

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-2, SUB 936

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Request by Duke Energy Progress, LLC,) PUBLIC STAFF COMMENTS ON
for Approval of Modifications to) APPLICATION FOR PROGRAM
Residential Home Energy Improvement) APPROVAL
Program)

NOW COMES THE PUBLIC STAFF – North Carolina Utilities Commission,
by and through its Executive Director, Christopher J. Ayers, and respectfully
submits the following comments in the above-captioned docket.

Summary

- Of the modified and new measures proposed by Duke Energy Progress, LLC (DEP or Company) for the residential Home Energy Improvement Program (HEIP), only the quality installation measure and the heating, ventilation and air conditioning (HVAC) equipment replacement accomplished through the referral channel appear to meet the applicable cost-effectiveness test.¹
- The Public Staff has specific recommendations for the geothermal heat pump efficiency standard, the filing of the Trade Ally agreement, the quality

¹ However, it is not clear if the HVAC equipment replacement three-tier incentive (modified measure) has a higher or lower Total Resource Cost test result than the HVAC equipment replacement with a single tier (current measure).

inspection checklist, and future evaluation, measurement, and verification (EM&V) for the HEIP.

- The Public Staff opposes the DEP request for approval of the HEIP through March 31, 2019, because the HEIP is not projected to be cost-effective (with or without the proposed modifications), and for that reason the Commission has already ordered the HEIP to be cancelled by March 31, 2016, unless it can be changed to become cost-effective.

Introduction

1. On October 2, 2015, DEP filed its Application for approval of modifications to its HEIP. DEP specifically requested that the Commission: (1) approve the "Residential Service – Home Energy Improvement Program HEIP-5 tariff"; (2) approve the HEIP, as modified, to remain in effect through an evaluation period ending March 31, 2019; (3) find that the HEIP, with the proposed modifications, continues to meet the requirements of a "new" energy efficiency (EE) program under Commission Rule R8-69; (4) find that the costs of the HEIP are eligible for recovery through DEP's annual Rule R8-69(b) rider; and (5) approve recovery of net lost revenues (NLR) and other utility incentives associated with the HEIP.

2. On October 30, 2015, the Commission granted the Public Staff and other interested parties an extension of time until December 2, 2015, to file protest, intervention, or comments regarding the proposed HEIP modifications.

3. On November 5, 2015, the North Carolina Building Performance Association filed a letter in support of DEP's Application. No other party has made any filings in this proceeding.

4. The Public Staff's investigation included review of the Application with respect to: (a) G.S. 62-133.9; (b) Commission Rule R8-68; (c) the Agreement and Stipulation of Settlement made by and between DEP, the Public Staff, the Southern Alliance for Clean Energy (SACE), and the Natural Resources Defense Council, filed October 29, 2014, in Docket No. E-2, Sub 931 (Stipulation), which included a revised DSM/EE cost and incentive recovery mechanism (Revised Mechanism); (d) the Commission's *Order Approving Revised Cost Recovery and Incentive Mechanism and Granting Waivers*, issued January 20, 2015, in Docket No. E-2, Sub 931 (the Sub 931 Order); and (e) the Commission's *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice*, issued November 16, 2015, in Docket No. E-2, Sub 1070 (Sub 1070 Order).² The Public Staff's investigation also involved submission of data requests to DEP regarding the HEIP, and review of the responses. Based on its investigation, the Public Staff has the following comments.

Program Description

5. The HEIP was initially approved as a new EE program on April 30, 2009, in Docket No. E-2, Sub 936, and included EE measures associated with duct testing and repair, attic insulation and air sealing, tune-ups (a basic tune-up and a

² In the Sub 1070 Order, the Commission ordered the HEIP to be canceled effective March 31, 2016, unless DEP could demonstrate how the HEIP could be made cost-effective for the long term.

more extensive tune-up) of existing HVAC systems, replacement of existing central air conditioning and heat pump HVAC systems, and window replacement.

6. The Commission approved revisions to the HEIP on January 31, 2012. Those revisions removed the basic (Level 1) tune-up, window replacement, and duct testing measures; increased the incentives for attic insulation and air sealing measures; and added the window room air conditioner and heat pump water heater measures. DEP stated that the revisions were consistent with the recommendations made in the Company's preceding EM&V report for the program. DEP indicated that it had requested removal of the basic tune-up, window replacement, and duct testing measures because they were no longer cost-effective.

