THE STATE OF SOUTH CAROLINA
In the Court of Appeals

Appellate Case No. 2014-001514

APPEAL FROM THE PUBLIC SERVICE COMMISSION

Docket No. 2013-392-E

In The Matter of Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC

RECORD ON APPEAL
VOLUME I OF II

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BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2013-392-E - ORDER NO. 2014-408

MAY 2, 2014

IN RE:	Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC	)))))))	ORDER GRANTING A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC CONVENIENCE AND NECESSITY

I. INTRODUCTION

This matter comes before the Public Service Commission of South Carolina (the "Commission") on the Application of Duke Energy Carolinas, LLC ("Duke" or the "Company") and North Carolina Electric Membership Corporation ("NCEMC") for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("CECPCN") for the construction and operation of a 750 megawatt ("MW") combined cycle generating plant ("LCCP") in Anderson, South Carolina. Duke will own 650 MWs of the plant and NCEMC, a long-time wholesale customer of Duke, will own 100 MWs. Duke will operate all 750 MWs. Duke and NCEMC filed this Application (the "Application") on October 24, 2013, and contemporaneously served it on the South Carolina Office of Regulatory Staff ("ORS"), the chief executive officers of each municipality, and the heads of each state and local governmental agency charged with the duty of protecting the environment or of planning land use in the area in the counties in

which any portion of the facility will be located as shown on Application Exhibit 1. At the request of the Company, the Commission established this docket pursuant to the provisions in S.C. Code Ann. § 58-33-10 et seq. (1976 and Supp. 2013) (the "Siting Act") and 10 S.C. Code Ann. Regs. 103-304 (Supp. 2013).

A Notice of Filing and Hearing (the "Notice") regarding the Application was prepared and issued by the Clerk's Office of the Commission (the "Clerk's Office"). By letter dated November 1, 2013, the Clerk's Office instructed Duke to publish the Notice in newspapers of general circulation in the affected areas one time on or before November 7, 2013, and to provide proof of such publication to the Commission by December 3, 2013. The Company complied with the instructions received from the Clerk's Office by timely publishing the Notice and thereafter filing an affidavit of publication attesting to publication as directed by the Clerk's Office.

The Notice established December 3, 2013, as the date by which interested parties or entities could timely file petitions to intervene or present their views in writing to the Commission. Petitions to Intervene were filed by Southern Alliance for Clean Energy ("SACE"); South Carolina Coastal Conservation League ("SCCCL"); Electric Cooperatives of South Carolina, Incorporated ("Cooperatives"); Central Electric Power Cooperative, Incorporated ("Central Electric"); and Invenergy Thermal Development LLC ("Invenergy"). Duke filed an objection to Invenergy's Petition to Intervene for lack of standing and Invenergy, represented by Richard L. Whitt, Esquire, replied. The Commission denied Invenergy's Petition for lack of standing, but granted Invenergy the opportunity to renew its Petition. Invenergy did so, to which Duke again renewed its

objection. The Commission once again denied Invenergy's Petition to Intervene for lack of standing during the preliminary matters at the opening of this hearing on January 7, 2014. All other Petitions to Intervene were granted; however, on December 10, 2013, the Cooperatives and Central Electric represented by Charles L.A. Terreni, Esquire, and John H. Tiencken, Esquire, filed a request to withdraw their intervention which was granted by the Commission.

ORS is automatically a party to the certification proceeding in this docket pursuant to S.C. Code Ann. §§ 58-4-10(B) (Supp. 2013) and 58-33-140(1)(b) (Supp. 2013). The South Carolina Department of Health and Environmental Control, South Carolina Department of Natural Resources, and South Carolina Department of Parks, Recreation and Tourism were listed as parties based on the provisions of S.C. Code Ann. § 58-33-140 but did not participate in the certification proceeding.

On January 3, 2014, ORS, Duke, and NCEMC filed a Settlement Agreement wherein ORS endorsed the Application of Duke and NCEMC.

The Commission convened a formal hearing in this matter on January 7, 2014, with the Honorable G. O'Neal Hamilton, Chairman, presiding, to address preliminary procedural matters. Duke was represented by Timika Shafeek-Horton, Esquire. ORS was represented by Nanette S. Edwards, Esquire, and Shannon Bowyer Hudson, Esquire. NCEMC was represented by Richard M. Feathers, Esquire, and Len S. Anthony, Esquire. SACE and SCCCL were represented by J. Blanding Holman, IV, Esquire, and Gudrun E. Thompson, Esquire. Counsel for the other parties of record did not enter an appearance at the hearing.

The Settlement Agreement was entered as Hearing Exhibit 1 and is attached to this Order as Exhibit 1. Afterwards, the Commission recessed the hearing and requested that the parties talk and put forth a date to reconvene. By Directive dated January 10, 2014, Hearing Officer B. Randall Dong noted that all parties agreed to February 4, 2014, and set this as the date to reconvene the hearing.

The hearing reconvened on February 4, 2014. The Commission heard testimony from Duke, SACE, SCCCL, and ORS witnesses. NCEMC received permission from the Hearing Officer for Michael Burnette's testimony to be stipulated into the record without Mr. Burnette having to appear at the hearing. Duke presented the testimonies of Clark Gillespy, President of Duke South Carolina; Mark Landseidel, Director of Project Development and Initiation in the Project Management and Construction Department of Duke; and Janice Hager (both direct and rebuttal testimony), Vice President, Integrated Resource Planning and Analytics for Duke. Duke agreed before the February 4th hearing not to seek to have witness Jon Summerville's rebuttal testimony or exhibits admitted into evidence; therefore, Mr. Summerville was excused from the hearing. SACE and SCCCL collectively presented the direct and surrebuttal testimonies of Hamilton Davis, SCCCL Energy and Climate Director, and John D. Wilson, SACE Director of Research. ORS presented the direct testimony of Gene G. Soult, ORS Senior Research Analyst. The testimonies and exhibits of the witnesses were entered into the record of the case without objection. No public witnesses testified.

For the reasons set forth below, the Commission grants the relief requested by Duke and NCEMC in the Application and approves the Settlement Agreement.

II. STATUTORY STANDARDS

No person shall commence to construct a major utility facility without first having obtained a CECPCN issued with respect to such facility by the Commission. S.C. Code Ann. § 58-33-110. "Person" is defined to include any group, firm, partnership, corporation, cooperative, association, government subdivision, government agency, local government, municipality, and any other organization, or any combination of any of the above, but does not include the South Carolina Public Service Authority. S.C. Code Ann. § 58-33-20(5). "Major utility facility" is defined as an electric generating plant and associated facilities designed for, or capable of, operation at a capacity of more than 75 MWs. S.C. Code Ann. § 58-33-20(2)(a). The Siting Act requires that, before granting a CECPCN for the construction, operation and maintenance of a major utility facility, the Commission is required to make six statutorily mandated findings. Those findings concern:

A. The basis of the need for the facility. S.C. Code Ann. § 58-33-160(1)(a);

B. The nature of the probable environmental impact of the facility. S.C. Code Ann. § 58-33-160(1)(b);

C. Whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations. S.C. Code Ann. § 58-33-160(1)(c);

D. Whether the facilities will serve the interests of system economy and reliability. S.C. Code Ann. § 58-33-160(1)(d);

E. Whether there is reasonable assurance that the proposed facility will conform to applicable state and local laws and regulations issued thereunder, including any allowable variance provisions therein, except that the Commission may refuse to apply any local law or local regulation that is unreasonably restrictive. S.C. Code Ann. § 58-33-160(1)(e); and

F. Whether public convenience and necessity require the construction of the facility. S.C. Code Ann. § 58-33-160(1)(f).

Duke is a Commission-regulated investor owned utility with approximately 540,000 South Carolina customers. Duke has a total of 2.4 million retail customers in its service area of North and South Carolina. NCEMC is a generation and transmission cooperative, a not-for-profit membership corporation created under Chapter 117 of the North Carolina General Statutes. It is a load serving electric supplier in North Carolina providing full and partial requirements, wholesale power and other services to its member organizations, which comprise 25 of the 26 distribution electric cooperatives based in North Carolina. Both Duke and NCEMC are defined as a "person" under the Siting Act and the LCCP is a major utility facility under the Siting Act with its capacity of 750 MWs. NCEMC's stipulated testimony of Mr. Michael Burnette, Senior Vice President, Chief Operating Officer, stated that NCEMC relied on Duke, as the operator and majority owner of the LCCP, to provide detailed information to the Commission on the project and to demonstrate that the public convenience and necessity requires construction of the LCCP.

The Commission has considered each of the above statutory standards in light of the evidence on the record in this proceeding along with the Settlement Agreement of Duke, NCEMC and ORS. On that basis, the Commission makes findings as set forth below:

III. FACTS AND LEGAL DETERMINATIONS

A. The Need for the Facilities, System Economy and Reliability, and Public Convenience and Necessity [S.C. Code Ann. §§ 58-33-160(1)(a),(d), and (f)]

The basis for the need for these facilities is Duke's growth in demand. As Mr. Gillespy testified, the Company's 2013 Integrated Resource Plan ("IRP") shows expected growth in demand of approximately 1.5 percent per year over the 15-year planning period. The 1.5% growth includes the impact of energy efficiency. Beginning in 2017, the Company needs an additional 317 MW to meet its projected load requirements and 14.5% minimum planning reserve. The Company's analysis shows that the best way to satisfy these needs in the short term is to retire approximately 1,700 MWs of coal-fired units and 350 MWs of aging natural gas-fired units, convert one 170 MW coal unit (Lee Steam Station Unit 3) to natural gas, and build the LCCP, which represents a substantial long-term investment to the energy infrastructure in South Carolina and a significant commitment to the area. By 2018, without the LCCP, the Company's resource need grows to 573 MWs.

In support of the LCCP, Ms. Hager testified about the process by which the Company developed the costs of other resources; developed the prices of fuels, specifically gas, and emission allowances; analyzed technologies; analyzed demand side management and energy efficiency programs; considered the impact of a renewable standard; and treated purchased power programs. In addition, an analysis was performed utilizing detailed system planning models to determine the most economic and reliable portfolio. The analyses consistently demonstrated that generic combined cycle generation was preferred to meet the 2017 need.

In sum, the analyses used to produce the 2013 IRP designated the LCCP as the least-cost resource for the Company's need in 2017 and 2018. Mr. Gillepsy and Ms.

Hager confirmed that Duke would be seeking a CECPCN to build the LCCP to meet system demand whether or not it had a partner and whether Duke owns 650 MWs or 750 MWs of the LCCP.

Ms. Hager testified that Duke issued a request for proposal ("RFP") on October 26, 2012, for up to 700 MW of non-peaking (i.e., base or intermediate) capacity beginning either June 1, 2016, and/or June 1, 2017, for fifteen to twenty years. Duke engaged a third-party administrator to receive the bids, serve as an intermediary with bidders, and review the Company's analytical methodology. Thirty-four bids from twelve different bidders were received. Duke and its independent third party evaluator carefully considered all bids and concluded that the LCCP, whether fully owned by Duke or shared with NCEMC, is the lowest total cost project for customers.

SCCCL and SACE did not oppose the LCCP; however, they suggested that there were opportunities for Duke to delay the LCCP's in-service date until 2018, rather than 2017, as proposed in the Application. In support of its position, SCCCL and SACE testified that Duke had incorrectly calculated its reserve margin and if the reserve margin were calculated as SCCCL and SACE suggested, it would confirm 2018 as the appropriate in-service date. Ms. Hager disagreed that Duke miscalculated its reserve margin; however, Ms. Hager agreed there are opportunities for a 2018 in-service date. Notwithstanding, the opportunities are not certain, and the Company needs the flexibility of having a 2017 in-service date as an option. Ms. Hager testified that, if the in-service date could be cost effectively deferred to 2018 without harming reliability, then the Company would do so. The Commission accepts the Company's request for flexibility

and agrees the Company should have the flexibility, based on system needs, of a 2017 or 2018 expected commercial operation date.

NCEMC's stipulated testimony of Mr. Burnette stated that the LCCP will allow it to maintain a diversified, cost effective portfolio of resources to reliably meet its needs. Specifically, the reasons NCEMC wishes to participate in the LCCP are: 1) maintaining a desirable alignment of owned versus contracted resources; 2) extending the anticipated "lifespan" of NCEMC's power supply portfolio; 3) managing NCEMC's fuel diversity; and 4) projected financial value. Mr. Burnette also stated these four benefits coincide with the need to address projected load growth, the expiration of certain contract resources, and the requirement for resources that provide value via hedging and economic use.

ORS witness, Mr. Soult, testified that public convenience and necessity will be served by the LCCP. His testimony further echoed the Company's intent. That is, the Company intends to build an efficient and reliable plant that will be economical and minimize the environmental impact, while strengthening the reliability of electric generation and the transmission grid.

In considering the need for the LCCP facility, system economy and reliability, and public convenience and necessity, the Commission finds that the statutory standards of S.C. Code Ann. §§ 58-33-160(1)(a),(d), and (f) are fully met by the evidence of record here.

B. The Nature and Justification of the Probable Environmental Impact of the LCCP [S.C. Code Ann. § 58-33-160(1)(b)]

The Siting Act also requires that the Commission evaluate the nature of the probable environmental impact from the LCCP and to determine whether the impact upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.

Mr. Landseidel testified on behalf of the Company with respect to the environmental impact. He testified the Company's 2011 siting study identified the Lee Steam Station site as the best site for a new combined cycle generating plant pending further review of water supply and transmission right of way. The study was updated in 2013 specifically for combined cycle generation that could be ready for 2015 construction activity in support of a 2017 commercial operation date. It also reviewed the water supply and transmission right of way. As Mr. Landseidel testified, the study again identified the Lee Steam Station site as the best option for the new combined cycle generation. The site offers inherent benefits as the new facility would be constructed adjacent to an existing generating station where critical infrastructure such as available land, water supply, and transmission facilities are already in place. The natural gas interstate pipeline is located approximately one mile from the site. The location helps reduce the overall cost and minimizes environmental impacts.

A cultural resources consultant was engaged in 2012 to conduct a cultural resources survey. Based on the survey, the consultant determined that no archaeological sites within a one-mile radius of the site justified national register of historic places National Historical Preservation Act status. The report to the South Carolina State

Historic Preservation Office, which is currently pending, recommends archaeological clearance for the project.

Mr. Landseidel testified that the LCCP will have minimal effects on the visual resources and scenic quality of the area surrounding the proposed site. To accommodate interconnection to the electric transmission grid, a new 100 kilovolt ("kV") switchyard will be constructed. All new transmission facilities will be located on existing Company property. No new rights of way or additional property will be required. The LCCP will feature state-of-the-art environmental control technology for natural gas combined cycle generation, and will employ a wet cooling tower for steam turbine condenser cooling which will minimize both the intake and discharge impacts to the Saluda River. Once Lee Steam Station Units 1 and 2 are retired, the thermal impacts to the Saluda River are expected to be greatly reduced.

The ORS's witness in this matter, Mr. Gene G. Soult, supported Mr. Landseidel's conclusions that the LCCP will not result in any significant impacts to the environment. Lastly, we note that the South Carolina Department of Health and Environmental Control, the South Carolina Department of Natural Resources, and the South Carolina Department of Parks, Recreation and Tourism are parties to this case and did not appear to put forth contrary evidence.

The Commission finds that the evidence Duke and ORS presented through their witnesses as to these matters is credible and persuasive. Based on the evidence of record, the Commission finds that the environmental impacts of the LCCP have been appropriately evaluated, and described. Accordingly, the Commission finds that the

statutory standards of S.C. Code Ann. § 58-33-160(1)(b) are fully met by the evidence of record here.

C. Impact of the Facility Upon the Environment is Justified, Considering the State of Available Technology and the Nature and Economics of the Various Alternatives and other Pertinent Considerations [S.C. Code Ann. § 58-33-160(1)(c)]

In looking at whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations pursuant to S.C. Code Ann. § 58-33-160(1)(2c), we incorporate the discussion from the section above and now turn to the testimony of Hamilton Davis and John Wilson of SCCCL and SACE. Mr. Davis and Mr. Wilson advocate that a solar facility be built in conjunction with the LCCP. Specifically, SCCCL and SACE propose that the Commission require DEC to include a RFP for a solar project that would have to be accepted only if the bid came in at or lower than the cost of operating the LCCP.

In the joint direct testimony of Mr. Davis and Mr. Wilson, they advocate for a 375 MW solar facility to be located at or near the Lee site. Mr. Davis testified that, when conditions exist for economic solar energy production, the solar energy could offset generation from the LCCP. This Commission appreciates the desire for renewable sources of energy; however, in this instance, the need is for a specified level of capacity in conjunction with energy production and the two are not synonymous. Mr. Soult testified that the Company is expecting the LCCP to produce sufficient electricity to meet base or intermediate load requirements at an expected capacity factor between 50% to 75% for a period of 20 to 30 years. Solar energy has a much lower operating capacity

factor due to its limited availability, making it not an optimal source for base or intermediate load. This Commission understands SCCCL's and SACE's idea of having solar generation in lieu of LCCP electricity generation when solar conditions are right; however, the LCCP could not be built with lower than the Company-needed 650 MWs, since the Company has demonstrated a need for this additional capacity in the 2017-2018 time frame. The reliability and operating capacity of the proposed solar facility is below the required need; therefore, it is not appropriate to meet the capacity needs of the proposed project. To meet the demonstrated need of the Company and the request of SACE and SCCCL, a full 650 MWs from the LCCP would still be needed and any MWs generated from solar would be in addition to the 650 MW capacity requirements.

Based upon Duke's Integrated Resource Plan, the additional 375 MW of solar capacity sought by SCCCL and SACE are not needed at this time. When SCCCL and SACE were asked about the appropriateness and cost implications to ratepayers of approving more generating capacity than the Company states it needs, Mr. Davis responded by saying the additional solar generation would be complimentary to and not in addition to the capacity offered by the LCCP. The Commission disagrees since capital investment would be needed to build the solar facility. As discussed earlier, a solar generating facility cannot replace the needed MWs from the LCCP. We do not think it is good practice for this Commission to grant permission for the Company to build or secure more capacity than is needed as this could ultimately result in customers paying more than necessary for electric service. It is also questionable whether this would be permitted under the Siting Act given that such a grant of permission would be enlarging

the scope of the Application without notice to the public. Lastly, it is also questionable whether this Commission can change the type of facility being requested by the Company. Here, SACE and SCCCL request that an RFP be required for the consideration of solar to be added to the LCCP. The Commission views this as requiring the Company to materially change its Application.

The Company has demonstrated that it has conducted a thorough review in determining that the LCCP is best to meet its future electricity generating needs. This Commission finds the evidence to be substantial and declines to require the Company to do further. It is noted, however, that the Company can always voluntarily submit an RFP to consider solar generation without this Commission requiring it to do so. While the Commission denies the request of SACE and SCCCL at this time, the Commission finds that Duke should continue to consider cost-effective solar generation as a part of its planning for its future generation mix.

Returning to the consideration of whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations, the Commission finds that the statutory standards of S.C. Code Ann. § 58-33-160(1)(c) are fully met by the evidence of record here.

D. Assurance that the Proposed Facilities Will Conform to Applicable State and Local Laws and Regulations [S.C. Code Ann. § 58-33-160(1)(e)]

The Siting Act requires the Commission to determine whether there is reasonable assurance that the proposed facilities will conform to applicable state and local laws and regulations issued thereunder. S.C. Code Ann. § 58-33-160(1)(e). The Commission

finds that the LCCP will be constructed and operated in conformity with all state and local regulations.

E. Conclusion as to the Public Convenience and Necessity of the LCCP

The proposed LCCP represents a feasible, appropriate and cost-effective means for meeting demand and maintaining system reliability. For the reasons outlined herein, the Commission finds that the public convenience and necessity supports issuance of a Certificate for the construction and operation of the LCCP.

IV. CONCLUSION

NOW THEREFORE, based upon the foregoing, IT IS HEREBY DECLARED AND ORDERED THAT:

1. Duke and NCEMC are hereby granted a CECPCN for the construction and operation of the LCCP.

2. The Settlement Agreement attached hereto as Order Exhibit No. 1, which was accepted into the record without objection at the hearing, is incorporated into and made a part of this Order and approved as just and reasonable.

3. The basis of the need for the LCCP to meet increasing demand has been shown.

4. The nature of the probable environmental impact from construction and operation of the LCCP, and considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations, shows this impact is justified.

5. The LCCP will serve the interests of system economy in the most economical and reliable means.

6. All South Carolina, Commission, and local government regulations and laws arising from matters set forth in the Application will be followed.

7. Public convenience and necessity require the construction of the LCCP in the 2017 or 2018 timeframe.

8. Duke should continue to consider cost-effective solar generation as a part of its planning for its future generation mix.

9. This Order shall remain in full force and effect until further order of the Commission.

BY ORDER OF THE COMMISSION:

G. O'Neal Hamilton, Chairman

ATTEST:

Nikiya Hall, Vice Chairman
(SEAL)

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2013-392-E

In Re: Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation For a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction And Operation of a 750 MW Combined Cycle Generating Plant Near Anderson, South Carolina	)	SETTLEMENT AGREEMENT

This Settlement Agreement is made by and among the South Carolina Office of Regulatory Staff ("ORS"), Duke Energy Carolinas ("DEC") and the North Carolina Electric Membership Corporation ("NCEMC") (collectively referred to as "Settling Parties").[1]

WHEREAS, DEC and NCEMC have prepared and filed an Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("the Application"), pursuant to S.C. Code Ann. §§58-33-10 *et seq.* (Supp. 2012), seeking to construct and operate a 750 MW combined-cycle electrical generating plant (the "Lee Combined Cycle Project" or "LCCP") on a site located in Anderson County, South Carolina with DEC operating the plant and owning 650 MWs and NCEMC owning 100 MWs;

WHEREAS, the Public Service Commission has opened Docket No. 2013-392-E to consider the application of DEC and NCEMC;

[1] Intervenors South Carolina Coastal Conservation League and Southern Alliance for Clean Energy and statutory parties the South Carolina Department of Health and Environmental Control, the South Carolina Department of Parks, Recreation and Tourism and the South Carolina Department of Natural Resources are not parties to the Settlement Agreement.

WHEREAS, the Settling Parties are parties of record in Docket No. 2013-392-E;

WHEREAS, the ORS is charged by law with the duty to represent the public interest of the State of South Carolina pursuant to S.C. Code Ann. §58-4-10(B) (Supp. 2012);

WHEREAS, ORS has conducted an investigation and examination relating to the matters raised in the Application;

WHEREAS, the Settling Parties have engaged in discussions to determine if a settlement of the issues would be in their best interest and, in the case of ORS, in the public interest; and

WHEREAS, following their settlement discussions, the Settling Parties have determined that their interests, and ORS has determined that the public interest, would be best served by a comprehensive settlement of the issues presented in this docket under the terms and conditions set forth herein.

NOW THEREFORE, the Settling Parties hereby stipulate and agree to the following terms:

I. STIPULATION OF TESTIMONY AND WAIVER OF CROSS EXAMINATION

The Settling Parties agree to stipulate into the record before the Commission this Settlement Agreement. The Settling Parties further agree to stipulate into the record the following pre-filed direct testimony and exhibits: the direct testimony and exhibits of DEC witnesses Clark Gillespy, Mark Landseidel, and Janice Hager; the direct testimony of NCEMC witness Michael Burnette; the rebuttal testimony and exhibits of DEC witnesses Janice Hager and Jon Summerville; and the direct testimony of ORS witness Gene Soult (collectively "Stipulated Testimony"), without objection, change, amendment or cross-examination. The Settling Parties reserve the right to engage in any redirect examination of witnesses as necessary to respond to issues raised by the examination of their witnesses, if any, by parties other than

Settling Parties, or members of the Commission, or by late-filed testimony from parties other than Settling Parties.

