



Letter of Support

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February 24, 2020

Via Electronic Filing

Acting Chief Clerk
North Carolina Utilities Commission
430 North Salisbury Street
Raleigh, North Carolina 27606-5926

**Re: Duke Energy Carolinas, LLC’s Motion to Withdraw Program
Docket No. E-7, Sub 1155**

Dear Acting Chief Clerk:

On behalf of our association's membership of builders, contractors and other stakeholders that work in North Carolina's energy efficiency industry, we ask that you deny Duke Energy’s motion to withdraw their program filing for the Residential New Construction Program and instead support the utility’s desires to expand the program into the Carolinas territory.

We appreciate your recognition of our members interests in seeking to expand the program during the informational hearing held on January 27th. One of the themes that arose during the hearing was a significant lack of data supporting the natural gas utilities’ concern of losing market share as a direct result of the program expanding to the DEC territory. In response to these unsubstantiated claims, we have worked with our members and partners to collect data that refutes those claims.

Provided below is a summary of key data findings that support the program’s expansion:

Whole-house incentives in Duke Energy’s current RNC Program have NOT led to an increase in residential space heating systems that use electric vs. natural gas as the fuel source. Instead, program data over the past four years illustrates a 2.5% increase in the use of natural gas.

<i>Space heating fuel source by year for RNC homes in DEP territory</i>					
<i>Data source: Duke Energy’s RNC Program</i>					
Fuel	2016	2017	2018	2019	2016 - 2019 Change
Electric	48.2%	53.0%	48.7%	45.7%	2.5% less
Gas	51.8%	47.0%	51.3%	54.3%	2.5% more

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Whole-house RNC program data from 2016 to 2019 capturing the home’s pre vs. post-design fuel source for space heating illustrates a 5% increase in the use of natural gas.

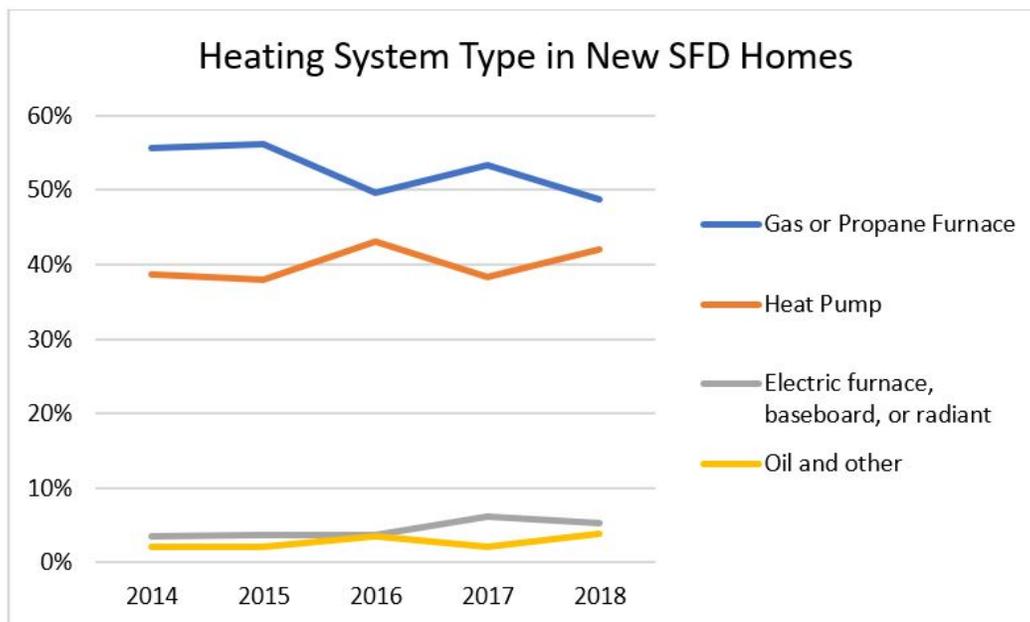
<i>Pre and Post-Design space heating fuel selection for RNC homes in DEP territory</i>			
<i>Data source: Duke Energy’s RNC Program</i>			
Fuel	1/1/2016 - 6/30/2016	7/1/2016 - 12/31/2019	Change
Electric	53.2%	48.2%	5% less
Gas	46.8%	51.8%	5% more

National construction data indicates a slow shift towards the use of more appliances and systems that use electricity vs. natural gas as the fuel source resulting from building envelope improvements and efforts to improve housing affordability.