7. The HEIP currently includes the following measures:

- air duct repair;
- attic insulation and attic sealing;
- installation of high efficiency central air conditioners, heat pumps, or geothermal heat pumps;
- HVAC diagnostic audit (tune-up) that includes condenser coil cleaning, refrigerant charge correction, and air flow adjustment;
- installation of heat pump water heaters; and
- installation of high efficiency room air conditioners.

8. The proposed modifications included in the Company's October 2, 2015 Application include:

- replacement of the single incentive structure for replacement HVAC equipment, with a three-tier incentive structure based on the efficiency of the new HVAC system;
- addition of two new EE measures; (1) a programmable, WI-FI-enabled smart thermostat measure, and (2) a "quality installation" provision to encourage the proper installation of HVAC systems; and
- addition of a referral channel to guide interested customers to one or more DEP-approved HVAC contractors who have paid DEP a fee to be on the referral list.

9. No other modifications are proposed for the other HEIP-related measures. The proposal to restructure the incentives for the HVAC replacement measure from a single-tier into a three-tiered structure is designed to encourage the installation of higher efficiency systems.

10. In response to the Public Staff's data requests, DEP stated that the new programmable smart thermostat measure is designed to produce energy savings that optimize the HVAC system's load based on individual customers' schedules, the unique characteristics of the home, and local weather conditions. Customers will be able to interact with the thermostats through WI-FI-enabled devices that provide intelligent controls that adjust to customer behavior. Thermostats would be programmed at the time of installation. However, customers will be able to program the thermostats at any time in the future based on their behavior and consumption patterns, and are encouraged to do so.

11. In response to the Public Staff's data requests, DEP stated that the new "quality installation" measure is intended to improve the installation of HVAC systems such that the systems operate within 90% of their net capacity and improve the systems' overall efficiency. This includes proper sizing of the equipment, reducing duct leakage, properly maintaining refrigerant charge and coils, and optimizing the air flow, based on industry-accepted standards.³ Quality installation is required for the Tier 1 HVAC replacement incentive but is optional for the other tiered incentives.

³ Air Conditioning Heating and Refrigeration Institute. <http://www.ahrinet.org/site/1/Home>

12. DEP further stated that it is still developing a checklist to verify compliance with the quality installation standard. The Public Staff reviewed a generic checklist,⁴ and understands that DEP's final checklist will have many of the same items and characteristics of the generic checklist. Other information available from the Energystar.gov website suggests that meeting the quality installation standard can increase the efficiency of an HVAC system by up to 30%.⁵

13. The new contractor (Trade Ally) referral channel is a means of marketing the HEIP and of generating revenue for DEP; however, it is not an EE measure because it does not by itself produce energy savings. DEP states that the referral fees paid by contractors to participate in the HEIP will be used to offset the costs of the HEIP. Participant costs related to the replacement of HVAC systems have become a formidable barrier to the HEIP's cost-effectiveness. DEP anticipates that over time the out-of-pocket costs that participants pay for higher efficiency HVAC systems will decrease, and thus improve the overall cost-effectiveness of the HEIP. In response to the Public Staff's data requests, DEP indicated that it would require its Trade Allies to attest that "any referral fees paid to Duke Energy will in no way impact the prices charged to participating customers." Moreover, DEP will monitor sales prices charged by the contractors

⁴ The Public Staff has reviewed the checklist on the following web link regarding "quality installation":
http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/ENERGY_STAR_V3_HVAC_Quality_Installation_Guidebook_2.21.2011.pdf

⁵ http://www.energystar.gov/index.cfm?c=hvac_install.hvac_install_index

to participating customers as a means of assessing whether referral costs are being improperly passed to the customers.

14. Customers may still select a contractor that is not enrolled in the referral program, and may receive the incentives for measures in the HEIP, provided the qualifications for the incentives are met.

Cost-effectiveness

15. Rule R8-68(b)(5) provides in part:

“New demand-side management or energy efficiency measure” means a demand-side management or energy efficiency measure that is adopted and implemented on or after January 1, 2007, **including subsequent changes and modifications** to any such measure.

(Emphasis added.) Thus, modifications to an existing program are treated as if they were a new program. Accordingly, the requirements for approval of a new DSM/EE program apply to modifications of an existing program. The only exception would be minor modifications that just require notice to the Commission, instead of prior approval by the Commission, under the “Flexibility Guidelines” set forth in Attachment A to the Revised Mechanism. The modifications submitted by DEP on October 2, 2015, generally require prior Commission approval under the Flexibility Guidelines because, among other reasons, they involve tariff revisions and new measures.