II. COMPREHENSIVE SETTLEMENT AMONG ORS, DEC AND NCEMC

The Settling Parties agree and stipulate that the Application and the Stipulated Testimony conclusively demonstrate the following:

1. The Application and the Stipulated Testimony includes all matters required by S.C. Code Ann. §58-33-120(1) (Supp. 2012) to support such an application, and all parties required to be served by S.C. Code Ann. §58-33-120(2) (Supp. 2012) have been served.
2. The Application and Stipulated Testimony establish and explain the need for the LCCP as required by S.C. Code Ann. §58-33-160(1)(a) (Supp. 2012).
3. As required by S.C. Code Ann. §58-33-160(1)(b) and (c) (Supp. 2012), the Application and Stipulated Testimony establish that the probable environmental impact of the LCCP is minimal and is justified considering the state of available technology and the nature and economics of the various alternatives.
4. As required by S.C. Code Ann. §58-33-160(1)(d) (Supp. 2012), the Application and Stipulated Testimony establish that the LCCP will appropriately serve the interests of system economy and reliability.
5. As required by S.C. Code Ann. §58-33-160(1)(e) (Supp. 2012), the Application and Stipulated Testimony establish that there is reasonable assurance that the LCCP will conform to applicable State and local laws and regulations.
6. As required by S.C. Code Ann. §58-33-160(1)(f) (Supp. 2012), the Application and Stipulated Testimony establish that the public convenience and necessity will be

served by construction of the LCCP.

7. Construction of the LCCP will not affect DEC's plans regarding the acquisition of an interest in the V. C. Summer Nuclear Project currently being constructed by SCE&G and Santee Cooper. As reflected in paragraph 6 of the Settlement Agreement in Docket No. 2011-20-E, DEC continues to support joint ownership of new nuclear facilities in South Carolina. DEC is engaged in good faith negotiations with Santee Cooper regarding an interest in the Summer project. DEC's 2013 IRP shows a need for nuclear generation in 2018 and 2020 and assumes Duke will acquire an interest in Summer to fulfill the need. Duke's purchase of an interest in Summer will depend on the Company's ability to obtain commercially reasonable terms and demonstrate prudency to regulators in both South Carolina and North Carolina.

8. The Settling Parties agree to advocate that the Commission accept and approve the Settlement Agreement in its entirety as a fair, full and reasonable resolution of all issues presented in this proceeding.

9. The Settling Parties agree to cooperate in good faith with one another in recommending to the Commission that the Settlement Agreement be approved and the Settling Parties agree to use reasonable efforts to defend and support any Commission order issued approving the Settlement Agreement.

10. The Settling Parties agree that signing the Settlement Agreement (a) will not constrain, inhibit, impair or prejudice their arguments or positions held in future proceedings; (b) will not constitute a precedent or evidence of acceptable practice in future proceedings; and (c) will not limit the relief that any Settling Party may seek or advocate in any future proceeding. If the Commission declines to approve the

Settlement Agreement in its entirety, then any or all of the Settling Parties may withdraw from the Settlement Agreement without penalty or obligation.

11. The Settlement Agreement shall be interpreted according to South Carolina law.

12. The above terms and conditions fully represent the agreement of the Settling Parties. Therefore, each party acknowledges its consent and agreement to the Settlement Agreement by affixing its signature or by authorizing its counsel to affix his or her signature to the Settlement Agreement where indicated below. Counsel's signature is his or her representation that his or her client has authorized the execution of the Settlement Agreement. Faxed or scanned signatures shall be effective as original signatures to bind any party. The Settlement may be signed in counterparts, with the various signature pages combined with the body of the document constituting an original and provable copy of the Settlement Agreement. The Settling Parties agree that in the event any Settling Party should fail to indicate its agreement to the Settlement Agreement, then the Settlement Agreement shall be null and void and will not be binding on any party.

[PARTY SIGNATURES TO FOLLOW ON SEPARATE PAGES]

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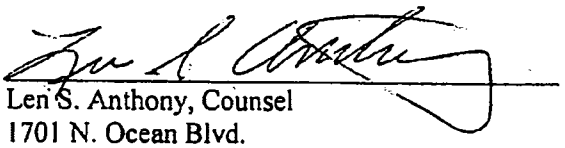
By: 

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BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2013-392-E - ORDER NO. 2014-546

JULY 30, 2014

IN RE:	Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC	)))))))	ORDER DENYING PETITION FOR REHEARING AND RECONSIDERATION

Introduction:

Pursuant to S.C. Code Ann. § 58-27-2150 and 10 S.C. Code Ann. Regs. 103-825(A)(4), this matter comes before the Public Service Commission of South Carolina ("Commission") on the Petition for Rehearing or Reconsideration of Order No. 2014-408 (May 2, 2014) (the "Petition for Reconsideration") submitted by intervenors South Carolina Coastal Conservation League and Southern Alliance for Clean Energy (collectively "Environmental Intervenors"). Order No. 2014-408 granted a Certificate of Environmental Compatibility and Public Convenience and Necessity ("Certificate") to joint applicants Duke Energy Carolinas, LLC ("DEC") and North Carolina Electric Membership Corporation ("NCEMC") (collectively "Joint Applicants") for the construction and operation of the Lee 750 megawatt ("MW") combined generating plant ("Lee Project") near Anderson, South Carolina. Environmental Intervenors allege the Certificate was not granted in compliance with the Utility Facility Siting and Environmental Protection Act ("Siting Act"), S.C. Code Ann. § 58-33-10 *et. seq.* Joint

Applicants have filed a Response to the Petition for Reconsideration that disagrees with the Environmental Intervenors' position.

Summary of Petition for Reconsideration:

Under S.C. Code Ann. § 58-33-160(1)(b), (c) of the Siting Act, the Commission may not grant a Certificate for the construction of a major utility facility unless it determines the nature of the facility's environmental impact and further determines that the facility's probable environmental impact is justified considering "available technology and the nature and economics of various alternatives and other pertinent considerations." To meet this requirement, the Environmental Intervenors have recommended that the Commission condition approval of the Lee Project on the prerequisite that DEC solicit bids for complimentary, cost effective solar power in order to reduce the project's consumption of natural gas which they argue will reduce its operating costs and environmental impacts. Specifically, Environmental Intervenors advocate for a 375 MW solar facility to be located at or near the Lee Project site so that solar energy could offset gas generation when conditions exist for economic solar energy production. Additionally, they qualify that this solar project would only have to be accepted if a bid for that project was at or lower than the cost of operating the gas plant.

In its Order No. 2014-408, the Commission recognized the desire to utilize renewable energy sources, but found no need for the additional capacity. To this end, the Commission stated that the combined cycle generating station could not be built with lower than the Company-needed 650 MWs because the reliability and operating capacity

of the solar facility cannot meet the capacity needs of the Lee Project.[1] The Order then determined that to meet this demonstrated need, a full 650 MWs of combined cycle generation would still be necessary, and any MWs generated from solar would be in addition to the 650 MW capacity requirements. Based on this reasoning, the Commission declined the proposal for a solar generating facility to accompany the combined cycle Lee Project. In addition, the Commission held that adding the proposed solar component would materially change the Application and change the type of facility being requested.

Environmental Intervenors contend this decision was arbitrary and capricious and not in compliance with the Siting Act's requirements of S.C. Code Ann. § 58-33-160(b), (c). They argue Order No. 2014-408 commits two central errors, claiming first that it misapprehends the nature and intent of the solar recommendation as simply a request to require capacity above and beyond the capacity of the gas plant, instead of as a means to offset operating costs, and second no material change to the type of facility would occur. The Environmental Intervenors state that solar energy could be used as a fuel substitute when available and not as a means for building less than the required 650 MW needs of DEC. They elaborate their intent is for DEC to issue a request for proposal for solar capacity that, as delivered, would displace production at the gas plant and therefore reduce the fuel burned there. Environmental Intervenors conclude that the addition of a solar component could only save ratepayers money and provide a conservative hedge

[1] NCEMC will partner with DEC on the Lee Project and is a large, long-time wholesale customer of DEC. In an agreement between the two, NCEMC will purchase a minority ownership interest of 100 MWs in the Lee Project, leaving 650 MWs available for DEC. DEC will construct and operate the facility. However, DEC states that it would seek a Certificate for the entire proposed 750 MW, based on their 2013 IRP, even if it did not have a partner for the project.

given price volatility. As a result, they maintain the Commission's finding that the Lee Combined Cycle Project's environmental impact was justified, without accepting their solar recommendation, was unfounded, arbitrary, and capricious in light of this alternative, available technology.

Discussion:

We disagree. In declining the Environmental Intervenors' proposal and finding that the environmental impacts of the Application for the Lee Project are "justified," Order No. 2014-408 took great analytical care to address their suggestion at length. As stated in that Order, since the capacity factor of solar is much less than the capacity factor that the combined cycle facility is designed to meet, solar will not be capable of providing the intermediate to base load energy needs of the Lee Facility. As a result, the full capacity of the Lee Project still must be built, and any solar energy that could be provided would still need to be back stopped by system spinning reserves. In practical terms, this fact means that any solar capacity to be included with the Lee Project would have to be added to its 650 MWs, not complementary to it. In other words, the economics of including the Environmental Intervenors' proposal is not justified when all appropriate factors are considered.

Next, Environmental Intervenors take issue with Order No. 2014-408's finding that adding solar capacity to the Lee Project would cause an impermissible material change to the Application. They point to language at S.C. Code Ann. § 58-33-160(1), stating "The Commission may not grant a certificate for the construction, operation and maintenance of a major utility facility, either as proposed *or as modified by the*

Commission, unless it shall find and determine[...]" (emphasis added), as allowing a 375 MW solar facility to be added. However, requiring DEC or another entity to construct a major solar facility at or near the Lee Project site in addition to the plans already specified to construct the Lee Project would be far more than modifying an existing element of the Joint Applicants' proposal, and in our view it would substantially alter DEC and NCEMC's Application.

As stated in the Order, this Commission found that the evidence DEC presented through their witnesses to be persuasive, and we reiterate it here. In support of the Lee Project, Janice Hager, Vice President of Integrated Resource Planning and Analytics, testified about the process by which DEC developed the costs of other resources, developed the price of fuels, analyzed technologies, analyzed demand side management and energy efficiency programs, considered the impact of a renewable standard, and treated purchase power programs.[2] In addition, an analysis was performed utilizing detailed system planning models to determine the most economic portfolio.[3] The analyses designated the Lee Project as proposed by the Joint Applicants as the least cost resource for their needs.[4]

Further, we agree with the Joint Applicants' position that a fuel proceeding is the forum to consider the Environmental Intervenors' recommendation. By suggesting the Commission "condition approval of the Lee Combined Cycle Project on a requirement that DEC solicit bids for complimentary, cost-effective solar power [to] reduce the

[2] *See* Order 2014-408 at 7.
[3] Id.
[4] Id.

project's consumption of natural gas and thereby reduce both its operating costs and its environmental impact," the Environmental Intervenors are arguing for how a fuel source is dispatched.[5] In contrast, the primary purpose of the instant proceeding is to determine the Joint Applicants' needs for additional capacity to meet their customer's demand for electricity.

Nevertheless, as Joint Applicants highlight, S.C. Code Ann. § 58-27-865(F) requires that:

> The Commission shall disallow recovery of any fuel costs that it finds without just cause to be the result of failure of the utility to make every reasonable effort to minimize fuel costs or any decision of the utility resulting in unreasonable fuel costs, giving due regard to reliability of service, economical generation mix, generating experience of comparable facilities, and minimization of the total cost of providing service.

Even though the Environmental Intervenors' proposed plan for cost effective solar may seemingly agree with these criteria, it does not. Solar power must only be one fuel option among those which are available in order for it to conform with this statute, not the only option. For instance, the proposition of setting a benchmark price for solar energy bids that is at or below the long term operating cost of the gas facility is an appealing argument from the perspective of displacing gas power with solar power, but that benchmark price is outside the statute's criteria if wholesale power can be purchased below the benchmark. In this regard, the price of solar power is required to compete with the price of all fuel options.

[5] Pet. for Recon. at 2.

Moreover, a benchmark price requirement that would force the Joint Applicants to purchase solar would alter the Application in a different way than mentioned above. Compelling the Companies to obtain solar energy, when other sources of energy are potentially less expensive, is different than what DEC and NCEMC are seeking in this Docket. To satisfy S.C. Code Ann. § 58-33-160(1)(a) in their Application, Joint Applicants stated the need for the Lee Facility was based on resource analyses as described in DEC's integrated resource plan ("IRP"), which takes all of DEC's generating assets into account. Once the Lee Facility is brought into service to meet the requirements of the IRP, it will be run when it is the lowest operating cost plant available. However, as Joint Applicants specify in their Response to Petition for Rehearing, other lower cost generating resources may be available. The Application did not single out solar as the alternative fuel resource regardless of other potentially more prudent options.

Conclusion:

The proposal for solar generation at or near the Lee Project to replace gas generation as an alternative to the Lee Project's required capacity would necessitate a new 375 MW solar facility to be constructed because no such solar facility currently exists. Similarly, the Environmental Intervenors' argument that DEC be required to purchase energy, and not capacity, does not account for this same fact. Among other findings in Order No. 2014-408 that addressed the Environmental Intervenors' proposal, the Order found that solar power's intermittent availability cannot meet the base load requirements forming the purpose of the Lee Project, and DEC and NCEMC would still need that Project's full capacity. Order 2014-408 concluded that an additional 375 MW

of solar capacity was not needed at this time. Last, a benchmark price for solar power is at odds with the provisions of S.C. Code Ann. § 58-27-865(F) when wholesale power can be purchased below the benchmark.

Fully considering all alternatives and options, Order No. 2014-408 determined that it was not good practice to require Joint Applicants to build or secure more capacity than needed, since it could ultimately result in customers paying more than necessary for electric service. We maintain this reasoning.

IT IS THEREFORE ORDERED:

The Petition for Reconsideration is denied.

This Order shall remain in full force and effect until further order of the Commission.

BY ORDER OF THE COMMISSION:

Nikiya Hall, Chairman

ATTEST:

Swain E. Whitfield, Vice Chairman
(SEAL)

Action Item 7

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
COMMISSION DIRECTIVE

ADMINISTRATIVE MATTER	☐	DATE	**April 09, 2014**
MOTOR CARRIER MATTER	☐	DOCKET NO.	**2013-392-E**
UTILITIES MATTER	☑	ORDER NO.	

Amended Directive reflecting that Commissioner McGee was present and voted.

SUBJECT:

DOCKET NO. 2013-392-E - Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC – Discuss this Matter with the Commission.

COMMISSION ACTION:

On the matter of the construction and operation of a 750 megawatt combined cycle generating plant in Anderson, South Carolina, I move that we grant a Certificate of Environmental Compatibility and Public Convenience and Necessity to Duke Energy Carolinas, LLC and the North Carolina Electric Membership Corporation for the construction and operation of that plant. I further move that we hold that Duke and NCEMC have satisfied all of the statutory criteria for the granting of this Certificate, as described in South Carolina Code Annotated Section 58-33-160, and that we approve the Settlement Agreement submitted in the case between Duke, NCEMC, and the Office of Regulatory Staff.

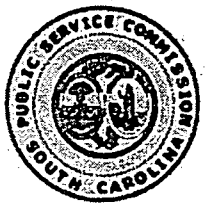
The Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League requested that the Commission require Duke and NCEMC to submit an RFP for the consideration of a 375 MW solar facility that would be built in addition to the proposed combined cycle generating plant. Mr. Chairman, such a requirement would be a material change to the original Application filed. Based on its IRP, Duke does not need this additional 375 MW of capacity at this time. Also, there is no requirement for a company to issue an RFP except for peaking generation. The proposed 750 MW combined cycle generating plant is not a peaking generation unit. Duke can always voluntarily submit an RFP to consider cost-effective solar generation without this Commission requiring it to do so. Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League also request that the Commission order Duke to not place the proposed combined cycle plant in operation prior to 2018. Depending on costs considerations and electricity demand, Duke should determine the optimal in-service date for the proposed generating plant. Therefore, Mr. Chairman, I move that the Commission deny the requests of the Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League. I also move that the Commission hold that Duke Energy Carolinas should continue to consider cost-effective solar generation as a part of its planning for its future generation mix.

PRESIDING: Hamilton SESSION: Regular TIME: 2:00 p.m.

	MOTION	YES	NO	OTHER
FLEMING	☐	☑	☐	
HALL	☐	☑	☐	

HAMILTON	☐	☑	☐
HOWARD	☐	☑	☐
MCGEE	☐	☑	☐
RANDALL	☑	☑	☐
WHITFIELD	☐	☑	☐

(SEAL)



RECORDED BY: J. Schmieding

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
COMMISSION DIRECTIVE

ADMINISTRATIVE MATTER	☐	DATE	**June 04, 2014**
MOTOR CARRIER MATTER	☐	DOCKET NO.	**2013-392-E**
UTILITIES MATTER	☑	ORDER NO.	

SUBJECT:

DOCKET NO. 2013-392-E - Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC (Preliminary Information is Available for Viewing at the Commission) – Discuss with the Commission the Petition for Reconsideration Filed on Behalf of the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy.

COMMISSION ACTION:

The Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") contend that the Commission's decision in Order No. 2014-408 was arbitrary and capricious and not in compliance with the Siting Act's environmental requirements. They argue that our original Order commits two central errors, first, that it misapprehends the nature and intent of their solar recommendation as a request to require capacity above and beyond the capacity of the gas plant, instead of as a means to offset operating costs, and second, that no material change to the type of facility would occur by requiring bids for a 375 MW solar facility. CCL and SACE elaborate that their intent is for Duke Energy Carolinas to issue a request for proposal for solar capacity that, as delivered, would displace production at the gas plant cost for cost and therefore reduce the fuel burned there. CCL and SACE conclude that the addition of a solar component could only save ratepayers money and provide a conservative hedge given gas price volatility.

I disagree. In declining CCL and SACE's proposal and finding that the environmental impacts of the Lee Project are "justified," Order No. 2014-408 took great analytical care to address their suggestions at length. As stated in that Order, since the capacity factor of solar is much less than the capacity factor that the combined cycle facility is designed to meet, solar will not be capable of providing the intermediate to base load energy needs of the Lee Facility. As a result, the full capacity of the Lee Project still must be built, and any solar energy that could be provided would still need to be backed up. In practical terms, this means that any solar capacity to be included with the Lee Project would have to be added to its 650 MWs, and would not be complementary to it. In other words, the economics of including CCL and SACE's proposal are not justified when all appropriate factors are considered.

Next, CCL and SACE take issue with Order No. 2014-408's finding that adding solar capacity to the Lee Project would cause an impermissible material change to the Application. As authority for allowing the proposed 375 MW solar facility to be added to the Lee Project, they point to language in the Siting Act, stating in part that the Commission may modify an Application. However, while we may modify a proposal, I believe that the Act does not contemplate such an essential change to the subject matter of the Application, if the modified Application calls for the construction of an entirely new facility and fuel source in addition to the one originally

proposed.

Therefore, I move that the Petition for Rehearing be denied.

PRESIDING: Hamilton SESSION: Regular TIME: 2:00 p.m.

	MOTION	YES	NO	OTHER
FLEMING	☐	☑	☐	
HALL	☐	☑	☐	
HAMILTON	☐	☑	☐	
HOWARD	☑	☑	☐	
MCGEE	☐	☑	☐	
RANDALL	☐	☑	☐	
WHITFIELD	☐	☑	☐	

(SEAL)

RECORDED BY: J. Schmieding

DUKE ENERGY. CAROLINAS

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Timika.Shafeek-Horton@duke-energy.com

October 24, 2013

VIA ELECTRONIC FILING

Mrs. Jocelyn G. Boyd
Chief Clerk / Administrator
Public Service Commission of South Carolina
101 Executive Center Drive, Suite 100
Columbia, South Carolina 29211

RE: **Duke Energy Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation – Joint Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, South Carolina and Motion for Confidential Treatment**

Dear Mrs. Boyd:

Enclosed for filing on behalf of Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or "Company") and the North Carolina Electric Membership Corporation ("NCEMC") is a joint Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a combined cycle natural gas-fired generating facility in Anderson, South Carolina, at the Company's existing Lee Steam Station ("Application"). This Application is filed pursuant to the provisions of S.C. Code Ann. § 58-33-10 et seq. (1976 & Supp. 2012) and 26 S.C. Code Ann. Reg. 103-204 (1976, as amended).

By copy of this letter, we are also serving the South Carolina Office of Regulatory Staff, and others as required by statute, with a copy of the enclosed Application and have attached a certificate of service to that effect as Application Exhibit 1. In compliance with S.C. Code Ann. § 58-33-120(2), this letter shall also serve as notice that the Application was filed with the Public Service Commission of South Carolina on October 24, 2013. A copy of the required public notice is attached as Application Exhibit 2. Affidavits of Publication, which include a copy of the public notice, are attached as Application Exhibit 3.[1]

Also enclosed are testimony from NCEMC's Michael W. Burnette and Duke Energy Carolinas' Clark S. Gillespy, as well as testimony and exhibits from Duke Energy Carolinas'

[1] The Company published the notice in five newspapers. Four of them have sent affidavits of publication. The Company will forward the final affidavit of publication as soon as it is received.

Janice D. Hager and Mark E. Landseidel. Exhibit 1 to Janice Hager's Testimony is the confidential version of the 2013 Integrated Resource Plan and Exhibit 6 to Mark Lanseidel's Testimony contains the projected cost and operating expense information for the project which is confidential. The Company respectfully requests that it be permitted to file these CONFIDENTIAL EXHIBITS under seal and that they be maintained as confidential and protected from public disclosure pursuant to Order No. 2005-226, "ORDER REQUIRING DESIGNATION OF CONFIDENTIAL MATERIALS" and 26 S.C. Code Ann. Regs. 103-804(S)(2)(Supp. 2012). A copy of the public version of the Application, Testimony, and Exhibits are being filed electronically and a copy of the CONFIDENTIAL EXHIBITS are being delivered to the Commission and the Office of Regulatory Staff under seal.

Please consider this correspondence as Duke Energy Carolinas' Motion for Confidential Treatment of the above-referenced information in Exhibit 1 to Janice Hager's Testimony and Exhibit 6 of Mark Landseidel's Testimony.

Please let me know if you have any questions.

Sincerely,

Timika Shafeek-Horton
Deputy General Counsel

TSH/bml

cc: Shannon B. Hudson, ORS
Courtney D. Edwards, ORS
Rick Feathers, NCEMC
Len Anthony, for NCEMC

BEFORE

THE PUBLIC SERVICE COMMISSION

OF

SOUTH CAROLINA

DOCKET NO. 2013- _____ -E

In Re: Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation For a Certificate of Environmental Compatibility And Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Cycle Generating Plant Near Anderson, South Carolina	**APPLICATION FOR CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC CONVENIENCE AND NECESSITY**

Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or "Company") and North Carolina Electric Membership Corporation ("NCEMC") hereby apply to the Public Service Commission of South Carolina ("Commission") for a Certificate of Environmental Compatibility and Public Convenience and Necessity to construct and operate a 750 MW combined-cycle electrical generating plant on a site located in Anderson County at the Company's existing Lee Steam Station ("Lee Combined Cycle Project"). DEC will operate and own 650 MWs of the plant. NCEMC will own 100 MW. This application is filed pursuant to the provisions of S.C. Code Ann. § 58-33-10 et. seq. (Cum. Supp. 2012).