Key points from Home Innovation Research Labs’ article on “What’s Hot (& Cold) in HVAC Systems” from February 5, 2020.

https://www.homeinnovation.com/trends_and_reports/trends/what_is_hot_and_cold_in_hvac_systems

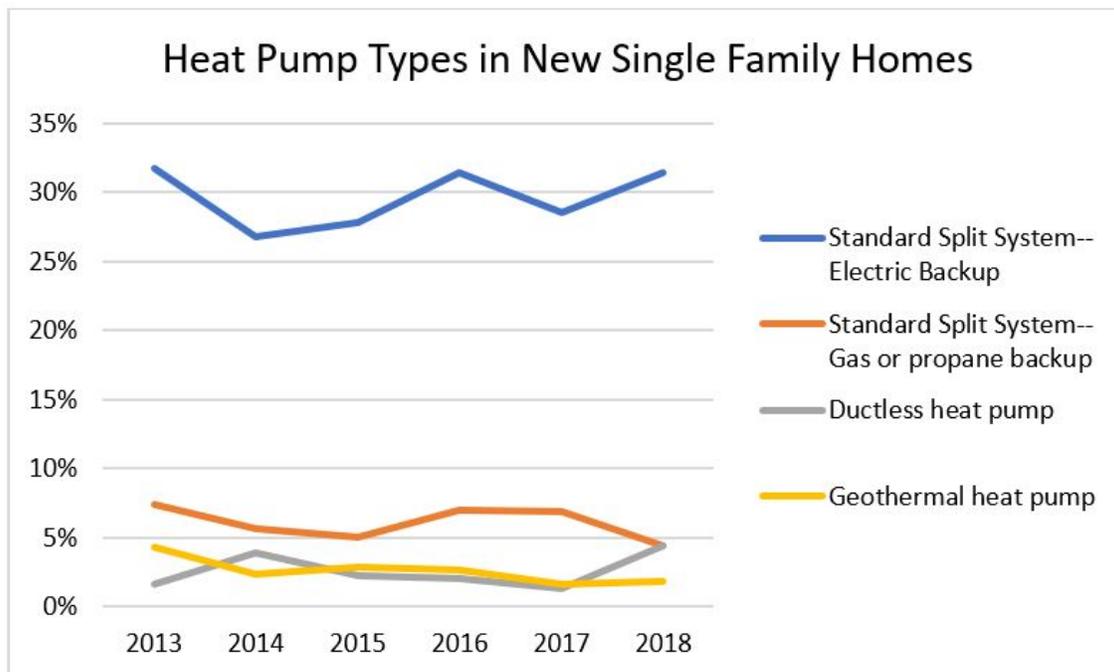
“Electric resistance heating is historically down over the past few decades. However, our Builder Practices Survey data shows its market share heating up slightly in the past few years to about 6% of new single-family detached homes using it as the primary heating source. With building envelope improvements in housing over the past few years, heating loads are declining, keeping electric resistance a cost-effective option for some areas of the country.”



Additionally, national trends to improve housing affordability indicate a shift towards electric space heating as a lower cost option vs. natural gas.

“Another new industry “norm” is also affecting HVAC selection in ways we haven’t seen before. Home affordability is on the decline, owing largely to the increased cost of building a new home. As the construction labor shortage worsens, builders report continuing increases in costs for subcontracted labor and materials, putting pressures on the bottom line. The result? Pressure to install systems with lower initial costs in new homes, such as traditional split-system heat pumps and electric resistance heating. By installing all-electric heat pumps, for example, builders avoid the gas hook-up fee, the cost for running a gas line from the curb to the house, and eliminate the need to include gas lines and account for exhausting combustion gases throughout the home. This is particularly compelling as efficiencies of heat pumps continue to increase, making them a viable choice for cooler climates.”

“Among heat pumps installed, the Builder Practices Report reveals that Electric Backup systems are on a growth pattern while Gas Backup systems are trending fairly flat. Ductless Heat Pumps, while long popular in HVAC retrofits, are just now beginning to capture share in new homes. And Geothermal systems, while very quiet and efficient, have lost share in the past few years—likely due to higher initial cost.”