16. Rules R8-68(c)(2) and (c)(3) require the utility to file information on costs and benefits of programs and measures when the programs and measures are submitted for approval. Rule R8-68(c)(2)(v) makes clear that this includes the

results of cost-effectiveness evaluations under “the Total Resource Cost Test, the Participant Test, the Utility Cost Test, and the Ratepayer Impact Measure Test.”

R8-68(c)(3) further provides in part:

Additional Filing Requirements. — In addition to the information listed in subsection (c)(2), an electric public utility filing for approval of a new **or modified** demand-side management or energy efficiency measure shall provide the following:

(i) **Costs and Benefits.** – The electric public utility shall describe:

a. any costs incurred or expected to be incurred in adopting and implementing a measure or program to be considered for recovery through the annual rider under G.S. 62-133.9;

b. estimated total costs to be avoided by the measure by appropriate capacity, energy and measure unit metric and in the aggregate by year;

(Emphasis added.)

17. In Docket No. E-2, Sub 1070, Public Staff witness Floyd reported the following single vintage year cost effectiveness scores for the HEIP under the Total Resource Cost (TRC) test⁶:

Vintage Year	TRC Value
2013	0.8
2014	0.8
2015	1.1
2016	0.9

⁶ The measure life of the HEIP is 14 years, which represents a weighted average of the measure lives of the individual measures in the HEIP. The calculation of these cost-effectiveness results were each based on one vintage year of participation with benefits from those participants over the measure life of the individual measures.

18. In Attachment B of its Application, DEP estimates the following cost-effectiveness test results associated with three years of participation for the modified HEIP, based on the present value of costs and benefits over the life of the program⁷:

Type of test	UCT	TRC	RIM	Participant
Benefit/Cost ratio	1.36	0.72	0.82	0.94

19. Under the Revised Mechanism, the TRC results are determinative as to whether an EE or DSM measure will be considered for purposes of screening, whether an EE or DSM program will be submitted for Commission approval, and whether existing EE or DSM programs should continue. Specifically, the Revised Mechanism provides in part:

17. DEP will then further screen EE and DSM Measures for cost-effectiveness. For purposes of this screening, estimated incremental EM&V costs attributable to the Measures shall be included in the Measures' costs. With the exception of Measures included in a Low-Income Program, or other Program in which PPI incentives are not requested that may potentially be filed with the Commission for approval, **an EE or DSM Measure with a TRC test result less than 1.0 will not be considered further, unless the Measure can be bundled into an EE or DSM Program to enhance the overall cost-effectiveness of that Program.** Consistent with DEP's agreement with Piedmont Natural Gas and Public Service Company of NC, all EE and DSM Measures associated with an end-use that can be served by natural gas must pass the UCT.

18. With the exception of Low-Income Programs or other programs explicitly identified at the time of the application for their approval, **all Programs submitted for approval will have a Program-level TRC and UCT test result greater than 1.00.** For purposes of determining these test results, estimated incremental EM&V costs attributable to

⁷ The calculation of these cost-effectiveness results were each based on three years of incrementally additional participation with benefits from those participants over the measure life of the individual measures.

each Program shall be included in the Program costs. DEP will comply, however, with Commission Rule R8-60(i)(6)(iii), which requires DEP to include in its biennial Integrated Resource Plan, revised as applicable in its annual report, certain information regarding the Measures and Programs that it evaluated but rejected.

19. If a Program fails the economic screening in Paragraph 18 above, DEP will determine if certain Measures can be removed from the Program to satisfy the criteria established in Paragraph 18.

....

22. In each annual DSM/EE cost recovery filing, DEP shall (a) perform prospective cost-effectiveness test evaluations for each of its approved DSM and EE Programs, (b) perform prospective aggregated portfolio-level cost-effectiveness test evaluations for its approved DSM/EE Programs (including any assigned or allocated administrative and general or other common costs), and (c) include these prospective cost-effectiveness test results in its DSM/EE rider application along with a discussion of whether those results indicate that any of the Programs should be discontinued or modified.