Support of this application follows:

1. Applicants. Duke Energy Carolinas is a limited liability company duly organized and existing under the laws of the State of North Carolina, with its principal offices at 550 South Tryon Street, Charlotte, North Carolina 28202. The Company is engaged in the business of generating, transmitting, delivering, and providing electricity to public and private energy users

for compensation. Duke Energy Carolinas' service area covers 24,000 square miles in Western South Carolina and in the Central and Western portions of North Carolina. The service area includes 62 counties, 18 in South Carolina and 44 in North Carolina. The Company supplies retail electric service to approximately 2.4 million retail customers in its service area. Approximately 540,000 of these customers are in South Carolina.

NCEMC is a generation and transmission cooperative, a not-for-profit membership corporation created under Chapter 117 of the North Carolina General Statutes. It is a load serving electric supplier in North Carolina providing full and partial requirements wholesale power and other services to its member organizations. The member cooperatives use the power supply furnished by NCEMC to provide retail electric service to consumers in North Carolina.

2. Project Description. The proposed facility will be a 750 MW combined-cycle electrical generating plant located in Anderson County at the Company's existing Lee Steam Station with two combustion turbine generators, two heat-recovery steam generators, and one steam turbine generator. A complete description of the utility facility and the location at which it is to be built, power plant design features and facilities, and information pertaining to the project site are all contained in the testimony and exhibits filed with this application.

3. Statement of Need. Duke Energy Carolinas annually develops a resource plan for meeting customers' energy needs with a combination of existing generation, customer demand-side and energy efficiency options, purchased power transactions, and self-build options. The Duke Energy Carolinas 2013 Integrated Resource Plan (IRP) describes resource plans to meet customers' energy needs over a 15-year forecast period. Taking into consideration the impact of energy efficiency, the Company's 2013 load forecast projects an average annual growth in

summer peak demand of 1.5 percent (about 275 MWs/year). Winter peaks and average territorial energy are also projected to grow at an average annual rate of 1.5 percent.

Duke Energy's existing resources will be reduced by 370 MWs in 2015 with the retirement of Lee Steam Station Units 1 through 3[1], and the Company's load obligation (including reserve margin) is expected to increase from 21,216 MWs to 22,265 MWs, which takes into consideration the planned addition of 271 MWs of incremental energy efficiency between 2014 and 2017. By 2017, without the addition of the Lee Combined Cycle Project,[2] Duke Energy Carolinas is expected to need 317 MWs to meet its minimum target planning reserve margin of 14.5%. By 2018, without the Lee Combined Cycle Project, the Company's resource need grows to 573 MWs. The 2013 IRP designates the Lee Combined Cycle Project as the least-cost resource for the Company's need in 2017 and 2018 whether Duke Energy Carolinas owns 650 MWs or 750 MWs of the Lee Combined Cycle Project.

NCEMC anticipates using output from the Lee Combined Cycle Project as an energy product rather than capacity product, lending it flexibility in serving its member cooperatives' load, located in three discrete control areas. The energy derived from the Lee Combined Cycle Project will aid NCEMC in addressing certain critical portfolio planning objectives: 1) maintaining a desirable alignment of owned versus contracted resources, which currently "skew" toward purchases, rather than owned resources; 2) extending the anticipated "lifespan" of NCEMC's power supply portfolio, by addressing expiring power purchase agreements; 3) managing NCEMC's fuel diversity through the introduction of additional natural gas resources; and 4) enhancing financial value.

[1] If Lee Unit 3 is converted to natural gas the net loss will be 200 MW.
[2] While there is a slight capacity need in 2016, the Company will continue to monitor that small need and take action as necessary.

4. Environmental and Cultural Resources Assessment. The Company engaged cultural resource consultants Brockington and Associates, Inc. to assist on the project. No material barriers to construction on the proposed site were found. Details of the assessment are included in the testimony of Company Witness Mark Landseidel and exhibits filed with this application.

5. Economic Justification. DEC and NCEMC consider this information proprietary and confidential. It is being provided confidentially under separate cover.

6. Proof of Service. Application Exhibit 1, attached hereto and made a part hereof, is proof of service of a copy of this application on the Chief Executive Officer of each municipality and the head of each state and local government agency charged with the duty of protecting the environment or of planning land use in the area in the county in which any portion of the facility is to be located pursuant to S.C. Code Ann. §58-33-120(2).

7. Public Notice. Attached as Application Exhibit 2 and made a part hereof is the public notice given to persons residing in the municipalities entitled to receive notice pursuant to S.C. Code Ann. §58-33-120(3) by publication of a summary of the application, the date on or about which it is to be filed, and the newspapers of general circulation in which such notice will be published. Application Exhibit 3 is proof that the notice has been appropriately published.[3]

8. Correspondence or Communications. The name, title, address, and telephone number of the persons to whom correspondence or communications relating to the application should be addressed are as follows:

[3] The Company published the notice in five newspapers. Four of them have sent affidavits of publication. The Company will forward the final affidavit of publication as soon as it is received.

For Duke Energy Carolinas:

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Tel: 704.382.6373
timika.shafeek-horton@duke-energy.com

For NCEMC:

Richard M. Feathers
Vice President and Associate General Counsel
Post Office Box 27306
Raleigh, North Carolina 27611-7306
Tel: 919.872.0800
rickfeathers@ncemcs.com

Len Anthony
1701 N. Ocean Blvd.
North Myrtle Beach, South Carolina 29582
Tel: 919.601.7871
len.anthony1@gmail.com

Based on the complete application herein filed, Duke Energy Carolinas and NCEMC respectfully request that the Commission issue a Certificate of Environmental Compatibility and Public Convenience and Necessity for the proposed Lee Combined Cycle Project.

DUKE ENERGY CAROLINAS, LLC

BY: ______________________

Date: October 24, 2013

North Carolina Electric Membership Corporation

BY: ______________________

Date: October 24, 2013

PROOF OF SERVICE

This is to certify that I, Timika Shafeek-Horton, have this day caused served on the parties as indicated below one (1) copy of the Application to the Public Service Commission of South Carolina by Duke Energy Carolinas, LLC for a Certificate of Environmental Compatibility and Public Convenience & Necessity and a Notice of Filing pursuant to S.C. Code Ann. 58-33-120(2) (1976 & Supp. 2011) as follows:

Via U.S. Mail
Jacquelyn S. Dickman, Chief Deputy Counsel
Office of General Counsel
S.C. Dep't of Health & Envt'l Control
2600 Bull Street
Columbia, SC 29201

Via U.S. Mail
Robert J. St. Onge, Jr., Secretary
S.C. Dep't of Transportation
P.O. Box 191
955 Park Street
Columbia, SC 29202-0191

Via U.S. Mail
Alvin A. Taylor, Director
S.C. Department of Natural Resources
P.O. Box 167
Columbia, SC 29202

Via U.S. Mail
C. Dukes Scott, Executive Director
S.C. Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201

Via U.S. Mail
Duane Parrish, Director
S.C. Department of Parks, Recreation & Tourism
1205 Pendleton Street, Ste 248
Columbia, SC 29201

Via U.S. Mail
Charles R. Cobb, Director
S.C. Inst. Of Archaeology & Anthropology
1321 Pendleton Street
Columbia, SC 29208

Via U.S. Mail
George B. Patrick, III, Deputy Secretary
S.C. Department of Commerce
1201 Main Street, Ste 1600
Columbia, SC 29201-3200

Via U.S. Mail
Henry E. "Gene" Kodama, State Forester
S.C. Dep't of Forestry Commission
P.O. Box 21707
Columbia, SC 29221

Via U.S. Mail
Jeffrey M. Nelson, Esq.
S.C. Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201

Via U.S. Mail
The Honorable Dr. R. Mack Durham
Mayor, Town of Williamston
104 Shorebrook Drive
Williamston, SC 29697

Via U.S. Mail
W. Eric Emerson, Ph.D., Director
S.C. Dep't of Archives & History
8301 Parklane Road
Columbia, SC 29223

Via U.S. Mail
The Honorable Peggy Paxton
Mayor, Town of West Pelzer
3 Hindman Street
West Pelzer, SC 29669

PROOF OF SERVICE

Via U.S. Mail
The Honorable Francis M. Crowder, Sr.
Chairman, Anderson County Council
326 Avenue of Oaks
Anderson, SC 29621

Via U.S. Mail
Wayne Proctor, Senior Planner
Anderson County Planning &
Community Development
P.O. Box 8002
Anderson, SC 29622

Via U.S. Mail
Glenn Brill,
Anderson County Parks,
Recreation & Tourism
P.O. Box 8022
Anderson, SC 29622

Via U.S. Mail
The Honorable Steve McGregor
Mayor, Town of Pelzer
PO Box 427
Pelzer, SC 29669

Via U.S. Mail
The Honorable Rufus Callaham
Mayor, City of Belton
Belton City Hall
306 Anderson Street
Belton, SC 29627

Via U.S. Mail
The Honorable Knox White
Mayor, City of Greenville
P.O. Box 2207
Greenville, SC 29602-2207

Via U.S. Mail
Phyllis Lollis
Town Administrator, Williamston
Williamston Municipal Center
12 West Main Street
Williamston, SC 29697

Via U.S. Mail
City Administrator, Belton
Belton City Hall
306 Anderson Street
Belton, SC 29627

Via U.S. Mail
John Castile
City Manager, Greenville
206 South Main Street, 10th Floor
Greenville, SC 29601

Via U.S. Mail
Skip Watkins
Town Administrator, Pelzer
P.O. Box 427
Pelzer, SC 29669

Via U.S. Mail
Paula Payton
Town Clerk West Pelzer
3 Hindman Street
West Pelzer, SC 29669

Via U.S. Mail
Rusty Burns
Town Administrator
P.O. Box 8002
Anderson, SC 29626-8002

PUBLIC NOTICE

Duke Energy Carolinas, LLC ("DEC") is making Application to the Public Service Commission of South Carolina on or about October 16, 2013, for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a combined cycle natural gas-fired generating facility in Anderson, South Carolina, at the Company's existing Lee Steam Station. This Application is in accordance with the Code of Laws of South Carolina 1976, Chapter 33, Title 58, as amended, entitled the "Utility Facility Siting and Environmental Protection."

Copies of the Application will be available for the public review at the following location:

Public Service Commission of South Carolina
Clerk's Office
101 Executive Center Drive
Columbia, South Carolina 29210

Any person wishing to comment on the Application or obtain additional information with regard thereto should contact in writing the Public Service Commission of South Carolina, 101 Executive Center Drive, Suite 100, Columbia, South Carolina 29210, with a copy to Timika Shafeek-Horton, Duke Energy Carolinas, LLC, 550 South Tryon Street, DEC45A, Charlotte, North Carolina 28202.

NEWSPAPERS IN WHICH PUBLIC NOTICE WAS PUBLISHED	DATE PUBLISHED
The Williamston Journal, Williamston, South Carolina	October 16, 2013
Anderson Independent Mail, Anderson, South Carolina	October 13, 2013
Belton News-Chronicle, Belton, South Carolina	October 16, 2013
The Greenville News, Greenville, South Carolina	October 13, 2013
Anderson Observer, Anderson, South Carolina	October 11, 2013

I, Vickie M. Creamer, do solemnly swear that the legal advertisement for:

PUBLIC NOTICE

Duke Energy Carolina, LLC and North Carolina Electric Membership Corporation making application to the Public Service Commission.

PUBLIC NOTICE

Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation are making Application to the Public Service Commission of South Carolina on or about October 15, 2013, for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a combined cycle natural gas-fired generating facility in Anderson, South Carolina, at the Company's existing Lee Steam Station. This Application is in accordance with the Code of Laws of South Carolina 1976, Chapter 33, Title 58, as amended, entitled the "Utility Facility Siting and Environmental Protection Act."

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A true and correct copy of which is hereto affixed, was printed in The Journal, a newspaper published in Williamston, South Carolina on:

Date: October 16, 2013

Signature:

Vickie M. Creamer

VICKIE M. CREAMER

Sworn and Subscribed before me this

17th day of October, 2013

Notary: _____

ANGELA P. HARRINGTON
Notary Public for South Carolina
COUNTY OF ANDERSON
My Commission Expires: January 24, 2022

Application Exhibit 3

State of South Carolina
County of Anderson

Affidavit

Personally appeared before me, James Donald, who being duly sworn, says that he is the Classified Sales Manager of the *Independent-Mail* daily newspaper, published at Anderson, South Carolina a Public Notice for Duke Energy Carolinas, LLC appeared in the above newspaper in the issue of October 13, 2013.

Copy of said advertisement is attached hereto.

Signed: James Donald

Sworn to and subscribed before me

this 15th day of

Oct, 2013.

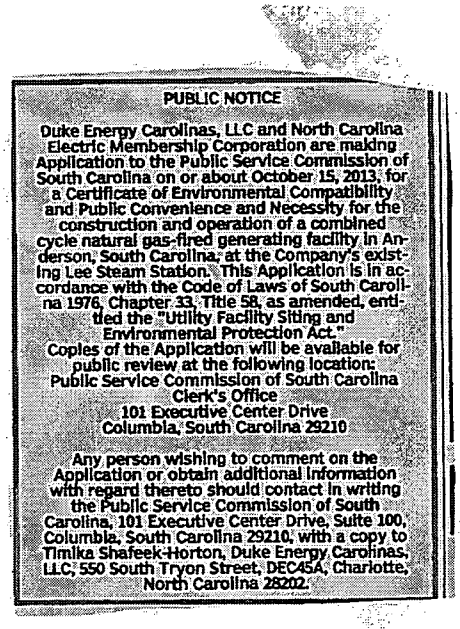
Seal

Patricia A Yeago

Notary Public for South Carolina

MY COMMISSION EXPIRES FEB. 10, 2014

My Commission Expires



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STATE OF SOUTH CAROLINA

COUNTY OF ANDERSON

AFFIDAVIT OF PUBLICATION

PERSONALLY appeared before me, Elaine Rider, who being duly sworn, says that she is editor/co-owner of the ***News-Chronicle***, a newspaper published in and of general circulation in the County of Anderson, South Carolina, that a legal notice in the form attached at the foot of this affidavit was published in the ***News-Chronicle*** in its issue(s) of Wednesday October 16, 2013

Signed: Elaine Rider
Elaine Rider, Editor/Co-owner

Sworn to before me this 16
day of October 2013

Lynn G Robinson

(Seal) My Commission Expires November 2, 2014

Notary Public for South Carolina

PUBLIC NOTICE

Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation are making Application to the Public Service Commission of South Carolina on or about October 15, 2013, for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a combined cycle natural gas-fired generating facility in Anderson, South Carolina, at the Company's existing Lee Steam Station. This Application is in accordance with the Code of Laws of South Carolina 1976, Chapter 33, Title 58, as amended, entitled the "Utility Facility Siting and Environmental Protection Act."

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(10-16c)

Application Exhibit 3

The Greenville News
greenvilleonline.com

AFFIDAVIT OF PUBLICATION

I, Autumn Moon, being the sales advertising agent for Gannett, Inc.,

do hereby testify that the attached legal advertisement was published on the following dates:

Sunday, October 13, 2013

Autumn Moon
Sale Agent for Gannett, Inc.

Carlotta G. Bell
Carlotta G. Bell
Notary Public for the State of South Carolina
My Commission Expires July 22, 2020.

CARLOTTA G. BELL NOTARY PUBLIC SOUTH CAROLINA

Post Office Box 1688 • Greenville, SC 29602
Phone: 864.298.4100

GANNETT

305 South Main Street • Greenville, SC 29601
Toll Free: 800.800.5116

Ad Text:

4816390 PUBLIC NOTICE Duke Energy Carolinas, LLC and NorthCarolina Electric Membership Corporation aremaking Application to the Public ServiceCommission of South Carolina on or aboutOctober 15, 2013, for a Certificate of Environ-mental Compatibility and Public Convenienceand Necessity for the construction andoperation of a combined cycle naturalgas-fired generating facility in Anderson,South Carolina, at the Company's existing LeeSteam Station. This Application is inaccordance with the Code of Laws of SouthCarolina 1976, Chapter 33, Title 58, asamended, entitled the "Utility Facility Sitingand Environmental Protection Act." Copies of the Application will be available forpublic review at the following location: Public Service Commission of South Carolina Clerk's Office 101 Executive Center Drive Columbia, South Carolina 29210 Any person wishing to comment on theApplication or obtain additional informationwith regard thereto should contact in writingthe Public Service Commission of SouthCarolina, 101 Executive Center Drive, Suite 100,Columbia, South Carolina 29210, with a copyto Timika Shafeek-Horton, Duke EnergyCarolinas, LLC, 550 South Tryon Street,DEC45A, Charlotte, North Carolina 28202.

THANK YOU FOR YOUR ADVERTISEMENT!
If I can be of further assistance, please call : 864-298-4100

Anderson Observer

news from people you trust

Legal Notices

Legal Notice

FRIDAY, OCTOBER 11, 2013 AT 10:23PM

PUBLIC NOTICE

Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation are making Application to the Public Service Commission of South Carolina on or about October 15, 2013, for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a combined cycle natural gas-fired generating facility in Anderson, South Carolina, at the Company's existing Lee Steam Station. This Application is in accordance with the Code of Laws of South Carolina 1976, Chapter 33, Title 58, as amended, entitled the "Utility Facility Siting and Environmental Protection Act."

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R. 056

Application Exhibit 3

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-392-E

In the Matter of:	)	
	)	
Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC	)	PETITION TO INTERVENE

The South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") (collectively, "Petitioners"), through counsel, hereby petition the Public Service Commission of South Carolina ("Commission") to intervene in the above-captioned docket, pursuant to R. 103-825 of the Commission's Rules of Practice and Procedure and the November 1, 2013 Notice of Filing and Hearing. In support of this petition, Petitioners state as follows:

1. On October 24, 2013, Duke Energy Carolinas, LLC ("DEC") and the North Carolina Electric Membership Corporation ("NCEMC") filed a joint Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a 750 megawatt combined cycle natural gas-fired generating facility at DEC's existing Lee Steam Station near Anderson, South Carolina (the "Lee Combined Cycle Project").

2. CCL is a nonprofit corporation organized under the laws of the State of South Carolina whose mission is to protect the natural environment of the South Carolina coastal plain and to enhance the quality of life in our communities by working with individuals, businesses and government to ensure balanced solutions. The principal address of CCL is P.O. Box 1765, Charleston, South Carolina 29402. CCL supports development of energy policy that is in the public interest of South Carolinians. CCL has members in South Carolina who receive electricity service from DEC and who are therefore subject to the impacts of DEC's resource decisions and capacity additions, such as the Lee Combined Cycle Project.

3. SACE is a nonprofit organization whose mission is to promote responsible energy choices that create global warming solutions and ensure clean, safe and healthy communities throughout the Southeast. The principal address of SACE is P.O. Box 1842, Knoxville, Tennessee 37901. SACE also has offices in Florida, Georgia, North Carolina and South Carolina. SACE and its members have an interest in promoting greater reliance on clean, low-cost energy. SACE has members in South Carolina who receive electricity service from DEC and who are therefore subject to the impacts of DEC's resource decisions and capacity additions, such as the Lee Combined Cycle Project.

4. A decision to add new generating capacity to the DEC system impacts Petitioners and their members, and is directly relevant to the purpose of Petitioners' organizations. Accordingly, Petitioners and their members have a direct interest in this proceeding.

5. In response to the Notice of Filing and Hearing, Petitioners provide the following information: Petitioners wish to participate in this matter as parties of record with the right of cross-examination. Petitioners are still in the process of developing their position in this docket, however, and at this time are unable to indicate the amount of time required for their presentation, if any. Petitioners may wish to present one or more witnesses to testify and present evidence at the hearing; in that event, Petitioners will pre-file testimony pursuant to the Commission's rules and the deadlines established in the November 1, 2013 Prefile Testimony Letter issued by the Clerk's Office.

6. Petitioners are represented by the following counsel in this proceeding:

J. Blanding Holman, IV
Southern Environmental Law Center
43 Broad St. – Suite 300
Charleston, SC 29401
Telephone: (843) 720-5270
Fax: (843) 720-5240
bholman@selcsc.org

WHEREFORE, Petitioners pray that they be allowed to intervene in this matter.

Respectfully submitted this 3rd day of December, 2013.

s/ J. Blanding Holman, IV
S.C. Bar No. 72260
Southern Environmental Law Center
43 Broad Street, Suite 300
Charleston, SC 29401
Telephone: (843) 720-5270
Fax: (843) 720-5240
bholman@selcsc.org

Attorney for Petitioners

BEFORE

THE PUBLIC SERVICE COMMISSION

OF

SOUTH CAROLINA

DOCKET NO. 2013-392-E - ORDER NO. 2014-__

March __, 2014

IN RE:	Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC	**JOINT PROPOSED ORDER GRANTING A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC CONVENIENCE AND NECESSITY**

I. INTRODUCTION

This matter comes before the Public Service Commission of South Carolina (the "Commission") on the Application of Duke Energy Carolinas, LLC ("Duke" or the "Company") and North Carolina Electric Membership Corporation ("NCEMC") for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("CECPCN") for the construction and operation of a 750 megawatt ("MW") combined cycle generating plant ("LCCP") in Anderson, South Carolina. Duke will own 650 MWs of the plant and NCEMC, a long-time wholesale customer of Duke, will own 100 MWs. Duke will operate all 750 MWs. Duke and NCEMC filed this application (the "Application") on October 24, 2013, and contemporaneously served it on the South Carolina Office of Regulatory Staff ("ORS"), the chief executive officers of each municipality, and the heads of each state and local governmental agency charged with the duty of protecting the environment or of planning land use in the area in

the counties in which any portion of the facility will be located as shown on Application Exhibit 1. At the request of the Company, the Commission established this docket pursuant to the provisions in S.C. Code Ann. § 58-33-10 et seq. (1976 and Supp. 2013) (the "Siting Act") and 10 S.C. Code Ann. Regs. 103-304 (Supp. 2013).

A Notice of Filing and Hearing (the "Notice") regarding the Application was prepared and issued by the Clerk's Office of the Commission (the "Clerk's Office"). By letter dated November 1, 2013 the Clerk's Office instructed Duke to publish the Notice in newspapers of general circulation in the affected areas one time on or before November 7, 2013, and to provide proof of such publication to the Commission by December 3, 2013. The Company complied with the instructions received from the Clerk's Office by timely publishing the Notice and thereafter filing an affidavit of publication attesting to publication as directed by the Clerk's Office.

The Notice established December 3, 2013, as the date by which interested parties or entities could timely file petitions to intervene or present their views in writing to the Commission. Petitions to intervene were filed by Southern Alliance for Clean Energy ("SACE"); South Carolina Coastal Conservation League ("SCCCL"); Electric Cooperatives of South Carolina, Incorporated ("Cooperatives"); Central Electric Power Cooperative, Incorporated ("Central Electric"); and Invenergy Thermal Development LLC ("Invenergy"). Duke filed an objection to Invenergy's petition to intervene for lack of standing and Invenergy, represented by Richard L. Whitt, Esquire, replied. The Commission denied Invenergy's petition for lack of standing, but granted Invenergy the opportunity to renew its petition. Invenergy did so, to which Duke again renewed its objection. The Commission once again denied Invenergy's petition to intervene for lack of standing during the preliminary matters at the opening of this

hearing on January 7, 2014. . . All other petitions to intervene were granted; however, on December 10, 2013, the Cooperatives and Central Electric represented by Charles L.A. Terreni, Esquire and John H. Tiencken, Esquire, filed a request to withdraw their intervention which was granted by the Commission.

