors.

North Carolina's utilities and electric customers have achieved great progress towards energy efficiency and the cost recovery mechanism provides a collaborative path for continued progress by enabling these parties to work together on CHP system deployment in a manner consistent with North Carolina's energy goals.

We therefore support continued discussion of a potential CHP energy efficiency incentive at the Duke Energy Carolinas Collaborative and ask for your and the Commission's continued attention to the development of this program.

Sincerely,



Robert T. Alexy  
President  
Carolina Cooling

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<sup>2</sup> U.S. Department of Energy Energy Information Administration Table 8.2. Average Tested Heat Rates by Prime Mover and Energy Source, [http://www.eia.gov/electricity/annual/html/epa\\_08\\_02.html](http://www.eia.gov/electricity/annual/html/epa_08_02.html)

<sup>2</sup> Combined Heat and Power Database, <http://www.eea-inc.com/chpdata/States/nc.html>

<sup>3</sup> ICF International Estimates for U.S. Department of Energy, 2013.



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## ■ ABOUT US

### WHAT WE DO

Carolina Cooling LLC  
Charlotte, North Carolina

Providing customized offerings  
in the commercial, industrial,  
and institutional HVAC market  
of the Carolina's.

## LINKS

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- [Products](#)
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## CONTACT US

Carolina Cooling LLC  
801 Pressley Road  
Suite 100B  
Charlotte, NC 28217

**Telephone:**  
(704) 521-COOL (2665)

**Fax:**  
(704) 521-4444

**Email:**  
[info@carolinacooling.com](mailto:info@carolinacooling.com)

## A COMPANY THAT TAKES CREATIVE SOLUTIONS SERIOUSLY

Carolina Cooling was initially established as Carolina Classroom Cooling to serve the educational and institutional markets in North and South Carolina. It has since expanded to include the commercial and industrial HVAC markets. We take great pride in establishing partnerships with our manufacturers and clients in an effort to add value and efficiency to our projects. The manufacturers we represent offer innovative products and systems that are of the **highest quality and most advanced technology** currently available, enabling us to provide customized solutions to our clients' needs. Our company represents over 30 years of experience in the commercial HVAC industry with several major manufacturers.

Some of the **innovative solutions** that we can provide to your HVAC projects include:

- Chiller plant expertise
- Flexible features for custom air handling applications
- Pre-treatment of ventilation air
- Germicidal air purification systems
- Replacement systems manufactured to be identical to existing equipment
- *Economical and reliable building control systems*

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