(Emphasis added.) It is thus evident from the Revised Mechanism that a cost-benefit review is required for program modifications just as for new program applications, and that programs and measures should have a TRC result above 1.0 as a condition of receiving approval.⁸

20. There is sound policy behind the requirement that new programs and program modifications have an estimated TRC of 1.0 or greater. The purpose of any EE program approved pursuant to Rule R8-68 is to produce kilowatt (kW) and/or kilowatt-hour (kWh) savings that offset the need for the utility to generate and deliver as much electricity. In other words, the cost of any Rule R8-68 EE program should be less than the cost of the supply side alternative, according to the specific parameters used in each cost-effectiveness test. An EE program that

⁸ Exceptions exist for Low Income programs, and for measures that individually have a low TRC score but enhance the TRC score of a "bundle" of measures within the same program.

is not cost-effective is, by definition, not producing net dollar savings as compared to the supply-side alternative. Thus, a program with a TRC result persistently below 1.0 is not serving the purpose of EE as defined by G.S. 62-133.9(b), which is to provide the "least cost mix of demand reduction and generation measures that meet the electricity needs of its customers." The TRC is an appropriate test of cost-effectiveness for purposes of program approval because it measures the net dollar savings based on the costs for both the utility and the customers participating in the EE program.

21. As shown in the tables above, the HEIP as currently approved has TRC single-vintage year results below 1.0 in three out of four years from 2013 to 2016. DEP projects an even lower TRC result in future years than past years under its modified HEIP proposal. The Company supports its application by noting that (a) the referral fee revenues will improve the cost-effectiveness of the HEIP, and (b) HVAC equipment costs are expected to decrease in the future, which would lower costs and thereby raise TRC results.

22. The Public Staff reviewed details of the cost-effectiveness evaluations conducted by DEP in support of its Application. Those details included individual modeling analyses for each EE measure (current and proposed) in the HEIP. DEP also separately modeled each measure according to whether customers adopted the measure through the new contractor referral channel or without use of the referral channel. The proposed referral channel (participation resulting from the direct referral of a contractor from DEP to the customer) did produce more cost-effective measures than the stream of participants resulting

from customers selecting contractors outside of the referral channel. The greater cost-effectiveness for referral channel measures is derived from the use of referral fee revenues to offset participant costs. However, the referral fee, which is not a DSM/EE measure, can be applied to the existing HEIP measures just as well as to new and modified measures. The proposed referral fee modification is not evidence that the proposed measures (quality installation, smart thermostat, and three-tier HVAC equipment incentive) satisfy the Revised Mechanism's requirement of TRC cost-effectiveness for new measures.

23. DEP assumed present costs of HVAC replacement units would be constant, and therefore did not reduce the participant cost over the three-year period, although the Company is hopeful that the cost of HVAC units will decline in future years.⁹ This conservative approach does cause lower long-term TRC results in the modeling than if DEP had projected declining HVAC costs as an input to the models.

24. In addition to review of the TRC for the HEIP as a whole, Section 17 of the Revised Mechanism requires that new or modified measures individually demonstrate cost-effectiveness. If a measure cannot demonstrate cost-effectiveness on its own, then it must demonstrate that it can be bundled into an EE or DSM Program to enhance the overall cost-effectiveness of that Program.

⁹ DEP indicated that it had observed that within two to three years following an increase in the efficiency standards for HVAC systems, participant costs to replace HVAC systems had decreased 25% to 30%. DEP expects a similar decrease following the January 2015 increase in efficiency standards instituted by the US Department of Energy. DEP's request for a three-year approval of the modified HEIP, and its conservative modeling approach, reflects the tentative nature of any decreases in participant cost projections. DEP recently informed the Public Staff that it has already observed some decrease in participant costs since its initial estimates that were used to prepare the Application.

Based on data responses from DEP, it appears to the Public Staff that the proposed new quality installation measure will be cost-effective under the TRC test. The proposed new smart thermostat has a TRC of 0.6 and 0.57 (referral and non-referral, respectively) and does not appear to enhance the overall cost-effectiveness of the HEIP. The data responses also indicate that the modification to replace the single incentive for HVAC equipment replacement with a three-tier incentive generally will have a TRC above 1.0 for the referral channel but below 1.0 for the non-referral channel. The Public Staff has not been able to determine whether the proposed change to a three-tier incentive, with or without referral fees, would enhance the TRC for the HEIP compared to the existing single-incentive with or without referral fees.

Net Lost Revenues and Program Performance Incentive

25. Although DEP projects a TRC result below 1.0 for the modified HEIP, the Company is requesting recovery of NLR and a performance incentive over the first three years of the HEIP. The Company estimated NLR in the amount of \$5,544,120 and a performance incentive in the amount of \$1,282,662.