ORS is automatically a party to the certification proceeding in this docket pursuant to S.C. Code Ann. §§ 58-4-10(B) (Supp. 2013) and 58-33-140(1)(b) (Supp. 2013). The South Carolina Department of Health and Environmental Control, South Carolina Department of Natural Resources, and South Carolina Department of Parks, Recreation and Tourism were listed as parties based on the provisions of S.C. Code Ann. § 58-33-140 but did not participate in the certification proceeding.

On January 3, 2014, ORS, Duke, and NCEMC filed a Settlement Agreement wherein ORS endorsed the Application of Duke and NCEMC.

The Commission convened a formal hearing in this matter on January 7, 2014 with the Honorable G. O'Neal Hamilton, Chairman, presiding to address preliminary procedural matters. Duke was represented by Timika Shafeek-Horton, Esquire. ORS was represented by Nanette S. Edwards, Esquire and Shannon Bowyer Hudson, Esquire. NCEMC was represented by Richard M. Feathers, Esquire and Len S. Anthony, Esquire. SACE and SCCCL were represented by J. Blanding Holman, IV, Esquire and Gudrun E. Thompson, Esquire. Counsel for the other parties of record did not enter an appearance at the hearing.

The Settlement Agreement was entered as Hearing Exhibit 1 and is attached to this Order as Order Exhibit 1. Afterwards, the Commission recessed the hearing and requested that the parties talk and put forth a date to reconvene. By Directive dated January 10, 2014, Hearing

Officer Randal Dong noted that all parties agreed to February 4, 2014 and set this as the date to reconvene the hearing.

The hearing reconvened on February 4, 2014. The Commission heard testimony from Duke, SACE, SCCCL, and ORS witnesses. NCEMC received permission from the Hearing Officer for Michael Burnette's testimony to be stipulated into the record without Mr. Burnette having to appear at the hearing. Duke presented the testimonies of Clark Gillespy, President of Duke South Carolina; Mark Landseidel, Director of Project Development and Initiation in the Project Management and Construction Department of Duke; and Janice Hager (both direct and rebuttal testimony), Vice President, Integrated Resource Planning and Analytics for Duke.[1] Duke agreed before the February 4th hearing not to seek to have witness Jon Summerville's rebuttal testimony or exhibits admitted into evidence; therefore, Mr. Summerville was excused from the hearing. SACE and SCCCL collectively presented the direct and surrebuttal testimonies of Hamilton Davis, SCCCL Energy and Climate Director, and John D. Wilson, SACE Director of Research.[2] ORS presented the direct testimony of Gene G. Soult, ORS Senior Research Analyst. The testimonies and exhibits of the witnesses were entered into the record of the case without objection. No public witnesses testified.

For the reasons set forth below, the Commission grants the relief requested by Duke and NCEMC in the Application and approves the Settlement Agreement.

[1] Hearing Exhibit 2 contains Ms. Hager's two prefiled exhibits. Hearing Exhibit 3 is a confidential late-filed exhibit containing pages from the Generation Reserve Margin Study discussed in Ms. Hager's testimony. Hearing Exhibit 4 is Mr. Landseidel's six prefiled exhibits. Hearing Exhibit 5 contains Ms. Hager's and Mr. Landseidel's confidential prefiled Exhibits 1 and 3, respectively.

[2] Hearing Exhibit 6 contains the two exhibits from the joint testimony of Mr. Davis and Mr. Wilson. Hearing Exhibit 7 is a late-filed exhibit from SACE and SCCCL summarizing projects in which renewable energy has been paired with or supplanted fossil fuel plants.

II. STATUTORY STANDARDS

No person shall commence to construct a major utility facility without first having obtained a CECPCN issued with respect to such facility by the Commission. S.C. Code Ann. § 58-33-110. "Person" is defined to include any group, firm, partnership, corporation, cooperative, association, government subdivision, government agency, local government, municipality, and any other organization, or any combination of any of the above, but does not include the South Carolina Public Service Authority. S.C. Code Ann. § 58-33-20(5). "Major utility facility" is defined as an electric generating plant and associated facilities designed for, or capable of, operation at a capacity of more than 75 MWs. S.C. Code Ann. § 58-33-20(2)(a). The Siting Act requires that before granting a CECPCN for the construction, operation and maintenance of a major utility facility, the Commission is required to make six statutorily-mandated findings. Those findings concern:

A. The basis of the need for the facility. S.C. Code Ann. § 58-33-160(1)(a);

B. The nature of the probable environmental impact of the facility. S.C. Code Ann. § 58-33-160(1)(b);

C. Whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations. S.C. Code Ann. § 58-33-160(1)(c);

D. Whether the facilities will serve the interests of system economy and reliability. S.C. Code Ann. § 58-33-160(1)(d);

E. Whether there is reasonable assurance that the proposed facility will conform to applicable state and local laws and regulations issued thereunder, including any

allowable variance provisions therein, except that the Commission may refuse to apply any local law or local regulation that is unreasonably restrictive. S.C. Code Ann. § 58-33-160(1)(e); and

F. Whether public convenience and necessity require the construction of the facility. S.C. Code Ann. § 58-33-160(1)(f).

Duke is a Commission-regulated investor owned utility with approximately 540,000 South Carolina customers. Duke has a total of 2.4 million retail customers in its service area of North and South Carolina. NCEMC is a generation and transmission cooperative, a not-for-profit membership corporation created under Chapter 117 of the North Carolina General Statutes. It is a load serving electric supplier in North Carolina providing full and partial requirements, wholesale power and other services to its member organizations, which comprise 25 of the 26 distribution electric cooperatives based in North Carolina. Both Duke and NCEMC are defined as a "person" under the Siting Act and the LCCP is a major utility facility under the Siting Act with its capacity of 750 MWs. NCEMC's stipulated testimony of Mr. Michael Burnette, Senior Vice President, Chief Operating Officer, stated that NCEMC relied on Duke, as the operator and majority owner of the LCCP, to provide detailed information to the Commission on the project and to demonstrate that the public convenience and necessity requires construction of the LCCP.

The Commission has considered each of the above statutory standards in light of the evidence on the record in this proceeding along with the Settlement Agreement of Duke, NCEMC and ORS. On that basis, the Commission makes findings as set forth below:

III. FACTS AND LEGAL DETERMINATIONS

A. The Need for the Facilities, System Economy and Reliability, and Public Convenience and Necessity [S.C. Code Ann. §§ 58-33-160(1)(a),(d), and (f)]

The basis for the need for these facilities is Duke's growth in demand. As Mr. Gillespy testified, the Company's 2013 Integrated Resource Plan ("IRP") shows expected growth in demand of approximately 1.5 percent per year over the 15-year planning period. The 1.5% growth includes the impact of energy efficiency. Beginning in 2017, the Company needs an additional 317 MW to meet its projected load requirements and 14.5% minimum planning reserve. The Company's analysis shows that the best way to satisfy these needs in the short term is to retire approximately 1,700 MWs of coal-fired units and 350 MWs of aging natural gas-fired units, convert one 170 MW coal unit (Lee Steam Station Unit 3) to natural gas, and build the LCCP, which represents a substantial long-term investment to the energy infrastructure in South Carolina and a significant commitment to the area. By 2018, without the LCCP, the Company's resource need grows to 573 MWs.

In support of the LCCP, Ms. Hager testified about the process by which the Company developed the costs of other resources; developed the prices of fuels, specifically gas, and emission allowances; analyzed technologies; analyzed demand side management and energy efficiency programs; considered the impact of a renewable standard; and treated purchased power programs. In addition, an analysis was performed utilizing detailed system planning models to determine the most economic and reliable portfolio. The analyses consistently demonstrated that generic combined cycle generation was preferred to meet the 2017 need.

In sum, the analyses used to produce the 2013 IRP designated the LCCP as the least-cost

resource for the Company's need in 2017 and 2018. Mr. Gillepsy and Ms. Hager confirmed that Duke would be seeking a CECPCN to build the LCCP to meet system demand whether or not it had a partner and whether Duke owns 650 MWs or 750 MWs of the LCCP.

Ms. Hager testified that Duke issued a request for proposal ("RFP") on October 26, 2012 for up to 700 MW of non-peaking (i.e., base or intermediate) capacity beginning either June 1, 2016 and/or June 1, 2017 for fifteen to twenty years. Duke engaged a third-party administrator to receive the bids, serve as an intermediary with bidders, and review the Company's analytical methodology. Thirty-four bids from twelve different bidders were received. Duke and its independent third party evaluator carefully considered all bids and concluded that the LCCP, whether fully owned by Duke or shared with NCEMC, is the lowest total cost project for customers.

SCCCL and SACE did not oppose the LCCP; however, they suggested that there were opportunities for Duke to delay the LCCP's in-service date until 2018 rather than 2017 as proposed in the Application. In support of its position, SCCCL and SACE testified that Duke had incorrectly calculated its reserve margin and if the reserve margin were calculated as SCCCL and SACE suggested, it would confirm 2018 as the appropriate in-service date. Ms. Hager disagreed that Duke miscalculated its reserve margin; however, Ms. Hager agreed there are opportunities for a 2018 in-service date. Notwithstanding, the opportunities are not certain, and the Company needs the flexibility of having a 2017 in-service date as an option. Ms. Hager testified that if the in-service date could be cost effectively deferred to 2018 without harming reliability, then the Company would do so. The Commission accepts the Company's request for flexibility and agrees the Company should have the flexibility, based on system needs, of a 2017 or 2018 expected commercial operation date.

NCEMC's stipulated testimony of Mr. Burnette stated that the LCCP will allow it to maintain a diversified, cost effective portfolio of resources to reliably meet its needs. Specifically, the reasons NCEMC wishes to participate in the LCCP are: 1) maintaining a desirable alignment of owned versus contracted resources; 2) extending the anticipated "lifespan" of NCEMC's power supply portfolio; 3) managing NCEMC's fuel diversity; and 4) projected financial value. Mr. Burnette also stated these four benefits coincide with the need to address projected load growth, the expiration of certain contract resources, and the requirement for resources that provide value via hedging and economic use.

ORS witness, Mr. Soult, testified that public convenience and necessity will be served by the LCCP. His testimony further echoed the Company's intent. That is, the Company intends to build an efficient and reliable plant that will be economical and minimize the environmental impact, while strengthening the reliability of electric generation and the transmission grid.

In considering the need for the LCCP facility, system economy and reliability, and public convenience and necessity, the Commission finds that the statutory standards of S.C. Code Ann. §§ 58-33-160(1)(a),(d), and (f) are fully met by the evidence of record here.

B. The Nature and Justification of the Probable Environmental Impact of the LCCP
[S.C. Code Ann. § 58-33-160(1)(b)]

The Siting Act also requires the Commission to evaluate the nature of the probable environmental impact from the LCCP and to determine whether the impact upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.

Mr. Landseidel testified on behalf of the Company with respect to the environmental impact. He testified the Company's 2011 siting study identified the Lee Steam Station site as the

best site for a new combined cycle generating plant pending further review of water supply and transmission right of way. The study was updated in 2013 specifically for combined cycle generation that could be ready for 2015 construction activity in support of a 2017 commercial operation date. It also reviewed the water supply and transmission right of way. As Mr. Landseidel testified, the study again identified the Lee Steam Station site as the best option for the new combined cycle generation. The site offers inherent benefits as the new facility would be constructed adjacent to an existing generating station where critical infrastructure such as available land, water supply, and transmission facilities are already in place. The natural gas interstate pipeline is located approximately one mile from the site. The location helps reduce the overall cost and minimizes environmental impacts.

A cultural resources consultant was engaged in 2012 to conduct a cultural resources survey. Based on the survey, the consultant determined that no archaeological sites within a one-mile radius of the site justified national register of historic places National Historical Preservation Act status. The report to the South Carolina State Historic Preservation Office, which is currently pending, recommends archaeological clearance for the project.

Mr. Landseidel testified that the LCCP will have minimal effects on the visual resources and scenic quality of the area surrounding the proposed site. To accommodate interconnection to the electric transmission grid, a new 100 kilovolt ("kV") switchyard will be constructed. All new transmission facilities will be located on existing Company property. No new rights of way or additional property will be required. The LCCP will feature state-of-the-art environmental control technology for natural gas combined cycle generation, and will employ a wet cooling tower for steam turbine condenser cooling which will minimize both the intake and discharge

impacts to the Saluda River. Once Lee Steam Station Units 1 and 2 are retired, the thermal impacts to the Saluda River are expected to be greatly reduced.

The ORS's witness in this matter, Mr. Gene G. Soult, supported Mr. Landseidel's conclusions that the LCCP will not result in any significant impacts to the environment.

Lastly, it is worth noting that the South Carolina Department of Health and Environmental Control, the South Carolina Department of Natural Resources, and the South Carolina Department of Parks, Recreation and Tourism are parties to this case and did not appear to put forth contrary evidence.

The Commission finds that the evidence Duke and ORS presented through their witnesses as to these matters is credible and persuasive. Based on the evidence of record, the Commission finds that the environmental impacts of the LCCP have been appropriately evaluated, and described. Accordingly, the Commission finds that the statutory standards of S.C. Code Ann. § 58-33-160(1)(b) are fully met by the evidence of record here.

C. Impact of the Facility Upon the Environment is Justified, Considering the State of Available Technology and the Nature and Economics of the Various Alternatives and other Pertinent Considerations

[S.C. Code Ann. § 58-33-160(1)(c)]

In looking at whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations pursuant to S.C. Code Ann. § 58-33-160(1)(c), we incorporate the discussion from the section above and now turn to the testimony of Hamilton Davis and John Wilson of SCCCL and SACE. Mr. Davis and Mr. Wilson advocate that a solar facility be built in conjunction with the LCCP. Specifically, SCCCL and SACE propose that the

Commission require DEC to include a RFP for a solar project that would have to be accepted only if the bid came in at or lower than the cost of operating the LCCP.

In the joint direct testimony of Mr. Davis and Mr. Wilson, they advocate for a 375 MW solar facility to be located at or near the Lee site. Mr. Davis testified that when conditions exist for economic solar energy production, the solar energy could offset generation from the LCCP. This Commission appreciates the desire for renewable sources of energy; however, in this instance, the need is for a specified level of capacity in conjunction with energy production and the two are not synonymous. Mr. Soult testified the Company is expecting the LCCP to produce sufficient electricity to meet base or intermediate load requirements at an expected capacity factor between 50% to 75% for a period of 20 to 30 years. Solar energy has a much lower operating capacity factor due to its limited availability, making it not an optimal source for base or intermediate load. This Commission understands SCCCL's and SACE's idea of having solar generation in lieu of LCCP electricity generation when solar conditions are right; however, the LCCP could not be built with lower than the Company-needed 650 MWs since the Company has demonstrated a need for this additional capacity in the 2017-2018 time frame. Singularly, the reliability and operating capacity of solar is inherently below the required need; it is insufficient and, therefore, not appropriate to meet the capacity requirements for a base or intermediate plant. To meet the demonstrated need of the Company and the request of SACE and SCCCL, a full 650 MWs from the LCCP would still be needed and any MWs generated from solar would be in addition to the 650 MW capacity requirements.

When SCCCL and SACE were asked about the appropriateness and cost implications to ratepayers of approving more generating capacity than the Company states it needs, Mr. Davis responded by saying the additional solar generation would be complimentary to and not in

addition to the capacity offered by the LCCP. The Commission disagrees since capital investment would be needed to build the solar facility. As discussed earlier, a solar generating facility cannot replace the needed MWs from the LCCP. We do not think it is good practice for this Commission to grant permission for the Company to build or secure more capacity than is needed as this could ultimately result in customers paying more than necessary for electric service. It is also questionable whether this would be permitted under the Siting Act given that such a grant of permission would be enlarging the scope of the Application without notice to the public. Lastly, it is also questionable whether this Commission can change the type of facility being requested by the Company. Here, SACE and SCCCL request that an RFP be required for the consideration of solar to be added to the LCCP. The Commission views this as requiring the Company to materially change its Application.

The Company has demonstrated it has conducted a thorough review in determining that the LCCP is best to meet its future electricity generating needs. This Commission finds the evidence to be substantial and declines to require the Company to do further. It is noted; however, that the Company can always voluntarily submit an RFP to consider solar generation without this Commission requiring it to do so.

Returning to the consideration of whether the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations, the Commission finds that the statutory standards of S.C. Code Ann. § 58-33-160(1)(c) are fully met by the evidence of record here.

D. Assurance that the Proposed Facilities Will Conform to Applicable State and Local Laws and Regulations [S.C. Code Ann. § 58-33-160(1)(e)]

The Siting Act requires the Commission to determine whether there is reasonable assurance that the proposed facilities will conform to applicable state and local laws and regulations issued thereunder. S.C. Code Ann. § 58-33-160(1)(e). The LCCP will be constructed and operated in conformity with all state and local regulations.

E. Conclusion as to the Public Convenience and Necessity of the LCCP

In conclusion, the proposed LCCP represents a feasible, appropriate and cost-effective means for meeting demand and maintaining system reliability. For the reasons outlined herein, the Commission finds that the public convenience and necessity supports issuance of a Certificate for the construction and operation of the LCCP.

IV. FINDINGS

NOW THEREFORE, based upon the foregoing, IT IS HEREBY DECLARED AND ORDERED THAT:

1. Duke and NCEMC are hereby granted a CECPCN for the construction and operation of the LCCP.
2. The Settlement Agreement attached hereto as Order Exhibit No. 1, which was accepted into the record without objection at the hearing, is incorporated into and made a part of this Order and approved as just and reasonable.
3. The basis of the need for the LCCP to meet increasing demand has been shown.
4. The nature of the probable environmental impact from construction and operation of the LCCP, and considering the state of available technology and the nature and

economics of the various alternatives and other pertinent considerations, shows this impact is justified.

5. The LCCP will serve the interests of system economy in the most economical and reliable means.

6. All South Carolina, Commission, and local government regulations and laws arising from matters set forth in the Application will be followed.

7. Public convenience and necessity require the construction of the LCCP in the 2017 or 2018 timeframe.

8. This Order shall remain in full force and effect until further order of the Commission.

BY ORDER OF THE COMMISSION:

Honorable G. O'Neal Hamilton, Chairman

ATTEST:

Nikiya "Nikki" Hall, Vice Chairman

(SEAL)

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-392-E

In the Matter of:	)	
	)	
Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC	)	**PROPOSED ORDER GRANTING CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC CONVENIENCE AND NECESSITY WITH CONDITIONS**

I. INTRODUCTION

This matter comes before the Public Service Commission of South Carolina (the "Commission") on the October 24, 2013 joint Application by Duke Energy Carolinas, LLC ("DEC") and the North Carolina Electric Membership Corporation ("NCEMC") for a Certificate of Environmental Compatibility and Public Convenience and Necessity, as required under the Utility Facility Siting and Environmental Protection Act, S.C. Code Ann. Section 58-33-10, *et seq.*, for the for the construction and operation of a 750 megawatt combined cycle natural gas-fired generating facility at DEC's existing Lee Steam Station near Anderson, South Carolina (the "Lee Combined Cycle Project").

Prior to the submission of the Application, DEC published notice of its intent to apply for a Certificate under the Siting Act, as the provisions of Section 58-33-120(3) require. In addition, the Application included certification that DEC had served a copy of

the Application on those governmental officials and such other persons as Section 58- 33-120(2) of the Siting Act requires.

By letter dated November 1, 2013, the Clerk's Office required DEC to publish a prepared Notice of Filing and Hearing which described the nature of the Application and advised all interested parties of the manner in which they might intervene or otherwise participate in the proceeding. DEC submitted an affidavit which demonstrated compliance with the Clerk's instructions. Statutory parties are the South Carolina Office of Regulatory Staff ("ORS"), the South Carolina Department of Health and Environmental Control ("DHEC"), the South Carolina Department of Natural Resources ("DNR") and the South Carolina Department of Parks, Recreation, and Tourism (the "Department"). Petitions to intervene were filed by the South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE"); Invenergy Thermal Development, LLC ("Invenergy"); and the Electric Cooperatives of South Carolina, Inc. and Central Electric Power Cooperative, Inc. (the "Co-ops"). The Co-ops filed a request to withdraw their petition to intervene, which was granted by the Commission on December 18, 2013. Also on December 18, 2013, the Commission denied Invenergy's petition to intervene upon objection by DEC and NCEMC. On January 2, 2014, Invenergy renewed its petition to intervene. A Settlement Agreement between DEC, NCEMC and ORS was filed on January 3, 2014.

On January 7, 2014, in accordance with Section 58-33-130 of the Siting Act and with the Commission's Rules of Practice and Procedure, the Commission commenced the evidentiary hearing in this proceeding. On the oral motion of DEC, NCEMC and ORS, the Commission moved those parties' Settlement Agreement into the record. The

Commission also denied Invenergy's renewed petition to intervene. The Commission then recessed the hearing, which was reconvened on February 4, 2014. DEC was represented by Timika Shafeek-Horton. NCEMC was represented by Len S. Anthony and Richard M. Feathers. CCL and SACE were represented by J. Blanding Holman IV and Gudrun Elise Thompson. ORS was represented by Nanette S. Edwards and Shannon Bowyer Hudson. DHEC, DNR and the Department did not participate in the hearing.

DEC presented the testimony of Clark S. Gillespy, Janice D. Hager and Mark E. Landseidel. NCEMC presented the testimony of Michael W. Burnette, which was stipulated into the record. CCL and SACE presented the joint testimony of T. Hamilton Davis IV and John D. Wilson. ORS presented the testimony of Gene G. Soult.

II. FINDINGS, CONCLUSIONS AND DISCUSSION

Based upon the Application, the Settlement Agreement, the testimony, and exhibits received into evidence at the hearing and the entire record of these proceedings, the Commission makes the following findings of fact and conclusions of law:

1. DEC is a limited liability company, organized under the laws of the State of North Carolina, that supplies retail electric service to approximately 2.4 million customers in its service area, including approximately 540,000 customers in South Carolina.

2. NCEMC is a generation and transmission cooperative, a not-for-profit membership corporation under North Carolina, whose membership cooperatives use power supplied by NCEMC to provide retail electric service to their customers.

3. The proposed facility is a 750 MW natural gas-fired combined cycle electrical generating plant. The facility would be constructed at the site of DEC's existing Lee Steam Station in Anderson County, South Carolina.

4. S.C. Code Ann. Section 58-33-10, *et seq.*, the Utility Facility Siting and Environmental Protection Act, governs the siting of electric utility facilities in South Carolina. Section 58-33-160 requires this Commission to render a decision upon the record either granting or denying the application as filed, or granting it

upon such terms, conditions or modifications of the construction, operation or maintenance of the major utility facility as the Commission may deem appropriate.

5. Section 58-33-160 also states that the Commission may not grant a certificate for the construction, operation and maintenance of a major utility facility, either as proposed or as modified by the Commission, unless it shall find and determine:

(a) The basis of the need for the facility.

(b) The nature of the probable environmental impact.

(c) That the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.