Our member builders report that in nearly all cases of their new home construction projects in “master” planned developments or communities (that include track homes, which comprise a large percentage of RNC incentives), the selection of whether or not to install natural gas lines is solely the decision of the developer they purchase lots from, who does not receive the RNC program incentive.

In these cases, if natural gas lines are provided for a lot, the builder will use them as they see fit for heating, cooling and clothes drying. Builders report that the majority of those selections are driven by consumer demand, not the RNC program incentive. If gas lines are not provided for a lot, in most cases the builder will only install them if a homeowner specifically requests and pays for them. In these cases, the RNC incentive would also not direct the availability of natural gas.

In conclusion, we believe the data shows that the RNC program is not a direct driver for whether new homes in the DEP or DEC territory will be built with more electric vs. natural gas appliances and systems. Instead, we believe that natural market forces and consumer demand are influencing these decisions.

We urge you to reject Duke Energy's motion to withdraw their program filing for the Residential New Construction Program and initiate steps to approve the program.

As stated in our earlier comments on August 16th, 2019 (linked below), our state is missing out on a wealth of economic, environmental and workforce benefits by not expanding this program. Saving homeowners and renters energy during new construction is the least expensive option available - no matter the source of energy.

Thank you for considering these comments.

Sincerely,



D. Ryan Miller

Founder & CEO

North Carolina Building Performance Association (NCBPA)

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Enclosed: NCBPA's RNC Program Expansion Analysis from August 2019

Referenced: NCBPA's comments from August 16, 2019

<https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=efb32a68-ed82-4ec7-8596-4d532a104bfa>

RNC Program Expansion Analysis

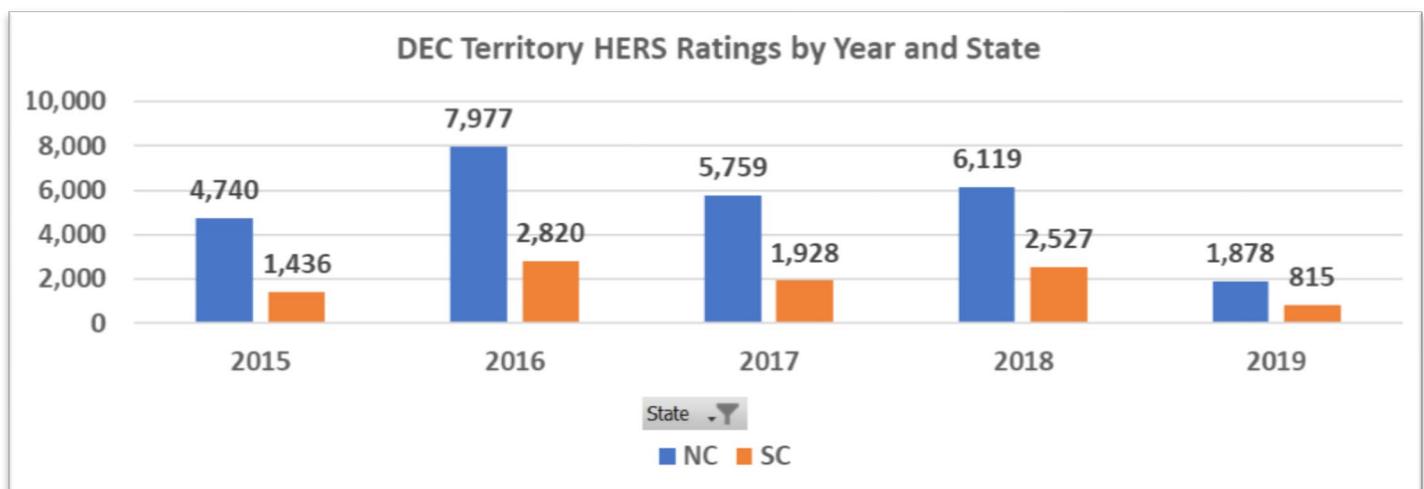
North Carolina Building Performance Association (NCBPA), the state’s not-for-profit trade association for residential and commercial energy efficiency, green building and high performance construction companies and professionals, has prepared this analysis in support of expanding Duke Energy Progress’ (DEP) Residential New Construction (RNC) program into the Duke Energy Carolinas’ (DEC) territory for both North and South Carolina. This analysis was initially completed in August of 2018 and has been updated in August of 2019.