Measurement and Verification

26. DEP has not proposed any significant changes to its EM&V plan or schedule in this proceeding.

27. In response to the Public Staff's data requests, DEP indicated that in cases where customers install multiple HEIP measures, the EM&V evaluator may

have difficulty determining the savings impacts on a measure-specific basis. DEP's response further indicated that the EM&V evaluator may need to adapt its billing and engineering analyses to determine how best to evaluate individual measures. The Public Staff believes that, if cost-beneficial, the EM&V evaluator's initial assessment of the proposed HEIP measures should attempt to determine the savings impacts on a measure-specific basis.

Other Considerations

28. In response to the Public Staff's data requests, DEP stated that the opportunity to bundle measures would allow trade allies to focus on the whole home as a system, which could help to identify multiple areas of improvements to the customer's HVAC-related energy consumption and comfort. Bundling also allows the fixed costs of the HEIP to be shared across multiple measures. The Public Staff agrees that bundling of measures in a program like the HEIP is a reasonable approach to addressing the customer's energy consumption, particularly for customers who need more than one HVAC-related measure. The Public Staff also believes that for measures that are technologically related (e.g., HVAC and insulation measures are designed to reduce energy consumption related to heating and cooling the home or business), it may be appropriate to bundle measures that are not cost-effective with measures that are cost-effective in cases where the cost-ineffective measures drive participation toward cost-effective measures in the same program to such an extent that the overall cost-effectiveness of the program is improved. However, DEP does not have good data

on current HEIP measures to demonstrate that such bundling has produced the synergies that maximize the energy savings potential for the HEIP. The Public Staff believes it is appropriate that future EM&V of the HEIP include a cost-beneficial effort to evaluate the energy savings potential of the HEIP on a measure-specific basis, and to evaluate cross-participation between measures in the HEIP.

29. DEP's Application and proposed HEIP-5 tariff propose an Energy Efficiency Ratio (EER) of 16 as the efficiency standard for geothermal heat pumps. The current program standard has an EER of 19; however, that may be an accidental confusion with the Seasonal Energy Efficiency Ratio (SEER). A SEER rating is roughly equivalent to 1.2 times the EER rating, so a SEER of 19 would approximately convert to an EER of 16. An EER of 16 is the current geothermal heat pump standard established by the U.S. Department of Energy¹⁰, so it is appropriate to use an EER of 16 for setting the baseline efficiency standard for geothermal heat pumps. This standard is also used by other utilities for similar geothermal heat pump replacement programs.¹¹

30. The Public Staff has not discovered any information suggesting that the HEIP would affect a customer's decision to install natural gas versus electric service.

¹⁰ http://www.energystar.gov/index.cfm?c=geo_heat.pr_crit_geo_heat_pumps

¹¹ <http://www.geothermalgenius.org/thinking-of-buying/tax-credits.html>
<http://www.earthrivergeo.com/geothermal-federal-tax-credit-faq.html>
<http://www.bgesmartenergy.com/residential/heating-cooling/equipment-rebates>
<https://focusonenergy.com/residential/renewable/geothermal-heat-pumps>

31. In its 2014 IRP filed on September 2, 2014, in Docket No. E-100, Sub 141, DEP included the HEIP in its projected impacts from EE. However, DEP did not specifically identify modifications to the HEIP in the 2014 IRP or the 2015 update to the IRP filed September 1, 2015.

Conclusions and Recommendations

32. As baseline efficiency standards for HVAC systems have increased, there is a corresponding decrease in the energy savings potential from these measures.¹² In addition, the higher efficiency HVAC systems above the baselines tend to be much more expensive for participants. The only way to incentivize such programs is to offer higher incentives/rebates, with the net result often being a utility-sponsored program that either does not attract sufficient participation despite higher incentives, or cannot be cost-effectively implemented with or without the higher incentives. This dynamic has led to the poor TRC results and projected results for the HEIP.

33. The Public Staff continues to be supportive of bundling similar measures that may not be cost-effective by themselves, provided that they improve the overall TRC of the bundled program through cross-participation increases (where a lower TRC measure drives up participation in a higher TRC measure) or otherwise. Trade Allies also benefit from offering multiple measures by seeing increased business, and customers can benefit through discounted pricing, as well

¹² The cost-effectiveness of DSM/EE programs also declines when avoided cost rates decrease and the decrease is great enough to be used in the calculation of DSM/EE benefits under the Revised Mechanism.

as an overall reduction in their HVAC-related energy consumption. However, DEP has not demonstrated that the proposed modifications will make the HEIP as a whole cost-effective in the long term. The Public Staff recommends that the Commission deny DEP's request for program approval through March 31, 2019, because the projected TRC for the HEIP continues to be below 1.0.