(d) That the facilities will serve the interests of system economy and reliability.

(e) That there is reasonable assurance that the proposed facility will conform to applicable State and local laws and regulations issued thereunder, including any allowable variance provisions therein, except that the Commission may refuse to apply any local law or local regulation if it finds that, as applied to the proposed facility, such law or regulation is unreasonably restrictive in view of the existing technology, or of factors of cost or economics or of the needs of consumers whether located inside or outside of the directly affected government subdivisions.

(f) That public convenience and necessity require the construction of the facility.

6. DEC has failed to demonstrate that the Lee Combined Cycle Project is needed in 2017. However, the Commission finds that DEC does have a sufficient need for new capacity in 2018 to justify certification of the Lee Combined Cycle Project as conditioned below.

DEC states that without the addition of the Lee Combined Cycle Project, the Company will need 317 MW of capacity to meet its minimum target planning reserve margin of 14.5%. DEC witnesses Gillespy and Hager testified regarding DEC's need for the facility. Witness Gillespy stated that DEC needs an additional 317 megawatts ("MW") of capacity in 2017 to meet its projected load requirements and 14.5% minimum planning reserve. Tr. Vol. 2 at 38:5-6. Witness Hager testified that the 750 MW unit

(whether fully owned or shared with NCEMC) is the best option for meeting that need. Tr. Vol. 2 at 74:10-11. DEC's conclusion was based on analysis conducted in preparation of the Company's 2013 Integrated Resource Plan ("IRP"), Tr. Vol. 2 at 68:20-69:1, Hrg. Ex. 5, as well as a more detailed analysis, Tr. Vol. 2 at 69:1-6.

CCL-SACE witnesses Davis and Wilson presented evidence that DEC does not in fact need 317 MW of additional capacity in 2017, citing the treatment of DEC demand response programs in calculating the Company's planning reserve margin. Ms. Hager testified that it was appropriate for DEC to treat demand response as a resource with its own reserve requirement, Tr. Vol. 2 at 80:7-9. Mr. Davis and Mr. Wilson, in contrast, testified that DEC should treat demand response programs that DEC is able to control or dispatch as adjustments to net internal demand, consistent with the North Carolina Utilities Commission's October 14, 2013 order in Docket No. E-100, Sub 137. Tr. Vol. 2 at 189:19-190:4. Witnesses Davis and Wilson also testified that this treatment was consistent with North American Reliability Corporation guidance and a recent order of the North Carolina Utilities Commission ("NCUC"). Tr. Vol. 2 at 189:19-190:4. According to their testimony, treatment of DEC's demand response program as a dispatchable resource reduces DEC's projected capacity shortfall, such that it needs only 214 MW to preserve adequate reserve margin in 2017. Tr. Vol. 2 at 191:5-8. Davis and Wilson testified that DEC could make market power purchases if needed to satisfy the 214 MW shortfall in 2017 and defer expenditure on the proposed gas unit until 2018. Tr. Vol. 2 at 187:27-29.

In rebuttal, Ms. Hager testified that if demand response resources are treated as reduction in load, as recommended by CCL and SACE, the Company would need to raise

its planning reserve margin to 15.25%, Tr. Vol. 2 at 81:15-17, resulting in a negligible diminution of the need for new capacity, *id.* at 82:6-7. In support of this assertion, Ms. Hager pointed to the Company's most recent reserve margin study conducted by Astrape Consulting, Hrg. Ex. 3. That study, however, does not contain any explicit support for Ms. Hager's assertion that treating demand response as a reduction in load would require raising the Company's reserve margin to 15.25%.

Ms. Hager also testified that under an arrangement to share capacity with Duke Energy Progress, DEC could defer the unit to 2018; however, the companies are not yet authorized to share capacity. Tr. Vol. 2 at 78:7-11. The Commission concludes that DEC should pursue the necessary regulatory approvals from this Commission, the NCUC and the Federal Energy Regulatory Commission in order to defer the need for new capacity.

The Commission finds that DEC has not demonstrated a need for 317 MW of new capacity in 2017, which is the Company's purported justification for the Lee Combined Cycle Project. DEC could meet the small additional capacity need it faces in 2017 with market power purchases or the solar facility discussed below.

Witness Gillespy testified that DEC's resource need grows to an additional 573 MW of capacity in 2018. Tr. Vol. 2 at 38:5-6. Adjusting this number downward to reflect the treatment of demand response as a load adjustment, that capacity gap would be 470 MW in 2018. Either capacity number is too large to be economically met with purchased power; therefore, the Commission finds that DEC has demonstrated a need for a combined cycle resource in 2018, which may be met by the Lee Combined Cycle Project. Accordingly, the Commission will condition issuance of a Certificate on an in-service date of 2018.

7. DEC and DEP are not adequately pursuing cost-effective energy efficiency and renewable energy alternatives that could defer or avoid entirely their projected need for several more major generation facilities like the Lee Combined Cycle Project.

The Lee Combined Cycle Project is the first of four to five natural gas combined-cycle ("NGCC") plants that the DEC and DEP 2013 IRPs project over the next decade. Tr. Vol. 2 at 193:1-4. Ms. Hager testified that adding new NGCC generation would add costs that customers would be asked to bear, Tr. Vol. 2 at 99:16-17, and agreed that delaying or avoiding some of that capacity could save ratepayers money, *id.* at 99:25-100:4. Ms. Hager declined to disclose publicly an estimated construction cost for the proposed Lee Combined Cycle Project, which was filed under seal. Tr. Vol. 98:23-24; Hrg. Ex. 5. Mr. Lanseidel, however, agreed that $673 million "sound[ed] about right" as the construction cost of a similar combined cycle project at DEC's Dan River plant. Tr. Vol. 2 at 167:21-168:3. The South Carolina jurisdictional allocation for the costs of the Dan River plant was $160 million, which the Company was authorized to recover in its most recent general rate case. Order No. 2013-661, Docket No. 2013-59-E.

DEC's South Carolina ratepayers stand to be asked to contribute hundreds of millions of dollars for the proposed new gas facilities. While it is unlikely that all of the forecast natural gas combined cycle units can be avoided through energy efficiency alone, aggressive but achievable levels of energy efficiency could allow DEC to avoid at least 900 MW in needed capacity by 2022. Tr. Vol. 2 at 193:10-12. In its 2013 IRP, DEC projects energy efficiency programs will reduce demand and load by about 5% by 2022, or just over 900 MW. Tr. Vol. 2 at 193:16-17. CCL and SACE recommend that DEC develop energy efficiency programs designed to achieve at least 1% retail savings per year, or roughly 10% reduction in demand and load over a 10-year period, Tr. Vol. 2

at 193:13-16. Higher levels of energy savings would allow the Company to defer or avoid the need for some of the planned new NGCC capacity in its 2013 IRP, Tr. Vol. 2 at 193:18-194:2, saving ratepayers millions of dollars in capital and operating costs.

The 2013 IRP filed in support of the Application, Hrg. Ex. 5, does not contain a sufficient evaluation of renewable energy resources to permit a determination of how much of the company's future needs could be met with these resources. Ms. Hager confirmed that the Company's IRP model could pick from various supply-side resource options, Tr. Vol. 2 at 109:20-23, but that DEC did not allow its capacity expansion model to select solar or energy efficiency resources. Tr. Vol. 2 at 111:24-2; *id.* at 139:5-9.

8. A more robust integrated resource planning and review process could ensure that DEC and DEP exhaust opportunities to defer or avoid additional new natural gas combined-cycle generation with cost-effective energy efficiency and renewable energy resources.

As an electric utility regulated by the Commission, DEC is subject to the Commission's procedures and requirements regarding integrated resource planning. S.C. Code Ann. Sections 58-3-140; 58-37-40. As the Commission has explained,

> The objective of the IRP process is the development of a plan that results in the minimization of the long run total costs of the utility's overall system and produces the least cost to the consumer consistent with the availability of an adequate and reliable supply of electricity while maintaining system flexibility and considering environmental impacts.

Order No. 91-1002, Appendix A at 1.

The Commission has also recognized that "the IRP process is an important planning tool for the Companies and the Commission," and that "a transparent and open process in this regard allows for increased sharing of information and ideas, which is valuable to all interested parties." Order No. 2012-97 at 2. Ms. Hager testified that one reason IRPs are important is that they serve as the basis for the Company's decision to

build new generating capacity, Tr. Vol. 2 at 112:6-10, and certification proceedings such as this one, Tr. Vol. 109:8-11. Ms. Hager further testified, "I think the Commission should pay close attention to the company's IRPs." Tr. Vol. 2 at 112:18-19.

As pointed out by witnesses Davis and Wilson, excess generation capacity can compromise opportunities for increased investment in lower-cost energy efficiency and lower-risk renewable energy resources, and result in higher rates than necessary. Tr. Vol. 2 at 196:5-8. Accordingly, CCL and SACE recommended that the Commission carefully scrutinize the electric utility IRPs to ensure that the state's utilities have exhausted lower-cost, lower-risk resources before building new fossil or nuclear generation. Tr. Vol. 2 at 196:13-17.

Considering the importance of the IRP process in minimizing costs to ratepayers and ensuring system reliability, the Commission requests that parties to this docket and other interested parties submit comments in the upcoming IRP dockets for the electric utilities regulated by the Commission with any recommended changes regarding the scope, practices and review process for IRPs.

9. As a fuel-free resource that could complement natural gas combined cycle generation, solar has the potential to offset some of the operational costs of the Lee Combined Cycle Project. To offer its ratepayers these potential cost savings, DEC should issue a RFP for up to 375 MW of solar capacity in its South Carolina service territory.

Solar and natural gas are a logical pairing due to the operational flexibility of natural gas combined-cycle technology and the fuel-free nature of solar energy. CCL and SACE cited several examples of solar projects that have been linked to natural gas generation, either co-located at the same site or as part of a resource portfolio. Hrg. Ex. 7.

The Siemens F Class technology proposed for the Lee Combined Cycle Project has demonstrated operational flexibility including multiple starts, minimum load capability and minimum start times. Landseidel, Tr. Vol. 2 at 154:1-3. The technology and configuration selected by the Company provide significant capability to ramp the plant up and down quickly, as well as come to relatively low minimum loads. Tr. Vol. 2 at 163:19-23. DEC witness Landseidel testified that "the intermediate capability of the plant allows it to fluctuate as needed to meet the system needs," which could vary for reasons "including intermittent power sources," such as solar. Tr. Vol. 2 at 166:5-8. Mr. Landseidel agreed that operating the unit at a lower output would reduce water use, Tr. Vol. 2 at 166:23, as well as air emissions, *id.* at 167:18, but would not decrease the facility's useful life since the plant is designed with the capability for cycling and operation at minimum loads, *id.* at 165:7-13.

Mr. Davis and Mr. Wilson estimated that operating costs, mainly fuel, would make up an estimated 80-90 percent of the long-term cost of the Lee Combined Cycle Project borne by ratepayers. Tr. Vol. 2 at 197:7-9. Approximately 30 percent of the operating costs of DEC's share of the unit will be allocated to South Carolina ratepayers. Tr. Vol. 2 at 42:25-43:3. If natural gas prices increase, then those customers would pay more for the electricity produced by a natural gas plant. Hager, Tr. Vol. 2 at 117:25-118:4.

To offset the operating costs of the Lee Combined Cycle Project, CCL and SACE recommended that the project include a cost-effective solar component. First, DEC would use the 30-year forecast of fuel and other variable costs for the Lee Combined Cycle Project to develop a benchmark price per kilowatt for production at the gas unit. If

a solar component could deliver power at or lower than that price, customers would be indifferent to or would benefit from use of the alternative power. Tr. Vol. 2 at 199:5-7. DEC would issue a Request for Proposals ("RFP") for up to 375 MW of solar capacity. Tr. Vol. 2 at 203:6-9. Solar bids would only be accepted if they come in below the benchmark price; i.e., lower than the cost of operating the Lee Combined Cycle Project. Tr. Vol. 2 at 180:20-24. The solar project recommended by CCL and SACE thus would not add costs for ratepayers and would, moreover, provide a hedge against gas price upside volatility; as Mr. Davis testified, it "would save ratepayers money if solar costs go down and gas prices go up." Tr. Vol. 2 at 180:24-181:1.

Ms. Hager explained that as the cost of one resource goes up, the Company turns to another resource, Tr. Vol. 2 at 118:4-7; she agreed that instead of dispatching the natural gas plant, the Company could dispatch a type of generating facility that had lower fuel costs, *id.* at 118:9-12. Since solar generation, in contrast to natural gas generation, has no fuel costs, Tr. Vol. 2 at 118:13-14, requiring that DEC implement a solar component with no risk to ratepayers is a prudent, appropriate, and necessary condition of the certification. This measure will reduce the facility's impact on the environment to a level "justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code Ann. § 58-33-160(c). This measure will also "serve the interests of system economy and reliability." *Id.* § 58-33-160(d).

As recognized by DEC in its 2013 IRP, Hrg. Ex 5, "Solar energy is an important part of the energy future for the Carolinas." The Commission agrees, and finds that it is

appropriate to require DEC to issue a RFP for up to 375 MW of solar capacity, as detailed in the ordering paragraphs below.

III. CONCLUSION AND ORDER

After hearing the testimony of the witnesses and based on the Commission's review of the Application, hearing transcript and exhibits,

IT IS THEREFORE ORDERED THAT:

1. A Certificate of Environmental Compatibility and Public Convenience and Necessity for construction of the Lee Combined Cycle Project is hereby granted, subject to the following conditions.

2. The Lee Combined Cycle Project shall not be placed into service before 2018.

3. DEC shall issue a Request for Proposals for up to 375 MW of solar capacity, according to the following procedures:
   a. No later than June 1, 2014, DEC shall file with the Commission a proposed price per kilowatt ("kW"), based on DEC's 30-year forecast of fuel and other variable operating costs for the Lee Combined Cycle Project.
   b. No later than four months after approval of the benchmark price per kW by the Commission, the Company shall publish a RFP for solar capacity at or in close proximity to the Lee site of up to 375 MW. The RFP shall include specifications to ensure that the power delivered is of a similar quality and is compatible with the reliable operation of the proposed Lee Combined Cycle Project.
   c. The best proposals that meet DEC's minimum terms shall be accepted up to the 375 MW solar capacity limit, subject to any technical or physical constraints such as available land.
   d. The RFP shall be updated annually with the latest benchmark price and reflecting the amount of solar capacity for which DEC has entered into a contract and is on schedule for delivery according to reasonable terms contained in the RFP. Solar capacity that falls behind schedule for delivery may be released in a subsequent RFP and new proposals shall be eligible to receive the previously awarded capacity allotment.
   e. Nothing shall constrain DEC from participating in the RFP under the normal procedures that DEC utilizes for RFPs, nor shall DEC be limited from purchasing a completed project subject to the limitations of the cost benchmark that apply to all RFP submissions.

4. Parties to this docket, and other interested parties, may submit comments in the upcoming integrated resource plan dockets for the electric utilities regulated by the Commission regarding any recommended changes regarding the scope, practices and review process for IRPs.

5. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

_____
G. O'Neal Hamilton, Chair

ATTEST:

_____
Nikiya "Nikki" Hall, Vice Chair

(SEAL)

STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-392-E

In the Matter of:	)	
	)	
Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC	)	**PETITION FOR REHEARING**

INTRODUCTION

The South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") (collectively, the "Conservation Groups") respectfully petition the Public Service Commission of South Carolina ("Commission") for rehearing of its May 2, 2014 order granting a Certificate of Environmental Compatibility and Public Convenience and Necessity (the "Certificate") to Duke Energy Carolinas, LLC ("DEC") and the North Carolina Electric Membership Corporation ("NCEMC") for construction of a 750 megawatt combined cycle natural gas-fired generating facility at DEC's existing Lee Steam Station near Anderson, South Carolina (the "Lee Combined Cycle Project"), Order No. 2014-408 (the "Certificate Order").

The Conservation Groups respectfully submit that the Certificate was not granted in compliance with the Utility Facility Siting and Environmental Protection Act ("Siting

Act"), S.C. Code Ann. § 58-33-10, *et seq.* The Siting Act directs that the Commission may not grant a Certificate for the construction or operation of a major utility facility "either as proposed or as modified by the Commission" unless it determines, among other things, the facility's "probable environmental impact" and that this impact is "justified" considering "available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code Ann. § 58-33-160(b), (c). Here, the Certificate Order was improper because it failed to actually consider an available, cost-saving technology that would reduce the facility's environmental impact. The Conservation Groups recommended that the Commission condition approval of the Lee Combined Cycle Project on a requirement that DEC solicit bids for complementary, cost-effective solar power, which would reduce the project's consumption of natural gas and thereby reduce both its operating costs and its environmental impacts. The Certificate Order rejected Conservation Groups' solar recommendation based on two central errors: First, the Order misapprehends the nature and intent of Conservation Groups' solar recommendation as simply a request to require solar capacity above and beyond the capacity of the gas plant, when the proposal in fact is for solar to offset plant operating costs, when cost-effective to do so. Second, the Commission rejected the requested solar component because doing so would "materially change" Duke's application and change the "type of facility" being requested; in fact, the recommendation would not alter the proposed gas plant, and the Commission has the authority to place appropriate conditions on a certificate. As discussed in detail later in this petition, Conservation Groups respectfully request that the Commission reconsider the Certificate Order in light of these errors.

As required by the Siting Act, including a solar component in the Certificate would reduce the facility's impact on the environment to a level "justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations," while serving "the interests of system economy and reliability." S.C. Code Ann. § 58-33-160(c),(d). As a result, the Commission's finding that the Lee Combined Cycle Project's environmental impact was justified in light of available technology and alternatives was therefore unfounded. The Commission's rejection of the solar recommendation was therefore arbitrary and capricious and in contravention of law.

PROCEDURAL BACKGROUND

Prior to the submission of its application, DEC published notice of its intent to apply for a Certificate under the Siting Act. On October 24, 2013, DEC and NCEMC filed a joint Application for a Certificate under the Siting Act for the Lee Combined Cycle Project. By letter dated November 1, 2013, the Clerk's Office required DEC to publish a prepared Notice of Filing and Hearing which described the nature of the facility application and advised all interested parties of the manner in which they might intervene or otherwise participate in the proceeding.

Statutory parties are the South Carolina Office of Regulatory Staff ("ORS"), the South Carolina Department of Health and Environmental Control ("DHEC"), the South Carolina Department of Natural Resources ("DNR") and the South Carolina Department of Parks, Recreation, and Tourism (the "Department"). Petitions to intervene were filed by the South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE"), which no party opposed. Intervention petitions were also filed

by Invenergy Thermal Development, LLC ("Invenergy"); and the Electric Cooperatives of South Carolina, Inc. and Central Electric Power Cooperative, Inc. (the "Co-ops"). The Co-ops filed a request to withdraw their petition to intervene, which was granted by the Commission on December 18, 2013. Also on December 18, 2013, the Commission denied Invenergy's petition to intervene upon objection by DEC and NCEMC. On January 2, 2014, Invenergy renewed its petition to intervene. A Settlement Agreement between DEC, NCEMC and ORS was filed on January 3, 2014.

On January 7, 2014, the Commission commenced an evidentiary hearing in which it accepted the Settlement Agreement into the record and denied Invenergy's renewed petition to intervene. The hearing was reconvened on February 4, 2014. CCL and SACE presented the joint testimony of T. Hamilton Davis IV and John D. Wilson. DEC presented the testimony of Clark S. Gillespy, Janice D. Hager and Mark E. Landseidel. NCEMC presented the testimony of Michael W. Burnette, which was stipulated into the record. ORS presented the testimony of Gene G. Soult.

APPLICABLE LAW

The Siting Act, S.C. Code Ann. § 58-33-10, *et seq.*, governs the siting of electric utility facilities in South Carolina. The statute requires this Commission to render a decision upon the record either granting or denying the application as filed, or granting it upon such terms, conditions or modifications of the construction, operation or maintenance of the major utility facility as the Commission may deem appropriate. S.C. Code Ann. § 58-33-160.

The Commission may not grant a certificate for the construction, operation and maintenance of a major utility facility, either as proposed or as modified by the

Commission, "unless it shall find and determine" the facility's "probable environmental impact," and that this impact "is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code Ann. § 58-33-160(b), (c). The Commission must also find that the facility "will serve the interests of system economy and reliability." *Id.* § 58-33-160 (d).

Pursuant to S.C. Code Ann. § 58-27-2150, a party may apply to the Commission for a rehearing in respect to any matter determined in the proceeding. "The purpose of a petition for rehearing and/or reconsideration is to allow the Commission the discretion to rehear and/or reexamine the merits of issued orders pursuant to legal or factual questions raised about those orders by parties in interest, prior to a possible appeal." In re: South Carolina Electric & Gas Company, Order No. 2013-5 (Feb. 14, 2013). S.C. Code Ann. Regs. § 103-825(4) prescribes the content of a petition for rehearing, which must include: "(a) The factual and legal issues forming the basis for the petition; (b) The alleged error or errors in the Commission order; [and] (c) The statutory provision or other authority upon which the petition is based."

FACTS

DEC declined to disclose publicly an estimated construction cost for the proposed Lee Combined Cycle Project, which was filed under seal. Tr. Vol. 98:23-24, Hrg. Ex. 5. The construction cost of a similar combined cycle project at DEC's Dan River plant, however, was approximately $673 million. Tr. Vol. 2 at 167:21-168:3. The Lee Combined Cycle Project is only the first of four to five natural gas combined-cycle ("NGCC") plants that the DEC and DEP 2013 IRPs project over the next decade. Tr. Vol.

2 at 193:1-4. Together, construction of these plants will cost ratepayers billions of dollars.

Although expensive to construct, NGCC plants are even more expensive to run. Operating costs, mainly fuel, would constitute 80-90 percent of the long-term cost to ratepayers of the Lee Combined Cycle Project. Tr. Vol. 2 at 197:7-9. Approximately 30 percent of the operating costs of DEC's share of the unit will be allocated to South Carolina ratepayers. Tr. Vol. 2 at 42:25-43:3. If natural gas prices increase, South Carolina customers would pay more for electricity produced by the plant. Hager, Tr. Vol. 2 at 117:25-118:4. Natural gas prices, while currently lower than in the past, have historically been subject to significant price volatility, and are also subject to supply disruptions from natural disasters. Tr. Vol. 2 at 117:11-16.

Solar and natural gas generation pair well due to the operational flexibility of natural gas combined-cycle technology and the fuel-free nature of solar energy. The Siemens F Class technology proposed for the Lee Combined Cycle Project has demonstrated operational flexibility including multiple starts, minimum load capability and minimum start times. Tr. Vol. 2 at 154:1-3. The technology and configuration selected by the Company provide significant capability to ramp the plant up and down quickly, as well as come to relatively low minimum loads. Tr. Vol. 2 at 163:19-23. DEC witness Landseidel testified that "the intermediate capability of the plant allows it to fluctuate as needed to meet the system needs," which could vary for reasons "including intermittent power sources," such as solar. Tr. Vol. 2 at 166:5-8. Mr. Landseidel testified that operating at lower output would not decrease the facility's useful life, since the plant

is designed with the capability for cycling and operation at minimum loads, *id.* at 165:7-13.