The DEP program has been incredibly successful in incentivizing residential builders to increase the energy efficiency offerings of their homes in the DEP territory. Doing so has resulted in energy savings, workforce development, economic development, environmental benefits to the state. NCBPA and its member companies support expanding the program into the DEC territory strongly.

Home Energy Rating System ratings (HERS ratings) are the industry standard for measuring a new home’s energy efficiency and are performed on every single home incentivized through the DEP RNC program. In order to estimate the number of homes that could be made more energy efficient via an RNC incentive in the DEC territory, using these scores is a straightforward approach.

Summary Findings

Using data purchased from RESNET, the national certification body for HERS ratings, NCBPA found that nearly 36,000 HERS ratings were performed in the DEC territory in North Carolina and South Carolina between January 2015 – July 2019. None of these homes received an RNC rebate due to the lack of program availability in the area.



The number of homes that could have been incentivized to meet the DEP RNC program’s standard of 15% increased energy efficiency (compared to minimum energy code in the DEC territory in both states) can be estimated using HERS rating ranges. To perform this analysis, NCBPA estimated the scores needed to meet the minimum threshold relative to each state’s minimum energy code.

- Note that the ranges are different in NC and SC because the new 2018 North Carolina Energy Conservation Code (2018 NCECC), which started in January of 2019 and is roughly equivalent

to the 2012 International Energy Conservation Code (2012 IECC), is roughly 15% more energy efficient than South Carolina’s current energy code (roughly 2009 IECC equivalent).

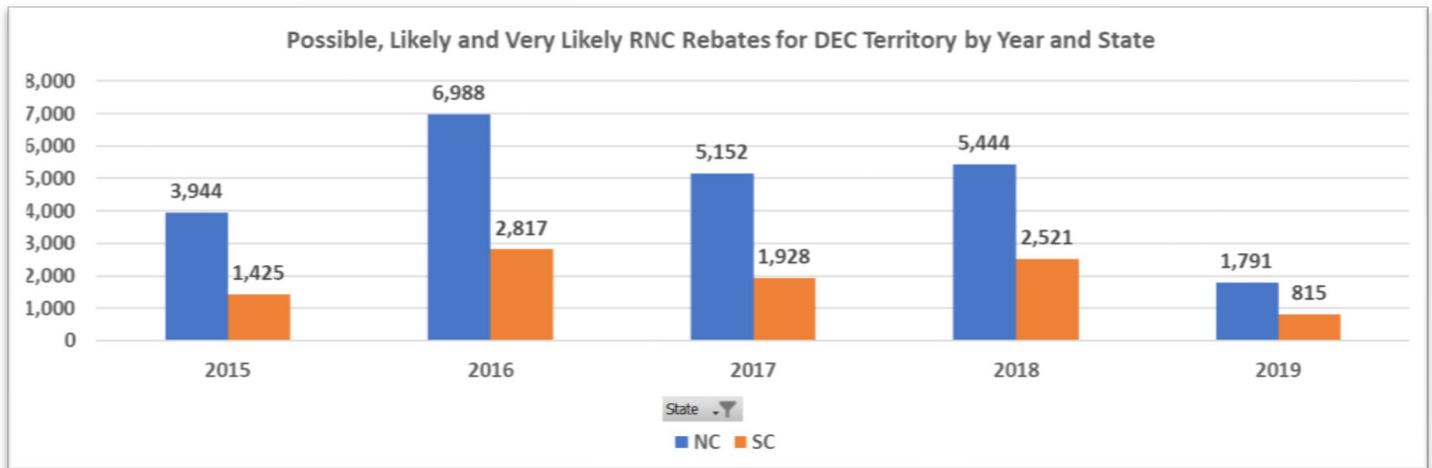
Likelihood of Rebate at <u>100%</u> Conversion Rate	North Carolina DEC <i>Roughly Equivalent to 2012 IECC</i>	South Carolina DEC <i>Roughly Equivalent to 2009 IECC</i>
Very Likely Less than 5% EE improvement or no EE improvement needed	HERS 60 or Less 5,157 homes	HERS 70 or Less 7,171 homes
Likely ~ 5 – 15% EE improvement needed	HERS 61 – 70 12,649 homes	HERS 71 – 80 2,051 homes
Possible ~15 - 20% EE improvement needed	HERS 71 – 75 5,513 homes	HERS 81 – 85 284 homes
Not Likely More than 20% EE improvement needed	HERS 76 or Above 3,154 homes	HERS 86 or Above 20 homes

Analysis at Varying Conversion Rates

The above analysis relies on a 100% conversion rate for all possible homes that may meet the criteria. This conversion rate is not likely as some builders will not participate for a variety of reasons. To provide more realistic conversion possibilities, the above table is segmented below based on differing levels of conversion rates.