34. The Sub 1070 Order provides in ordering paragraph 9 that:

the Residential Home Energy Improvement program shall be canceled effective March 31, 2016, unless DEP can demonstrate how the program can be made cost-effective in the long term or files a statement by March 31, 2016, that the Company expects to submit modifications on or before July 1, 2016, that would bring the cost-effectiveness above 1.0 on the TRC test.

The Public Staff recommends that this provision remain in force, and the HEIP be subject to cancellation by March 31, 2016, unless DEP submits further modifications that result in a projected TRC above 1.0.

35. The Public Staff supports approval of the free referral service for customers because it will produce revenues from contractors to offset program costs and thereby improve TRC results for the program. With regard to the proposed new and modified measures, the Public Staff supports approval of the quality installation measure because it has projected TRC results above 1.0.¹³ However, if the Commission approves the HEIP modifications proposed in the October 2, 2015, Application, the Public Staff recommends:

¹³ The modification to create a three-tier incentive for the HVAC equipment replacement measure has a TRC above 1.0 for installations performed through the referral channel, but it is not apparent whether the proposed modification to the incentive structure by itself actually improves the measure TRC results. If the modification has a projected TRC over 1.0 but is lower than the TRC without measure modification, it would also be important to know if the modification produces more kWh savings.

- a. That the efficiency standard applicable to geothermal heat pumps be retained (EER of 16) and that impacts associated with this measure be calculated using this baseline efficiency standard;
- b. That once DEP has finalized its Trade Ally or contractor agreement for the referral channel and prior to program implementation, DEP file the agreement with the Commission and the Public Staff have an opportunity to review and comment on the agreement;
- c. That once DEP has finalized its checklist for the quality installation measure that it will use to qualify customers for the incentive and prior to program implementation, DEP file the checklist with the Commission, and the Public Staff have an opportunity to review and comment on the agreement;
- d. With respect to EM&V of the HEIP, unless DEP demonstrates that the following is cost-prohibitive or not material to the overall impact evaluation of the HEIP, that DEP include in its next EM&V report the following:
 - i. For the smart thermostat measure, an assessment of the mechanisms that produce savings impacts, the actions taken by customers to interact with the smart thermostats that produce savings impacts, and a calculation of the actual kW and/or kWh impacts for

- each mechanism (on a total or per customer basis as determined by the EM&V evaluator);
- ii. For the quality installation measure, the EM&V evaluator should audit a sample of the contractor installations to determine compliance with the quality installation criteria, and report on its audit;
 - iii. With respect to customers who install multiple program measures in the HEIP, the EM&V evaluator should develop an algorithm or audit process that can determine the savings impacts for each measure separately, to avoid double-counting of savings impacts.
 - iv. To better understand the impact of the bundling of measures in the HEIP, the EM&V evaluator should attempt to determine how participation in one HEIP measure impacts the participation in other HEIP measures. The EM&V should include a summary of the cross-participation between measures and identify which measures drive participation in other measures.

Respectfully submitted this the 2nd day of December, 2015.

PUBLIC STAFF
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Electronically submitted
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CERTIFICATE OF SERVICE

I certify that I have served a copy of the foregoing PUBLIC STAFF COMMENTS ON APPLICATION FOR PROGRAM APPROVAL on all parties of record in accordance with Commission Rule R1-39, by United States mail, postage prepaid, first class; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

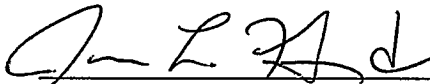
This the 2nd day of December, 2015.

Electronically submitted
/s/ David T. Drooz

DOCKET NO. E-2, SUB 936
VERIFICATION

I, Jack L. Floyd, being duly sworn, depose and say: I have read the foregoing Public Staff Comments on Application for Program Approval and the facts stated therein are true of my personal knowledge, except as to any matters and things therein stated upon information and belief. As to those, I believe them to be true. I am authorized to sign this verification on behalf of the Public Staff-North Carolina Utilities Commission.

This the 2nd day of December, 2015.



Jack L. Floyd

Sworn to and subscribed before me
This the 2nd day of December 2015.



Notary Public

My Commission Expires: May 15, 2020