The Conservation Groups submitted evidence regarding several solar projects that have been linked to natural gas generation, either co-located at the same site or as part of a resource portfolio. Hrg. Ex. 7. For example, Xcel Energy has proposed a wind/solar/gas proposal that would reduce operating costs by $246 million. *Id.* Florida Power & Light ("FPL") has a hybrid facility in which a 75 MW solar thermal power plant is directly connected to a 1,142 MW combined-cycle natural gas power plant at FPL's Martin Plant. *Id.* And Louisville Gas and Electric Company and Kentucky Utilities Company recently submitted a joint application to the Kentucky Public Service Commission for certificates of public convenience and necessity for the construction of both a natural gas combined cycle facility and a solar photovoltaic facility, having concluded after an RFP process that the gas-solar combination was the "least-cost reasonable alternative for meeting customer needs." *Id.*

The record shows that the Lee NGCC plant, while concededly less polluting than the coal units it would replace, would still emit nitrogen oxides (NOx), as well as carbon dioxide. Tr. Vol. 2 at 39:1-4. The unit would also consume an estimated 10 cubic feet per second of water from the Saluda River, which is a drinking water source. Tr. Vol. 2 at 159:11-13. Mr. Landseidel agreed that operating the unit at a lower output would reduce water use, Tr. Vol. 2 at 166:23. He also conceded that operations at lower power would reduce emission of air pollutants, *id.* at 167:18.

The upstate of South Carolina has experienced nonattainment of ground level ozone national ambient air quality standards in the past, and modeling by the U.S.

Environmental Protection Agency ("EPA") shows that Anderson County would violate a .060 ppm 8-hour primary ozone standard that the agency contemplated imposing.[1] This Commission denied a certificate for a similar gas plant in 2002 even though that proposed combined cycle plant's emissions would not impact the area's (then) nonattainment designation for ozone, noting that the plant would make ozone levels worse and determining that it could not make a "finding that the impact of the facility upon the environment is justified." Docket No. 2001-411-E, Order No. 2002-377 (Denying Reconsideration) at 2 (May 17, 2002).

The Commission's order also distinguished combined cycle gas plants as consuming "large quantities of water" compared to a simple cycle peaking turbines. Order No. 2002-377 at 8. Because of that water consumption, the Commission found that in the absence of "detailed studies of the effects" of the removal of flow on the subject river's aquatic habitat and its environs, it could not "make the proper statutory findings as to the justifiability of the impacts of the plant on the environment." Order No. 2002-377 at 5; *id.* at 12 (without information on withdrawal's downstream impacts, Commission "could not make the required statutory finding" that impacts were justified). The Commission also held, correctly, that it is not bound by the findings of the Department of Health and Environmental Control ("DHEC"), since the Act requires the Commission to make independent findings in issuing a certificate. Order No. 2002-377 at 15.

To reduce the environmental impacts and offset the operating costs of the of the Lee Combined Cycle Project, the Conservation Groups recommended that the Certificate for the project be conditioned on a requirement that DEC issue a RFP for cost-effective

[1] http://www.epa.gov/air/ozonepollution/pdfs/CountyOzoneLevels2020primary.pdf.

solar. The RFP would be developed as follows. First, DEC would develop a benchmark price per kilowatt for production at the Lee Combined Cycle Project using its 30-year forecast of fuel and other variable costs. This is the price at which customers would be indifferent to whether the electricity was generated by the Lee gas plant or a solar facility (or facilities). Tr. Vol. 2 at 199:5-7. Second, DEC would issue a Request for Proposals ("RFP") for up to 375 MW of firm solar power at the benchmark price. Tr. Vol. 2 at 203:6-9. Bids would only be accepted if they come in below the benchmark price; i.e., by definition, lower than the long-term cost of operating the Lee Combined Cycle Project to produce the same power. Tr. Vol. 2 at 180:20-24.

By its terms, the solar condition proposed by CCL and SACE would not add costs for ratepayers. Moreover, the solar component would provide a significant hedge against gas price upside volatility; it would, as Mr. Davis testified, "save ratepayers money if solar costs go down and gas prices go up." Tr. Vol. 2 at 180:24-181:1. DEC witness Janice D. Hager agreed that instead of dispatching the natural gas plant, the Company could dispatch a type of generating facility that had lower fuel costs. *Id.* at 118:9-12. Solar, of course, has zero fuel costs. *Id.* at 118:13-14.

Solar's potential to offset part of the fuel costs of natural gas facilities and hedge against gas price increases has led to a growing trend of gas-solar pairings across the nation, as illustrated in Hearing Exhibit 7. For example, FPL explained that solar facility paired with a gas facility at its Martin site is a "fuel-substitute facility" that "displaces the use of fossil fuel," and is "not a facility that provides additional capacity and energy." Hrg Ex. 7. Similarly, the Administrative Law Judge ruling on Northern States Power Company's competitive bidding process found that "[t]he solar project has no associated

fuel costs, and, therefore, provides for a fixed and certain price for the life of the project." Id.

ARGUMENT

The Conservation Groups respectfully submit that the Certificate was not granted in compliance with the Siting Act's requirement that the Commission only grant a certificate for a major utility facility "as proposed or as modified by the Commission" where it determines the facility's "probable environmental impact" is "justified" considering "available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code § 58-33-160(c). Respectfully, the Certificate Order failed to actually consider or make necessary findings in light of evidence submitted by Conservation Groups regarding solar, an available, cost-saving technology that would materially reduce the proposed facility's environmental impact.

The Certificate Order's rejection of Conservation Group's solar recommendation springs from two central errors. First, the Order Certificate misapprehends the recommendation itself, in several respects. The Commission explains that "the [Lee Combined Cycle Project] could not be built with lower than the Company-needed 650 MWs . . . ." Order at 13. Conservation Groups did not propose that a certificate be issued for less than 650 MW, however, or suggest that their solar proposal would meet DEC's capacity need. Instead, their recommendation was that solar be used as a fuel substitute when available, in order to offset the operating costs of the gas plant, which mainly come from fuel.

The Commission also states that "any MWs generated from solar would be in addition to the 650 MW capacity requirements." *Id.* This statement suggests that the Commission erroneously interpreted Conservation Groups' recommendation as a request to simply require construction of additional solar electrical generation capacity above and beyond the gas plant's capacity. Order at 13. The Conservation Groups presented evidence on something different: requiring that Duke issue a RFP for solar capacity that, as delivered, would displace production at the gas plant and reduce fuel burned there, as discussed in detail in the previous section. Much as the electrical component of a hybrid car operates in tandem with the gas motor, the solar component would complement gas production, not be in addition to it.

In addition, the Commission disagrees with Conservation Groups' witness Davis's testimony that the solar component would be complementary to the NGCC plant, stating that "capital investment could be needed to build the solar facility" and the proposal "could ultimately result in customers paying more than necessary for electric service." *Id.* Again, these statements reflect a disregard for they key criterion in Conservation Groups' recommendation: that DEC would only accept solar bids at a benchmark price at or below than the operating costs of the gas unit, so that customers would necessarily be held harmless or even benefit. Because bids would only be accepted if they were lower than a benchmark price based on the long-term operating costs of the gas facility, qualifying bids would, by definition, provide energy at or below the cost of producing the same energy from the gas plant. By using solar electricity procured through the RFP, Duke could reduce production at the gas plant, saving on fuel

and other operating costs. Thus, the solar modification could only save ratepayers money and provide a conservative hedge given gas price volatility.

Because the Certificate Order's characterization the Conservation Groups' solar recommendation was inaccurate, it is unsupported by substantial evidence, as was the decision to approve Duke's proposal without the Conservation Group's solar component.

The Certificate Order's inaccurate characterization of Conservation Groups' solar recommendation led to a second central error. The Lee Combined Cycle Project could only be approved "as proposed *or* as modified by the Commission" where the Commission has determined, based on substantial evidence, that the facility's "probable environmental impact" is "justified" considering "available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code Ann. § 58-33-160(c) (emphasis added). To fulfill this statutory mandate, the Commission must actually and fully consider "alternatives" and options for "modif[ying]" the facility, and where these are available to reduce the project's environmental impact with no increased cost to ratepayers or effects on reliability, approval without modification is not "justified." At a minimum, evidence of the availability of alternatives and their ability to reduce environmental impacts must be affirmatively and accurately analyzed, which did not occur here.

As a dependable and economical substitute for a portion of the gas plant's output, the solar component would reduce the proposed facility's environmental impact almost by definition, since it is uncontested that generation from solar power produces no air pollution emissions and consumes no water from area streams or rivers. Moreover, as discussed in the previous section, evidence in the record shows that the solar component

would reduce air pollution emissions and conserve water – environmental concerns that led the Commission to reject a certificate for a gas plant in the same region in 2002.

The Certificate's mischaracterization of the Conservation Groups' proposal also appears to have led the Commission to reject consideration of the proposed solar component because it would "materially change" DEC's application and change the "type of facility" being requested. Order at 14. But the Conservation Groups did not seek to alter DEC's basic proposal, which is to construct a combined cycle gas plant. The Conservation groups' proposal would not require any change in the gas plant's design. Indeed, DEC's own experts testified that its planned facility can ramp up and down quickly and operate at reduced loads without impacts on reliability or efficiency, making it well paired to more intermittent resources like solar.

Rather, the Conservation Groups requested that the Certificate include a condition that would reduce gas consumption (and related pollution) to the extent that solar energy is available for the same cost or less. Such a condition is fully within the Commission's authority to issue a certificate approving a facility "as modified" by the Commission. Indeed, just as the Commission has the power to deny certification for a gas power plant outright because of water consumption impacts and air pollution, as it did in Order No. 2002-120, cited above, it doubtless has the authority to include water-conserving and air pollution-reducing characteristics as a facility condition. Further, because solar generation has no fuel costs, requiring that DEC implement a solar component is a prudent hedge against natural gas price volatility and is a prudent condition that could only save ratepayers money. Consideration of this component is well within the Commission's duty to only certify a facility – as proposed or "modified" – where it finds

that the facility "will serve the interests of system economy and reliability." S.C. Code Ann. § 58-33-160 (d).

At base, and as required by the Siting Act, Conservation Groups' solar recommendation would reduce the facility's impact on the environment to a level "justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations," while serving "the interests of system economy and reliability." S.C. Code Ann. § 58-33-160(c), (d). Failure to consider that option was arbitrary and capricious and in contravention of law, and should be reconsidered. Without the proposed solar component, substantial evidence does not support a finding that the Lee Combined Cycle Project's impact on the environment is "justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations." S.C. Code Ann. § 58-33-160(c).

CONCLUSION

The Commission should reconsider its Order Granting a Certificate of Environmental Compatibility and Public Convenience and Necessity for construction of the Lee Combined Cycle Project, and grant that Certificate subject to the solar condition proposed by the Conservation Groups, as set forth in detail in ordering paragraph no. 3 in Conservation Groups' proposed order.

Respectfully submitted this 15th day of May, 2014.

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STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2013-392-E

In the Matter of:	)	
	)	
Joint Application of Duke Energy Carolinas, LLC	)	
and North Carolina Electric Membership	)	**RESPONSE TO**
Corporation for a Certificate of Environmental	)	**PETITION FOR REHEARING**
Compatibility and Public Convenience and	)	
Necessity for the Construction and Operation of a	)	
750MW Combined Generating Plant near	)	
Anderson, SC	)	

The South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") (collectively, the "Conservation Groups") have petitioned the Commission for a rehearing of Duke Energy Carolinas, LLC's ("DEC" or "the Company") and North Carolina Electric Membership Corporation's ("NCEMC") Joint Application for a Certificate of Environmental Compatibility and Public Necessity for the construction of the Lee Steam Station Combined Cycle Project ("Lee CC Project"). According to the Conservation Groups, the Commission's Order No. 2014-408 "failed to actually consider or make necessary findings in light of evidence submitted by Conservation Groups regarding solar..." Pet. for Reh'g 10.

As explained below, there is no basis for a rehearing of this matter and the Conservation Group's Request should be denied.

FACTS

DEC and NCEMC requested a CECPCN for the construction of a 750 MW combined cycle facility near Anderson County, South Carolina. The application for the facility stated

DEC's growth in demand provided the basis for the need and that resource analyses as described in the Company's integrated resource plan ("IRP") demonstrated the best way to satisfy the resource needs in the short term was the Lee CC Project. Appl. for Certificate of Envtl. Compatibility & Pub. Convenience & Necessity 3.

The Conservation Groups did not oppose the Lee CC Project. Instead they argued, and have continued to argue in the instant Petition for Rehearing, that considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations, the Commission should grant DEC the CECPCN ***and*** require DEC to issue a request for proposals for cost effective solar capacity to build in conjunction with the Lee CC Project. Tr. vol. 2, 203:6-9. The Conservation Groups define cost effective as "the price at which customers would be indifferent to whether the electricity was generated by the Lee gas plant or solar facility, ..." i.e., the bids must be "lower than the long-term cost of operating the Lee Combined Cycle Project to produce the same power." Pet. for Reh'g 9.

ARGUMENT

First, the Conservation Groups' Petition for Rehearing should be denied because they have failed to raise any new issues or evidence that was overlooked by the Commission. All of the arguments raised and evidence referenced in the Petition were presented by the Conservation Groups during the hearing and were considered by the Commission in rendering its decision. This Commission has stated that a petition for rehearing or reconsideration should be denied unless the petitioner raises new issues or evidence that were not addressed by the Commission. See Docket No. 2009-342-WS, Order No. 2010-4 and Docket No. 2011-47-WS, Order No. 2012-31.

The Conservation Groups' petition should also be denied on the merits. The Commission considered all viable capacity alternatives, understood its ability to make modifications it deemed appropriate, and made appropriate findings. The basis for the Conservation Groups' arguments appears to be that they have confused the purpose of a CECPCN proceeding with the purpose of a fuel proceeding. A primary purpose of a CECPCN proceeding is to determine whether a utility needs additional *capacity* to meet the electricity demand of its customers. The Conservation Groups do not allege DEC did not establish its need for the requested capacity. They do not allege that their proposed solar generation should be built instead of the Lee CC Project; nor do they contend the Lee CC facility should not be constructed. Pet. for Reh'g 10. Rather, what they contend is that if the Commission were to adopt their recommendation, then the energy provided to DEC's customers would be cheaper and more environmentally benign. But that contention relates to how the Lee CC will be dispatched, not whether it is the least cost capacity resource available to meet DEC's capacity need. A utility's annual fuel proceeding is the forum for interested parties and the Commission to consider a utility's generation dispatch and fuel costs.

S.C. Code Ann. § 58-27-865(F) states:

> The commission shall disallow recovery of any fuel costs that it finds without just cause to be the result of failure of the utility to make every reasonable effort to minimize fuel costs or any decision of the utility resulting in unreasonable fuel costs, giving due regard to reliability of service, economical generation mix, generating experience of comparable facilities, and minimization of the total cost of providing service.

This section requires South Carolina utilities to dispatch and operate their generation resources in a manner that minimizes the utilities' operational costs. That means utilities are required to dispatch their lowest operating cost plants first to meet load and canvas the wholesale power market in search of electric energy that is lower cost than the utility's next available

resource. As a result, once the Lee CC is brought into service, DEC will only run that plant when there are no lower operating cost DEC plants available and DEC cannot purchase power from any other source, including a solar resource, more cost effectively. The Conservation Groups are asking the Commission to declare now, and for the life of the Lee CC, that the proposed solar plant will be *the* source of energy used to displace the Lee CC's natural gas fueled generation regardless of what other sources of electric energy are available to displace the Lee CC. Because it cannot be known at this time how much and at what cost DEC will be able to purchase electric energy on the wholesale market to displace the Lee CC's energy over the Lee CC's useful life, to require DEC to essentially hedge the natural gas costs of operating the Lee CC by building a solar plant in conjunction with the Lee CC facility would foreclose DEC from taking advantage of more cost effective sources of energy on the wholesale market and result in the construction of excess and unneeded generation. This is why the Commission rejected the Conservation Groups' proposal and found, "We do not think it is good practice for this Commission to grant permission for the Company to build or secure more capacity than is needed as this could ultimately result in customers paying more than necessary for electric service." Order Granting Certificate of Envtl. Compatibility & Pub. Convenience & Necessity, (2014-408) 13.

The Conservation Groups are wrong when they allege the Commission failed to actually and fully consider alternatives and options for modifying the facility to reduce the project's impact. The Commission's environmental analysis was exactly correct. The Lee CC is the most environmentally benign source of dispatchable intermediate to baseload generation available. A solar facility cannot be dispatched and operated at a capacity factor equal to that of an intermediate or base- load plant, so it is not an alternative to the Lee CC. As a result, whether a

solar facility's fuel is "cleaner," or the plant more environmentally kind is irrelevant. The Commission made the following finding in its Order in this matter:

> This Commission understands SCCCL's and SACE's idea of having solar generation in lieu of LCCP electricity generation when solar conditions are right; however, the LCCP could not be built with lower than the Company-needed 650 MWs, since the Company has demonstrated a need for this additional capacity in the 2017-2018 time frame. The reliability and operating capacity of the proposed solar facility is below the required need; therefore, it is not appropriate to meet the capacity needs of the proposed project. To meet the demonstrated need of the Company and the request of SACE and SCCCL, a full 650 MWs from the LCCP would still be needed and any MWs generated from solar would be in addition to the 650 MW capacity requirements.

Id. This is clear evidence the Commission fully understood the Conservation Groups' recommendation, but chose to reject it.

The Conservation Groups argue their recommendation will save DEC's customers money by using solar as a fuel source to displace a portion of the natural gas that would otherwise be purchased and consumed in operating the Lee CC. They appear to contend that if this is true, then their recommendation must be accepted. There are two flaws with this assertion. First, this argument ignores the fact that solar cannot provide the intermediate to base- load capacity DEC needs. Second, the Company's IRP fleshes out the type of need given the current mix of resources, the cost of the various options, the type of capacity needed, i.e. baseload, intermediate, or peaking, etc. Tr. vol. 2, 48:13-25. Company witness Hager testified that the IRP analyses are performed solely from a customer basis and are designed to ensure that the reliable portfolio with the lowest reasonable cost is the selected proposal. In doing these analyses, the Company looks at the combination of capital and operating costs for portfolios. The Company concluded that the Lee Project was the best alternative for customers based on the Company's IRP and Request for Proposals analyses. Tr. vol. 2, 88:2-3. In its Order, the Commission stated it found the

Company's evidence on the matters presented credible and persuasive." Order Granting Certificate of Envtl. Compatibility & Pub. Convenience & Necessity, (2014-408) 10.

Witness Hager also testified that solar is not a cost-effective resource. Tr. vol. 2, 139:19-23. She explained that the Company is currently procuring solar resources in North Carolina at a premium to satisfy North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard. The fact that the Company must pay Renewable Energy Credits to procure the resources indicates they are noneconomic. *Id.* at 131:14-24. She expressed her opinion that no renewable resource could displace or defer the need for the project at this point. *Id.* at 140:22-25. Further, citing the 2012 South Carolina Public Utility Review Committee Energy Advisory Council Report which the Conservation Groups referenced in support of their position that the Company should issue an RFP for a 375MW solar facility, Hager testified that the near term potential for solar in the entire state of South Carolina is 850 to 1700 MWs and that the report said "true barrier to achieving the ... potential is cost" and that "current incentives available in the state and at a federal level are not sufficient to close the gap between the cost of solar compared to the cost of electricity." *Id.* at 87:14-24(citing the 2012 S. C. Public Utility Review Committee Energy Advisory Council Report, pp. 4-9). Conservation Groups' witnesses contended solar could be built when the economic conditions are right, effectively admitting that now is not the right time. Tr. vol. 2, 195:1-8

That said, the inclusion of the Lee Project in the Company's portfolio does not preclude the inclusion of significant levels of renewable resources. In fact, Company witness Hager's testimony specifically states that its 2013 IRP includes almost 900 MW of renewable resources by 2018 and over 1500 by 2023, significantly more MWs of solar than the Conservation Groups are seeking. *Id.* at 86:19-23.

Finally, the Conservation Groups argue the Commission did not understand it had the ability to modify DEC's proposal. Pet. for Reh'g 12. The Commission did find it questionable as to whether it could change the type of facility requested, but the specific findings about the cost, operating ability and reliability of solar demonstrate the basis of the Commission's decision was not a question of whether changes could be made. In spite of their argument to the contrary, there is ample evidence the Commission fully understood the Conservation's Group's recommendation, but chose to reject it.

CONCLUSION

Because the Conservation Groups have failed to raise any new issues or evidence that was overlooked by the Commission, and because the Commission considered all viable capacity alternatives, understood its ability to make modifications it deemed appropriate, and made appropriate findings in support of its Order Granting a Certificate of Environmental Compatibility and Public Convenience and Necessity for construction of the Lee Combined Cycle Project, the Conservation Groups' Petition for Rehearing should be denied..

Respectfully submitted this 23rd day of May, 2014.

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THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM THE PUBLIC SERVICE COMMISSION

Docket No. 2013-392-E

In The Matter of:

Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC

NOTICE OF APPEAL

NOTICE OF APPEAL

The South Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") (collectively, the "Conservation Groups") appeal the Amended Commission Directive granting a Certificate of Environmental Compatibility and Public Convenience and Necessity to Duke Energy Carolinas, LLC and the North Carolina Electric Membership Corporation, filed April 9, 2014 (Exhibit A). The Conservation Groups petitioned for reconsideration of this Directive on May 15, 2014. The Commission denied the Petition for Reconsideration in a Directive filed June 4, 2014 (Exhibit B). The Conservation Groups received copies of each Directive via electronic filing on the date that said Directive was filed.

July 3, 2014

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Exhibit A

Action Item 7

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
COMMISSION DIRECTIVE

ADMINISTRATIVE MATTER	☐	DATE	**April 09, 2014**
MOTOR CARRIER MATTER	☐	DOCKET NO.	**2013-392-E**
UTILITIES MATTER	☑	ORDER NO.	

Amended Directive reflecting that Commissioner McGee was present and voted.

SUBJECT:

DOCKET NO. 2013-392-E - Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC - Discuss this Matter with the Commission.

COMMISSION ACTION:

On the matter of the construction and operation of a 750 megawatt combined cycle generating plant in Anderson, South Carolina, I move that we grant a Certificate of Environmental Compatibility and Public Convenience and Necessity to Duke Energy Carolinas, LLC and the North Carolina Electric Membership Corporation for the construction and operation of that plant. I further move that we hold that Duke and NCEMC have satisfied all of the statutory criteria for the granting of this Certificate, as described in South Carolina Code Annotated Section 58-33-160, and that we approve the Settlement Agreement submitted in the case between Duke, NCEMC, and the Office of Regulatory Staff.

The Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League requested that the Commission require Duke and NCEMC to submit an RFP for the consideration of a 375 MW solar facility that would be built in addition to the proposed combined cycle generating plant. Mr. Chairman, such a requirement would be a material change to the original Application filed. Based on its IRP, Duke does not need this additional 375 MW of capacity at this time. Also, there is no requirement for a company to issue an RFP except for peaking generation. The proposed 750 MW combined cycle generating plant is not a peaking generation unit. Duke can always voluntarily submit an RFP to consider cost-effective solar generation without this Commission requiring it to do so. Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League also request that the Commission order Duke to not place the proposed combined cycle plant in operation prior to 2018. Depending on costs considerations and electricity demand, Duke should determine the optimal in-service date for the proposed generating plant. Therefore, Mr. Chairman, I move that the Commission deny the requests of the Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League. I also move that the Commission hold that Duke Energy Carolinas should continue to consider cost-effective solar generation as a part of its planning for its future generation mix.

PRESIDING: Hamilton SESSION: Regular TIME: 2:00 p.m.