Likelihood of Rebate at <u>Varying</u> Conversion Rate	North Carolina DEC <i>Roughly Equivalent to 2012 IECC</i>	South Carolina DEC <i>Roughly Equivalent to 2009 IECC</i>
Very Likely Less than 5% EE improvement or no EE improvement needed	HERS 60 or Less 5,157	HERS 70 or Less 7,171
<i>75% Conversion Rate</i>	3,868	5,378
<i>50% Conversion Rate</i>	2,579	3,586
<i>25% Conversion Rate</i>	1,289	1,793
Likely ~ 5 – 15% EE improvement needed	HERS 61 – 70 12,649	HERS 71 – 80 2,051
<i>75% Conversion Rate</i>	9,487	1,538
<i>50% Conversion Rate</i>	6,325	1,026

<i>25% Conversion Rate</i>	3,162	513
Possible ~15 - 20% EE improvement needed	HERS 71 – 75 5,513	HERS 81 – 85 284
<i>75% Conversion Rate</i>	4,135	213
<i>50% Conversion Rate</i>	2,757	142
<i>25% Conversion Rate</i>	1,378	71
Total Possible, Likely and Very Likely	HERS 71 – 75 23,919	HERS 81 – 85 9,506
<i>75% Conversion Rate</i>	17,939	7,130
<i>50% Conversion Rate</i>	11,960	4,753
<i>25% Conversion Rate</i>	5,980	2,377



Benefits of RNC Expansion to DEC Territory

Provided below are estimates of the energy, workforce, economic and environmental benefits of program expansion to the DEC territory. The savings are based on projected HERS rating data from 2018 using the Possible, Likely and Very Likely scenarios with a 100% conversion rate (to show full potential impact) with a 20% growth factor applied (due to market growth and slowly improving annual energy efficiency).

In these cases, the estimated energy savings and environmental benefits are formulated from the projected energy costs that are provided by HERS ratings. The workforce and economic benefits are estimated from the impact of the increase in HERS ratings and resulting energy savings.

Annualized Market Impacts of Rebate Expansion			
(Note: Calendar year 2018 actual data + 20% growth factor used for analysis)			
	DEC North Carolina	DEC South Carolina	DEC Combined
Electricity Savings <i>Annual consumer electricity savings resulting for likely homes at 15% improvement</i>	15% decrease in modeled electricity usage = \$1,524,430 annual savings	15% decrease in modeled electricity usage = \$771,974 annual savings	15% decrease in modeled electricity usage = \$2,296,403 annual savings
Workforce Benefits <i>Local rating company jobs created</i>	6,533 homes 125 homes per job = 52 new jobs	3,025 homes 125 homes per job = 24 new jobs	9,558 homes 125 homes per job = 76 new jobs
Economic Impact <i>Local taxable revenue created for rating companies and builder subs</i>	6,533 homes \$500 avg. rating fee + \$250 new sub fees = \$4,899,750 revenue	3,025 homes \$500 avg. rating fee + \$250 new sub fees = \$2,268,750 revenue	9,558 homes \$500 avg. rating fee + \$250 new sub fees = \$7,166,250 revenue
<i>Municipal code official savings through use of Energy Rating Index for code compliance</i>	2 hours per home @ \$75 per hour total cost = \$979,950 savings	Not currently available in SC, but if it were: = \$453,750 savings	2 hours per home @ \$75 per hour total cost = \$1,433,700 savings
Environmental Benefits <i>Annual carbon offsets created through electricity savings</i>	10,780 metric tons of CO ₂ offset annually	5,459 metric tons of CO ₂ offset annually	16,239 metric tons of CO ₂ offset annually