	MOTION	YES	NO	OTHER
FLEMING	☐	☑	☐	
HALL	☐	☑	☐	

HAMILTON	☐	☑	☐
HOWARD	☐	☑	☐
MCGEE	☐	☑	☐
RANDALL	☑	☑	☐
WHITFIELD	☐	☑	☐

(SEAL)

RECORDED BY: J. Schmieding

Exhibit B

Action Item 6

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
COMMISSION DIRECTIVE

ADMINISTRATIVE MATTER	☐	DATE	**June 04, 2014**
MOTOR CARRIER MATTER	☐	DOCKET NO.	**2013-392-E**
UTILITIES MATTER	☑	ORDER NO.	

SUBJECT:

DOCKET NO. 2013-392-E - Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, SC (Preliminary Information is Available for Viewing at the Commission) - Discuss with the Commission the Petition for Reconsideration Filed on Behalf of the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy.

COMMISSION ACTION:

The Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") contend that the Commission's decision in Order No. 2014-408 was arbitrary and capricious and not in compliance with the Siting Act's environmental requirements. They argue that our original Order commits two central errors, first, that it misapprehends the nature and intent of their solar recommendation as a request to require capacity above and beyond the capacity of the gas plant, instead of as a means to offset operating costs, and second, that no material change to the type of facility would occur by requiring bids for a 375 MW solar facility. CCL and SACE elaborate that their intent is for Duke Energy Carolinas to issue a request for proposal for solar capacity that, as delivered, would displace production at the gas plant cost for cost and therefore reduce the fuel burned there. CCL and SACE conclude that the addition of a solar component could only save ratepayers money and provide a conservative hedge given gas price volatility.

I disagree. In declining CCL and SACE's proposal and finding that the environmental impacts of the Lee Project are "justified," Order No. 2014-408 took great analytical care to address their suggestions at length. As stated in that Order, since the capacity factor of solar is much less than the capacity factor that the combined cycle facility is designed to meet, solar will not be capable of providing the intermediate to base load energy needs of the Lee Facility. As a result, the full capacity of the Lee Project still must be built, and any solar energy that could be provided would still need to be backed up. In practical terms, this means that any solar capacity to be included with the Lee Project would have to be added to its 650 MWs, and would not be complementary to it. In other words, the economics of including CCL and SACE's proposal are not justified when all appropriate factors are considered.

Next, CCL and SACE take issue with Order No. 2014-408's finding that adding solar capacity to the Lee Project would cause an impermissible material change to the Application. As authority for allowing the proposed 375 MW solar facility to be added to the Lee Project, they point to language in the Siting Act, stating in part that the Commission may modify an Application. However, while we may modify a proposal, I believe that the Act does not contemplate such an essential change to the subject matter of the Application, if the modified Application calls for the construction of an entirely new facility and fuel source in addition to the one originally

proposed.

Therefore, I move that the Petition for Rehearing be denied.

PRESIDING: Hamilton SESSION: Regular TIME: 2:00 p.m.

	MOTION	YES	NO	OTHER
FLEMING	☐	☑	☐	
HALL	☐	☑	☐	
HAMILTON	☐	☑	☐	
HOWARD	☑	☑	☐	
MCGEE	☐	☑	☐	
RANDALL	☐	☑	☐	
WHITFIELD	☐	☑	☐	

(SEAL)

RECORDED BY: J. Schmieding

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING # 14-11400 JANUARY 7, 2014 10:00 A.M.

DOCKET NO. 2013-392-E:

DUKE ENERGY CAROLINAS and NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION – Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, South Carolina

TRANSCRIPT OF PROCEEDINGS

VOLUME 1 OF 2

COMMISSIONERS PRESENT: G. O'Neal HAMILTON, *CHAIRMAN*, Nikiya M. 'Nikki' HALL, *VICE CHAIRMAN*; and COMMISSIONERS John E. 'Butch' HOWARD, Elizabeth B. 'Lib' FLEMING, Swain E. WHITFIELD, AND Brent L. MCGEE

ADVISOR TO COMMISSION: F. David Butler, Esq.

STAFF: James Spearman, Ph.D., Executive Assistant to Commissioners; Tom Ellison and Lynn Ballentine, Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Hope Adams, Hearing Room Assistants

APPEARANCES:

TIMIKA SHAFEEK-HORTON, ESQUIRE, representing DUKE ENERGY CAROLINAS, **APPLICANT**

LEN S. ANTHONY, ESQUIRE, representing the NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION, **APPLICANT**

APPEARANCES (Cont'g):

J. BLANDING HOLMAN, IV, ESQUIRE, representing the SOUTH CAROLINA COASTAL CONSERVATION LEAGUE and the SOUTHERN ALLIANCE FOR CLEAN ENERGY, **INTERVENORS**

RICHARD L. WHITT, ESQUIRE, representing INVENERGY THERMAL DEVELOPMENT, LLC, **PETITIONER TO INTERVENE**

NANETTE S. EDWARDS, ESQUIRE, and ***SHANNON BOWYER HUDSON, ESQUIRE,*** representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

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CHAIRMAN HAMILTON: Please be seated. I'd like to welcome each of you here today. And at this time I'll ask the attorney, Mr. Butler, if he would please read the docket

MR. BUTLER: Yes, sir. Thank you, Mr. Chairman and other members of the Commission.

This is Docket No. 2013-392-E. It's the joint application of Duke Energy Carolinas, LLC, and North Carolina Electric Membership Corporation for a certificate of environmental compatibility and public convenience and necessity for the construction and operation of a 750-megawatt combined generating plant near Anderson, South Carolina.

In order to receive testimony and evidence from all interested parties, a public hearing will be held in the Commission's hearing room at Synergy Business Park, 101 Executive Center Drive, Columbia, South Carolina, beginning on Tuesday, January 7, 2014, at 10 a.m.

Mr. Chairman and other members of the Commission, the docket is in order.

CHAIRMAN HAMILTON: Thank you, Mr. Butler.

At this time, we'll take appearances. Who

represents Duke Energy Carolinas, LLC?

MS. SHAFEEK-HORTON: Good morning, Mr. Chairman. Timika Shafeek-Horton for Duke Energy Carolinas.

CHAIRMAN HAMILTON: Happy to have you with us.

MS. SHAFEEK-HORTON: Thank you, sir.

CHAIRMAN HAMILTON: And North Carolina Electric Membership Co-op?

MR. ANTHONY: Good morning, Mr. Chairman, members of the Commission. I'm Len Anthony, representing the North Carolina Electric Membership Corporation.

CHAIRMAN HAMILTON: Thank you, very much, Mr. Anthony. Happy to have you.

And the Intervenors, Southern Alliance for Clean Energy and South Carolina Coastal Conservation League?

MR. HOLMAN: Mr. Chairman, members of the Commission, Blan Holman here on behalf of the Southern Alliance for Clean Energy and the Coastal Conservation League.

CHAIRMAN HAMILTON: Welcome, Mr. Holman.

And Invenergy Thermal Development, LLC?

MR. WHITT: Mr. Chairman and other Commissioners, I'm Richard Whitt, from Austin &

Rogers, here for Invenergy.

CHAIRMAN HAMILTON: Welcome, sir.

MR. WHITT: Thank you, sir.

CHAIRMAN HAMILTON: And South Carolina Department of Health & Environmental Control?

[No response]

South Carolina Department of Natural Resources?

[No response]

And the South Carolina Department of Parks, Recreation & Tourism?

[No response]

No-shows.

Office of Regulatory Staff.

MS. HUDSON: Good morning, Mr. Chairman, members of the Commission. I'm Shannon Bowyer Hudson. With me is Nanette Edwards. We're here on behalf of the Office of Regulatory Staff.

CHAIRMAN HAMILTON: Happy to have you ladies with us this morning.

As we move forward now, we have a motion before us for admission pro hac vice of Gudrun E. Thompson, representing Environmental Intervenors, and it has been granted.

Okay. And our next is the settlement

agreement?

MS. SHAFEEK-HORTON: Thank you, Mr. Chairman. The South Carolina Office of Regulatory Staff and Duke Energy Carolinas, as well as NCEMC, have entered into a settlement agreement, and we would move for its admission into the record at this time.

The provisions of the settlement agreement: The parties have agreed to stipulate into the record, at the appropriate time, the testimony and exhibits of the witnesses of the parties.

Additionally, as outlined in Section 2 of the settlement agreement, the parties have agreed that the Applicants have submitted all of the information needed to satisfy the applicable statute.

And, finally, I would just point out that the Applicant Duke Energy Carolinas has agreed in Section 7 and has stated that construction of this project will not affect DEC's plans regarding the acquisition of an interest in the V.C. Summer project that is currently being constructed.

And those are the most significant provisions of the agreement, and we would move for its admission at this time.

CHAIRMAN HAMILTON: Thank you, very much. The settlement agreement will be entered into the record at this time. Do we have any other comments concerning the settlement?

[No response]

It will be Exhibit No. 1.

[WHEREUPON, Hearing Exhibit 1 was marked and received in evidence.]

MS. SHAFEEK-HORTON: Thank you, sir.

CHAIRMAN HAMILTON: Okay. Thank you, very much, too.

CHAIRMAN HAMILTON: Our next item on the agenda is to rule on the Renewed Objection to Petition to Intervene of Invenergy. Do I hear a motion at this time?

COMMISSIONER McGEE: Mr. Chairman.

CHAIRMAN HAMILTON: Commissioner McGee.

COMMISSIONER McGEE: At this time, I move that the Commission sustain the renewed objection of Duke and the North Carolina Electric Membership Corporation, and deny the Renewed Petition to Intervene of Invenergy Thermal Development, LLC.

I believe that Invenergy is seeking a relief that is unavailable from this Commission. Invenergy complains about Duke's RFP process, but

the Commission has no rules that govern that process with regard to purchasing base-load or intermediate generation.

Further, Invenergy claims damages as the result of an option that may be lost on land in Anderson County, said option being purchased in reliance on Invenergy prevailing in the RFP process. Damages are not available from the Commission and must be sought in another forum.

Lastly, Invenergy still has not shown that it has standing to intervene in this matter.

Accordingly, I move that the Renewed Objection be sustained and that the Renewed Petition to Intervene be denied.

CHAIRMAN HAMILTON: You've heard Commissioner McGee's motion. Do we have any discussion of the motion?

[No response]

Hearing none, the Chair would call for the vote. All Commissioners in favor, please vote "aye"?

COMMISSIONERS: Aye.

CHAIRMAN HAMILTON: Opposed, "no"?

[No response]

Ayes have it; the motion so carries.

The next item we have is to advise the parties of the time that this hearing will be reconvened, and unless we have objections from the parties, we will reconvene it on February 4th and into the 5th, if needed. Do we have any objection to this?

If not, these dates --

MS. SHAFEEK-HORTON: I'm sorry, excuse me one second. I'm just looking at my calendar. I got a list of dates from our witnesses, and, I'm sorry, I just need to check the calendar.

CHAIRMAN HAMILTON: Okay, that'll be fine.

MS. SHAFEEK-HORTON: I apologize.

CHAIRMAN HAMILTON: Okay.

MS. SHAFEEK-HORTON: And I have a suitcase.

CHAIRMAN HAMILTON: We'll take time for you to get it -- to get through a lady's purse.

[Brief pause]

MS. SHAFEEK-HORTON: I so hate to be the bearer of bad news. I did, in anticipation of the date being set, ask our witnesses for the dates that they were absolutely unavailable through February 15th. And we have one witness who is unavailable on February 4th and 5th, and one witness who is unavailable on February 5th. I can go back to those two witnesses and let them know

that that is the date that the Commission wishes to set. But, as I said, when asking about the dates that they were absolutely unavailable, two witnesses gave me those dates, so I'm not sure whether the Commission has any flexibility on that, or not.

CHAIRMAN HAMILTON: Okay. Was the 6th available?

MS. SHAFEEK-HORTON: Yes, the 6th is available.

CHAIRMAN HAMILTON: Okay. If we could -- possibly if you would check with your witnesses and see if there could be any change. The NARUC meeting starts on the 7th and, if this hearing were to go over a day, it would be some difficulty involved. So, if you could check with your witnesses, we'll try to accommodate you.

MS. SHAFEEK-HORTON: Yes, sir.

CHAIRMAN HAMILTON: And then we'll list the date, official date, after you have talked to them.

MS. SHAFEEK-HORTON: Thank you. And will we start -- at what time?

CHAIRMAN HAMILTON: 10 a.m.

MS. SHAFEEK-HORTON: Thank you.

CHAIRMAN HAMILTON: Okay. Any other problems?

MS. HUDSON: ORS is good with that date.

CHAIRMAN HAMILTON: Okay.

MR. HOLMAN: Mr. Chairman, I don't think that will be a problem, but I have not had the opportunity to check with my witnesses, but I anticipate it will not be a problem.

CHAIRMAN HAMILTON: Okay. Well, we'll try to work with each of the parties to try to come to some conclusion that will be fair for all.

Okay. If you could, let us know as soon as possible, because we need to get it.

MS. SHAFEEK-HORTON: Yes, sir. I'll let you know today.

CHAIRMAN HAMILTON: Okay. Thank you, very much.

All right. At this time, do we have any public witnesses?

MR. BUTLER: Mr. Chairman, as I understand it, from checking with Mr. Richardson, there are no public witnesses that have signed up to be heard today.

CHAIRMAN HAMILTON: All right. Well, at this time, we'll recess this hearing, and we will reconvene it at a time to be determined. Thank you, very much.

[WHEREUPON, at 10:13 a.m., the hearing was adjourned, to reconvene on February 4, 2014, in the Commission's Hearing Room.]

C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, Notary Public in and for the State of South Carolina, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had in a hearing [Volume 1] held in the above-captioned matter before the PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA;

IN WITNESS WHEREOF, I have hereunto set my hand and seal, on this the 22nd day of February, 2014.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING # 14-11400 FEBRUARY 4, 2014 10:00 A.M.

DOCKET NO. 2013-392-E:

DUKE ENERGY CAROLINAS and NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION - Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Generating Plant Near Anderson, South Carolina

TRANSCRIPT OF PROCEEDINGS

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COMMISSIONERS PRESENT: G. O'Neal HAMILTON, *CHAIRMAN*, Nikiya M. 'Nikki' HALL, *VICE CHAIRMAN*; and COMMISSIONERS John E. 'Butch' HOWARD, Elizabeth B. 'Lib' FLEMING, Swain E. WHITFIELD, Comer H. 'Randy' RANDALL, and Brent L. MCGEE
ADVISOR TO COMMISSION: F. David Butler, Esq.

STAFF: James Spearman, Ph.D., Executive Assistant to Commissioners; Tom Ellison and Lynn Ballentine, Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and Hope Adams, Hearing Room Assistants

APPEARANCES:

TIMIKA SHAFEEK-HORTON, ESQUIRE, representing DUKE ENERGY CAROLINAS, **APPLICANT**

LEN S. ANTHONY, ESQUIRE, representing the NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION, **APPLICANT**

APPEARANCES (Cont'g):

J. BLANDING HOLMAN, IV, ESQUIRE, and GUDRUN E. THOMPSON, ESQUIRE, representing the SOUTH CAROLINA COASTAL CONSERVATION LEAGUE and the SOUTHERN ALLIANCE FOR CLEAN ENERGY, INTERVENORS

NANETTE S. EDWARDS, ESQUIRE, and *SHANNON BOWYER HUDSON, ESQUIRE,* representing the SOUTH CAROLINA OFFICE OF REGULATORY STAFF

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P R O C E E D I N G S

CHAIRMAN HAMILTON: Please be seated. And we'll call the hearing to order. And this is a continuation from the brief hearing a couple of weeks ago. We've had a lot of nice weather since then, so I think we picked the right time to be back.

At this time, I believe the settlement agreement is in the record, but the testimony -- direct testimony and other testimony -- is not in the record. So, at this time, we'll have appearances. And who represents Duke Energy Carolinas, LLC?

MS. SHAFEEK-HORTON: Good morning, Mr. Chairman and Commissioners. Timika Shafeek-Horton on behalf of Duke Energy.

CHAIRMAN HAMILTON: All right. And North Carolina Utilities -- Municipalities?

MR. ANTHONY: Cooperatives.

CHAIRMAN HAMILTON: Cooperatives? That's what -- I'm trying to find my sheet.

[Laughter]

MR. ANTHONY: Regardless of who they are, I'm representing them.

CHAIRMAN HAMILTON: You represent them? The

co-ops?

[Laughter]

MR. ANTHONY: I'm Len Anthony, representing the North Carolina Electric Membership Corporation.

CHAIRMAN HAMILTON: Okay. Let me get this thing -- I took Mr. Whitfield's. Okay, we're going to start now -- we can get Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League.

MR. HOLMAN: Chairman Hamilton, members of the Commission, I'm Blan Holman, on behalf of Coastal Conservation League and Southern Alliance for Clean Energy, and with me is Gudrun Thompson.

CHAIRMAN HAMILTON: Happy to have both of you. And Office of Regulatory Staff?

MS. HUDSON: Good morning, Mr. Chairman, members of the Commission. I'm Shannon Hudson. With me is Nanette Edwards. We're here on behalf of the Office of Regulatory Staff.

CHAIRMAN HAMILTON: Thank you, very much.

Do we have any preliminary matters that anyone would like to bring up at this time?

MR. HOLMAN: Mr. Chairman, we've got a panel of two witnesses, and we hope that's fine with the Commission that we present them as a panel today.

I believe Duke is okay with that, and ORS is okay with that.

CHAIRMAN HAMILTON: Very good. Thank you for that.

MR. ANTHONY: And, Mr. Chairman, I just -- I'm not sure, procedurally, whether Michael Burnette's testimony is in the record. In light of the directive, I just want to ensure that his testimony will be included in the record.

CHAIRMAN HAMILTON: His testimony will be entered into the record, stipulated, as if given orally from the stand.

MR. ANTHONY: Thank you, Mr. Chairman.

[PURSUANT TO STIPULATION AND DIRECTIVE, THE PREFILED DIRECT {VERIFIED} TESTIMONY OF MICHAEL W. BURNETTE FOLLOWS AT PGS 22-29]

BEFORE THE PUBLIC SERVICE COMMISION OF SOUTH CAROLINA

DOCKET NO. 2013-XXX-E

In the Matter of Application for Certificate of Environmental Compatibility and Public Convenience and Necessity for Lee Combined Cycle Natural Gas-Fired Generating Facility	DIRECT TESTIMONY OF MICHAEL W. BURNETTE ON BEHALF OF NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Michael W. Burnette. My business address is 3400 Sumner Boulevard, Raleigh, North Carolina, 27616.

Q. PLEASE IDENTIFY YOUR EMPLOYER AND BRIEFLY DESCRIBE YOUR CURRENT POSITION.

A. I am the Senior Vice President, Chief Operating Officer of North Carolina Electric Membership Corporation, which I will refer to as "NCEMC". As the executive at NCEMC responsible for managing its Power Supply Division, my responsibilities include supervision and oversight of NCEMC's resource planning, and its transmission and power supply resource acquisition. I also am responsible for managing system operations, including installed generation and purchase power contracts, and engineering services. My Division at NCEMC is responsible for NCEMC's portfolio planning, and the process for evaluating power supply options to bring the greatest value to NCEMC's members.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND, AND IDENTIFY ANY OTHER ACTIVITIES WHICH YOU BELIEVE INFORM YOUR TESTIMONY IN THIS PROCEEDING?

A. I earned a Bachelor of Science degree in Chemical Engineering from North Carolina State University in 1982. I have worked in the electric industry for more than 30 years. From 1983 until 1987 I served with the North Carolina Utilities Commission Public Staff. In 1988 I joined NCEMC. I have served on various committees and other organizations

related to the electric industry for many years during my career, and currently serve on the Board of Directors for ACES Power Marketing (ACES) and National Renewables Cooperative Organization (NRCO).

Q. DESCRIBE NCEMC, AND ITS RELATIONSHIPS WITH ITS MEMBERS.

A. NCEMC is a generation and transmission cooperative, a not-for-profit membership corporation created under Chapter 117 of the North Carolina General Statutes. It is a load serving electric supplier in North Carolina providing full and partial requirements wholesale power and other services to its member organizations, which comprise 25 of the 26 distribution electric cooperatives based in North Carolina. The member cooperatives use the power supply furnished by NCEMC to provide retail electric service to consumers in 93 of the state's 100 counties. These 25 member cooperatives, more formally designated by statute as electric membership corporations ("EMCs"), were created during the 1930s and 1940s to bring electric power to areas deemed by others too remote and uneconomical to serve. The EMCs are independent, not-for-profit corporations that provide power to the retail member/consumers, who own their local EMC and elect the Board of Directors that govern it.

Q. IDENTIFY THE SERVICE TERRITORIES, AND CORRESPONDING TRANSMISSION PROVIDERS, IN THE CONTROL AREAS IN WHICH NCEMC SERVES LOAD.

A. The service territories of NCEMC's member EMCs are located within the control areas of the three major investor-owned utilities with operations in North Carolina – Duke Energy Carolinas ("DEC"), Duke Energy Progress ("DEP") and Virginia Electric Power

Company ("VEPCO"), which formerly conducted business as North Carolina Power, and now does business as Dominion North Carolina Power. NCEMC is a transmission dependent utility that owns virtually no transmission lines or related transmission assets. Instead, NCEMC purchases transmission services from DEC, DEP and PJM Interconnection ("PJM"), the RTO to which VEPCO is a member, under their respective Open Access Transmission Tariffs. NCEMC purchases Network Service from DEC, DEP and PJM, pursuant to Network Integration Transmission Service Agreements and Network Operating Agreements with each. NCEMC also purchases Firm Point-to-Point transmission service from other transmission providers, including PJM and Southern Company, to bring purchased power resources from these suppliers into NCEMC's three control areas.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS DOCKET?

A. The purpose of my testimony is to support the Joint Application of Duke Energy Carolinas, LLC ("DEC") and NCEMC for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("the Certificate") to construct a 750 megawatt ("MW") combined cycle natural gas-fired electric generating facility at DEC's existing Lee Steam Station in Anderson County ("Lee Combined Cycle Project" or "the Project"). As explained in more detail below, NCEMC desires additional resources to serve the existing and future loads of NCEMC's member EMCs, and to optimize the value of NCEMC's power supply portfolio. NCEMC has determined that a joint ownership interest in the Lee Combined Cycle Project is a cost-effective resource bringing value for NCEMC members.

As the operator and majority owner of the Lee Combined Cycle Project, DEC is providing the detailed information regarding the Project, including site selection, the probable environmental impact, the positive impact on DEC's generation and transmission system(s), and conformity to State and local laws and regulations. Further, DEC will demonstrate, from its perspective, that the public convenience and necessity requires construction of the Project.

Q. WHY DOES NCEMC WISH TO BE A PARTIAL OWNER OF THE LEE CC PROJECT?

A. The reasons NCEMC wishes to participate in the Lee Combined Cycle Project are: 1) maintaining a desirable alignment of owned versus contracted resources; 2) extending the anticipated "lifespan" of NCEMC's power supply portfolio; 3) managing NCEMC's fuel diversity; and 4) projected financial value. These benefits coincide with the need to address projected load growth, the expiration of certain contract resources, and the requirement for resources that provide value via hedging and economic use. This resource will allow NCEMC to maintain a diversified, cost effective portfolio of resources to reliably meet the needs of its member EMCs.

Q. PLEASE DESCRIBE THE ANALYSIS PERFORMED BY NCEMC IN DETERMINING THAT A JOINT OWNERSHIP INTEREST IN THE PROJECT WAS A COST EFFECTIVE MEANS OF ADDRESSING NCEMC'S RESOURCE NEEDS.

A. Like any load serving entity, NCEMC conducts periodic resource planning and forecasts its need for resources well in advance of the requirement for such resources. Further, as

both a risk management and a portfolio optimization function, NCEMC works with wholesale providers, merchant generators, and other potential counterparties for opportunities to advance its power supply objectives. If a resource need or portfolio optimization opportunity is identified, NCEMC evaluates purchased power options, self-build options and joint ownership in new generation opportunities. These evaluations include requests-for-proposals, on-going negotiations with its traditional wholesale counterparties, including DEC, and monitoring the wholesale market for other purchased power opportunities.

Upon the merger of Duke Energy and Progress Energy, NCEMC became the largest wholesale customer of the merged entity. Due to the nature of DEC's, DEP's and NCEMC's relationship, the parties routinely discuss resource planning and explore opportunities of mutual benefit. NCEMC's participation in the Lee Combined Cycle Project directly resulted from this collaborative resource planning process. In reaching its conclusions, NCEMC was aware that DEC was conducting a thorough RFP process and analysis, and that the most cost-effective option was to have DEC build a combined cycle natural gas fired facility, to be constructed at a "brownfield" site that already possessed much of the needed infrastructure. NCEMC evaluated the planned project, using internal modeling, ultimately concluding that the Project would bring value to NCEMC members. To avoid redundancy, I will defer to DEC to provide detailed discussion of that process in its portion of the application.

Q. HOW DO YOU ANTICIPATE THE PLANT WILL OPERATE TO SERVE THE NEEDS OF THE REGION FOR ELECTRIC POWER?

A. In addition to its use in serving load, the Project will operate as part of the regional grid, contributing to the reliability of supply for the region.

Q. DOES THE PUBLIC CONVENIENCE AND NECESSITY JUSTIFY THE CONSTRUCTION OF THE FACILITY?

A. Yes. Based upon the testimony of DEC and the information I have provided in my testimony, including the value to NCEMC member EMCs in satisfying our power supply objectives, our research, and our experience in other energy markets, the Project is the most cost effective resource available to meet the needs of NCEMC and DEC. Moreover, the Project will serve the public interest by bringing jobs to the region during construction, enhancing the tax base, adding permanent jobs for additional skilled employees, and promoting the reliability of the DEC transmission system. Partnered with DEC, NCEMC is willing to make the investment necessary to provide safe and reliable generation to meet its demand, and at the same time, provide tax revenues, jobs and other economic benefits for Anderson County and the rest of South Carolina.

For these reasons, we believe the Commission should conclude that the public convenience and necessity requires the granting of this application to construct the Lee Combined Cycle Project.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

BEFORE

THE PUBLIC SERVICE COMMISSION

OF

SOUTH CAROLINA

DOCKET NO. 2013-392-E

In Re: Joint Application of Duke Energy Carolinas, LLC And North Carolina Electric Membership Corporation For a Certificate of Environmental Compatibility And Public Convenience and Necessity for the Construction and Operation of a 750 MW Combined Cycle Generating Plant Near Anderson, South Carolina	VERIFICATION

PERSONALLY APPEARED before me, Michael W. Burnette, who, after first being duly sworn, said that he is Senior Vice President, Chief Operating Officer of the North Carolina Electric Membership Corporation and as such he is authorized to make this verification, that he has read his direct testimony filed on October 24, 2013 and knows the contents thereof; and that his testimony is true and correct to the best of his knowledge, information and belief.

Michael W. Burnette

Sworn to and subscribed before me,
this the 22nd day of January, 2014.

Notary Public
Brenda Lynam

My Commission Expires: 11/18/2018

BRENDA LYNAM NOTARY PUBLIC FRANKLIN COUNTY, NC

CHAIRMAN HAMILTON: I guess we can go to Duke?

MS. SHAFEEK-HORTON: Yes, sir, we'll call our first witness?

CHAIRMAN HAMILTON: Yes, ma'am.

MS. SHAFEEK-HORTON: Duke Energy calls Clark Gillespy.

CHAIRMAN HAMILTON: Thank you.

[Witness affirmed]

THEREUPON came,

C L A R K S . G I L L E S P Y ,

called as a witness on behalf of the Applicant Duke Energy Carolinas, who, having been first duly affirmed, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. SHAFEEK-HORTON:

Q Mr. Gillespy, please state your full name and business address for the record.

A My name is Clark Sutton Gillespy. My business address is 40 West Broad Street, Greenville, South Carolina 29601.

Q And how are you employed?

A I am the South Carolina state president for Duke Energy Carolinas.

Q Mr. Gillespy, did you cause to be prefiled direct testimony consisting of seven pages in this docket?

A Yes, I did.
Q Regarding your prefiled testimony, directing your attention to page three, lines 10 and 11, where it states that you are co-chair of the E4Carolinas board, is this still accurate?
A No. I have now completed my term as co-chair of E4Carolinas, but I remain on the board.
Q So line 10 should end after the word "Carolinas," correct?
A Yes.
Q Apart from the correction you just made, if the questions put to you in your direct testimony were put to you today, would your answers be the same?
A Yes, they would.

MS. SHAFEEK-HORTON: Mr. Chairman, at this time, I would move to have Mr. Gillespy's prefiled direct testimony entered into the record as if given orally from the stand.

CHAIRMAN HAMILTON: Mr. Gillespy's prefiled direct testimony, as corrected, will be entered into the record as if given orally from the stand.

[See pgs 35-41]

BY MS. SHAFEEK-HORTON:

Q Mr. Gillespy, please summarize your testimony.
A Yes, thank you. Good morning, Mr. Chairman and

Commissioners.

The company's 2013 Integrated Resource Plan shows expected growth in demand of approximately 1.5 percent over the 15-year planning period. Beginning in 2017, the company needs an additional 317 megawatts to meet its projected load requirements and 14.5 percent minimum planning reserve.

In the relatively short term, the company's analysis shows that the best way to satisfy these competing needs is to retire approximately 1,700 megawatts of coal-fired units and 350 megawatts of natural-gas-fired units, convert one 170-megawatt coal unit -- Lee Steam Station Unit 3 -- to natural gas, and build the Lee Combined-Cycle Project, which represents a substantial long-term investment to the energy infrastructure in South Carolina and a significant commitment to the area. These fleet modernization efforts, combined with additional environmental controls on other coal plants, will continue to drive down total SO_2 and NOx emissions.

At the height of the two-year-long construction period for the project, there will be approximately 500 jobs on-site. Once the project is complete, we anticipate adding approximately 25 full-time jobs for highly skilled employees, who will be well paid.

The Lee Project will add cost-effective, highly efficient natural gas to the company's system, adding to its flexibility and fuel diversity, and it will have state-of-the-art emission controls to reduce environmental impact on air and water. Because the Lee Project will be built at the existing Lee Steam Station, environmental impacts should be further reduced, as many existing resources necessary for construction are already in place.

The company is partnering with NCEMC on this project. NCEMC is a large, long-time wholesale customer of Duke Energy Carolinas. From time to time, Duke Energy Carolinas and NCEMC discuss resource needs, plans for meeting needs, and the potential for new projects. Such discussions led to an agreement between the parties allowing NCEMC to purchase a minority ownership interest of 100 megawatts in the Lee Combined-Cycle Project.

The Lee Project is the least-cost option for meeting the company's resource need in the 2017-2018 timeframe, whether or not NCEMC owns 100 of the 750 megawatts. Public convenience and necessity justify the construction of the Lee combined-cycle facility.

This concludes the summary of my testimony.

[PURSUANT TO STIPULATION AND PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY {CORRECTED} OF CLARK S. GILLESPY FOLLOWS AT PGS 35-41]

Correction noted herein
as reflected in hearing testimony. 35

BEFORE THE PUBLIC SERVICE COMMISION OF SOUTH CAROLINA

DOCKET NO. 2013-XXX-E

In the Matter of Application for Certificate of Environmental Compatibility and Public Convenience and Necessity for Lee Combined Cycle Natural Gas-Fired Generating Facility	DIRECT TESTIMONY OF CLARK S. GILLESPY ON BEHALF OF DUKE ENERGY CAROLINAS, LLC

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Clark S. Gillespy. My business address is 40 West Broad Street, Greenville, South Carolina. I work for Duke Energy Carolinas, LLC (hereinafter, "Duke Energy Carolinas" or the "Company"), a wholly owned subsidiary of Duke Energy Corporation, in the Regulated Utilities Department, and I am currently the Company's president of utility operations in South Carolina, serving approximately 715,000 electric retail customers.

Q. PLEASE STATE YOUR EDUCATION, BACKGROUND, AND PROFESSIONAL AFFILIATIONS.

A. I earned a Bachelor of Science degree in business administration from the University of Alabama. I hold a Juris Doctorate degree from the Cumberland School of Law (Alabama), and continued with a diploma in Advanced International Legal Studies from the McGeorge School of Law in Salzburg, Austria. I also hold an MBA from European University in Brussels, Belgium. I have also completed the Duke Energy Strategic Leadership Program at the University of North Carolina's Kenan-Flagler School of Business.

I have been in my current position since June 2012. Prior to that, I served as vice president of economic development, business development and territorial strategies for Duke Energy in North Carolina and South Carolina. Working in partnership with economic development organizations in North and South Carolina, my team and I helped attract $18.7 billion in capital investments and more than 58,000 jobs to the Carolinas since 2005. Before joining Duke in 2004, I worked in economic development, site

selection consulting, and practiced international law in both the United States and Europe.

I am a member of the state bar associations of Alabama, Georgia, and the District of Columbia. I am a member of the South Carolina Economic Developers Association, the Palmetto Business Forum and the Public Utilities Review Committee's Energy Advisory Council. I serve on the advisory board of New Carolina and the boards of directors for the South Carolina Manufacturers Alliance, the South Carolina Chamber of Commerce and the Palmetto AgriBusiness Council. I am a member of the boards of trustees for the S.C. Chapter of The Nature Conservancy and the Peace Center. I also serve on the board of the American Red Cross of the Western Carolinas. *and am co-chair of the governing board of EAC Carolinas.*

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A. Duke Energy Carolinas is applying for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("CECPCN") to construct a 750 megawatt ("MW") combined cycle natural gas-fired electric generating facility at the Company's existing Lee Steam Station ("the Lee Combined Cycle Project" or "the Project"). The purpose of my testimony is to provide an overview of the strategic and policy reasons for Duke Energy Carolinas' application. I will address how the need for new base and intermediate load gas-fired generation fits into our overall plans for modernizing our fleet, increases diversity among our generation resources, and helps the Company continue to reduce its environmental footprint. I will also address North Carolina Electric Member Cooperatives' ("NCEMC") participation in the Project.

Q. WHY HAS DUKE ENERGY CAROLINAS CHOSEN TO ADD A 750 MW COMBINED CYCLE NATURAL GAS-FIRED FACILITY TO ITS FLEET?

A. The Company's 2013 Integrated Resource Plan ("2013 IRP") shows expected growth in demand of approximately 1.5 percent per year over the 15-year planning period. Beginning in 2017, the Company needs an additional 317 MWs to meet its projected load requirements and 14.5% minimum planning reserve. This resource need grows to 573 MW in 2018 and to approximately 3,400 MWs by 2028. For the need the IRP identifies in 2017 and 2018, as described fully in Company witness Janice Hager's testimony, the Company has determined that a combined cycle facility will best meet this need.

Q. HOW DOES THE LEE COMBINED CYCLE PROJECT FIT WITHIN DUKE ENERGY CAROLINA'S OVERALL STRATEGY FOR MEETING CUSTOMER RESOURCE NEEDS?

A. Based on the 2013 IRP, the Company expects slow, but steady customer growth over the long term. At the same time, Duke Energy Carolinas is preparing to meet known and expected environmental requirements that will require the Company to either retrofit, potentially at significant cost, or retire a number of our less efficient coal units that have provided safe, reliable and low-cost power to our customers for many years. As witness Hager describes, in the relatively short term, the Company's analysis shows that the best way to satisfy these competing needs is to retire approximately 1,700 MWs of coal-fired units and 350 MWs of natural gas-fired units, convert one 170 MW coal unit (Lee Steam Station Unit 3) to natural gas, and build the Lee Combined Cycle Project. These fleet modernization efforts, combined with additional environmental controls on other coal plants, will continue to drive down total SO_2 and NO_x emissions. In particular, the Lee

Combined Cycle facility has the potential to emit approximately 69% less CO_2, 98% less NO_x, and 100% less SO_2 per kWh than Lee Steam Station's Units 1 and 2 (200 MWs) which are located on the same site proposed for the Lee Combined Cycle Project. Additionally, while the older less efficient coal units we expect to retire by 2015 generally have run as peaking to intermediate load, the cleaner, more efficient Lee Combined Cycle Project will serve base load and intermediate load, and at 750 MWs will provide more than three times the power the retiring Lee Steam Station Units 1 and 2 provide.

Q. WHY ARE DUKE ENERGY CAROLINAS AND NCEMC FILING THE CECPCN FOR THE LEE COMBINED CYCLE PROJECT JOINTLY?

A. NCEMC is a large, long-time wholesale customer of Duke Energy Carolinas. From time to time, Duke Energy Carolinas and NCEMC discuss resource needs, plans for meeting needs, and the potential for new projects. Such discussions led to an agreement between the parties allowing NCEMC to purchase a minority ownership interest of 100 MWs in the Lee Combined Cycle Project. Duke Energy will construct and operate the facility. Given the joint ownership, the parties are together requesting the CECPCN.

Q. WILL THE PARTNERSHIP WITH NCEMC IMPACT THE COMPANY'S ABILITY TO MEET ITS RESOURCE NEEDS DURING THE IRP'S PLANNING HORIZON?

A. No, it will not. The Company's ownership of 650 MWs from the Lee Combined Cycle Project combined with the retirements discussed previously and the Company's energy efficiency and demand side management efforts provides the resources the Company needs in the 2017-2018 time frame. The 2013 IRP identifies the plan that includes

construction of the Lee Combined Cycle Project as the lowest cost option for the 2017-2018 need.

Q. WOULD DUKE ENERGY CAROLINAS BE SEEKING A CECPCN FOR THE LEE COMBINED CYCLE PROJECT IF IT DID NOT HAVE A PARTNER FOR THE PROJECT?

A. Yes. As explained in Witness Hager's testimony, the 2013 IRP and subsequent Request for Proposal results show the Lee Project as the least-cost option for meeting the Company's resource need in the 2017-2018 time frame whether or not NCEMC owns 100 of the 750 MWs.

Q. DOES PUBLIC CONVENIENCE AND NECESSITY JUSTIFY CONSTRUCTION OF THE LEE COMBINED CYCLE FACILITY?

A. Yes. Duke Energy Carolinas' IRP is a well-established and effective mechanism for making resource decisions. It is developed with the objective of meeting customers' need for a highly reliable energy supply at the lowest reasonable cost, and the 2013 IRP identifies the Lee Combined Cycle Project as the best option for meeting the 2017 and 2018 need. The construction of the Lee Combined Cycle Project represents a substantial long-term investment to the energy infrastructure in South Carolina and a significant commitment to the area. At the height of the two year-long construction period, there will be approximately 500 jobs on site. Once the project is complete, we anticipate adding approximately twenty five full-time jobs for highly skilled employees who will be well-paid. The Lee Project will add cost effective, highly efficient natural gas to the Company's system, adding to its flexibility and fuel diversity, and it will have state of the art emission controls to reduce the environmental impact on air and water. Finally,

because the Lee Project will be built at the existing Lee Steam Station, environmental impacts should be further reduced as many existing resources necessary for construction are already in place.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes, it does.

MS. SHAFEEK-HORTON: Mr. Chairman, Mr. Gillespy is available for cross-examination questions from the Commission.

CHAIRMAN HAMILTON: Thank you, very much. Mr. Holman.

MR. HOLMAN: No questions, Mr. Chairman.

CHAIRMAN HAMILTON: Am I correct in the settlement that there will be no questions from the parties other than the --

MS. HUDSON: That's correct.

MS. SHAFEEK-HORTON: That's correct.

CHAIRMAN HAMILTON: Okay, thank you, very much. Commissioners?

COMMISSIONER HOWARD: Mr. Chairman?

CHAIRMAN HAMILTON: Yes, sir, Commissioner Howard.

EXAMINATION

BY COMMISSIONER HOWARD:

Q Good morning, Mr. Gillespy.

A Good morning.

Q Operation cost, capital cost, fuel cost, what percentage of that will be allocated to South Carolina ratepayers, I guess of the total cost?

A I think that's probably a question best answered by Janice Hager, but I would imagine it's the proportionate

share that South Carolina shares with North Carolina. In that instance, I believe it's 30 percent or something of that nature.

Q I'll take 30 percent and if Ms. Hager disagrees, then she can correct it.

A Okay. I'll allow her to correct me, as well.

Q I didn't notice, but does mercury emissions come into play in a combined-cycle plant? I didn't notice any percentage of reduction in mercury emissions; that's why I ask.

A Yeah. So, under MATS -- again, I couldn't speak to the specifics around that. It's probably best for Mark Landseidel to address that. That's the operational side.

COMMISSIONER HOWARD: Okay. Thank you, very much.

CHAIRMAN HAMILTON: Commissioners?

COMMISSIONER McGEE: Mr. Chairman.

CHAIRMAN HAMILTON: Commissioner McGee.

EXAMINATION

BY COMMISSIONER McGEE:

Q Good morning, Mr. Gillespy.

A Good morning.

Q We're aware that NCEMC has relationships, I think, with Dominion North Carolina Power and PJM. Do you think --

would these relationships have any effect with Duke South Carolina's operations?

A I don't see any interference or anything with that, no. Again, we have a long-standing relationship with NCEMC, so again, they're always looking at ways to share resources and things of that nature. We're already embedded with them with the Catawba nuclear, as you may know, as well.

CHAIRMAN HAMILTON: Thank you. Commissioners, any other questions?

[No response]

Ms. Horton.

MS. SHAFEEK-HORTON: No redirect, thank you.

CHAIRMAN HAMILTON: Okay. Thank you, very much, Mr. Gillespy. You may be excused, sir.

WITNESS: Thank you.

[WHEREUPON, the witness was excused.]

CHAIRMAN HAMILTON: [Indicating.]

MS. SHAFEEK-HORTON: Excuse me. Yes, I'm -- I'm sorry.

CHAIRMAN HAMILTON: I'm sorry.

MS. SHAFEEK-HORTON: Ms. Thompson has asked for a copy of the summaries that we are -- that our witnesses are reading. So, with your permission, I will --

CHAIRMAN HAMILTON: Okay.

MS. SHAFEEK-HORTON: -- give her those.

CHAIRMAN HAMILTON: Okay. Thank you, very much.

MS. SHAFEEK-HORTON: [Indicating.]

MS. THOMPSON: [Indicating.]

MS. SHAFEEK-HORTON: I believe you all have them?

CHAIRMAN HAMILTON: Yes, ma'am.

MS. SHAFEEK-HORTON: Duke would call Janice Hager, at this time.

CHAIRMAN HAMILTON: Thank you, very much.

[Witness sworn]

THEREUPON came,

J A N I C E D . H A G E R ,

called as a witness on behalf of the Applicant Duke Energy Carolinas, who, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. SHAFEEK-HORTON:

Q Would you please state your full name and business address for the record?

A My name is Janice Hager, and my business address is 400 South Tryon, Charlotte, North Carolina.

Q How are you employed?

A I am vice president of Integrated Resource Planning and Business Analytics for Duke Energy.
Q Ms. Hager, did you cause to be prefiled direct testimony consisting of 24 pages and seven exhibits?
A Yes.
Q Did you also cause to be prefiled rebuttal testimony consisting of 20 pages and one exhibit?
A Yes.
Q In your rebuttal testimony, on page 17, line four, there is a reference to Hager Rebuttal Exhibit 1; is that correct?
A That is correct.
Q Should that reference be to Rebuttal Exhibit 1 rather than Exhibit A?
A Yes.
Q Apart from the correction you just made, if the questions put to you in your direct and rebuttal testimony, in support of the Application, were put to you today, would your answers be the same?
A Yes.

MS. SHAFEEK-HORTON: Mr. Chairman, I move for the admission of Ms. Hager's direct testimony, exhibits, and her rebuttal testimony, into the record.

CHAIRMAN HAMILTON: Ms. Hager's direct

testimony, rebuttal testimony, and exhibits will be entered into the record as if given orally from the stand --

[See pgs 51-74 - Direct]

[See pgs 76-95 - Rebuttal]

-- and the exhibits will be marked as Exhibit 2, composite.

[WHEREUPON, Hearing Exhibit No. 2 was marked and received in evidence.]

MS. SHAFEEK-HORTON: Thank you.

BY MS. SHAFEEK-HORTON:

Q Ms. Hager, do you have a summary of your testimony and your -- your direct testimony and rebuttal testimony?

A I do.

Q Would you provide those at this time?

A Okay. The purpose of my testimony is to demonstrate, pursuant to South Carolina Code of Law Section 58-33-160, the need for the Lee Combined-Cycle Project, that the project serves the interests of system economy and reliability, and that public convenience and necessity require the construction of the project.

After taking into consideration the impact of the company's energy efficiency programs, the projected compound annual growth rate for retail and wholesale customers for the summer and winter peak demands are 1.5

percent. The forecasted compound annual growth rate for energy is also 1.5 percent, after the impacts of energy efficiency programs have been subtracted. In addition, in the current planning horizon, Lee Units 1 and 2, which total 200 megawatts, are projected to retire on or before April 15, 2015. Lee Unit 3, a 170-megawatt unit, is projected to retire as a coal unit and to be converted to natural gas before the summer of 2015. It is the combination of these unit retirements, as well as those units already retired, and load growth that is driving the 2017 need that the Lee Combined-Cycle Project will satisfy.

The IRP process -- which is a multi-step process involving the development of input data, detailed modeling and analysis, and quantitative and qualitative considerations -- identifies the type and size of resources to meet customers' needs. Once a type and size are identified, the best way to secure that resource is determined outside the IRP process.

In preparation of the 2013 IRP, analyses were performed utilizing detailed system planning models to determine the most economic and reliable portfolio. These analyses demonstrated that the portfolio including the Lee Combined-Cycle Project was lower in cost for customers.

Based on Duke Energy Carolinas' 2012 IRP, which identified the need for capacity in 2016, Duke Energy Carolinas issued an RFP on November 26, 2012, for up to 700 megawatts of non-peaking capacity, beginning either June 1, 2016, and/or June 1, 2017, for 15 to 20 years. Duke Energy Carolinas engaged a third-party administrator to receive the bid, serve as an intermediary with bidders, and review the company's analytical methodology. Thirty-four [34] bids from 12 different bidders were received. The Lee Combined-Cycle Project was one of the 34 bids. The company and its independent third-party evaluator carefully considered all bids and concluded that the Lee Combined-Cycle Project -- whether fully owned by Duke Energy Carolinas or shared with NCEMC -- is the lowest total cost project for customers.

In my rebuttal testimony, I addressed SASE and CCL's arguments that the company miscalculated its reserve margin and that the CECPCN for Lee should be pushed out to 2018. The company stands by its reserve margin calculations and asserts that, for the reasons stated in my rebuttal testimony, the CECPCN should be granted, giving the company the flexibility to determine whether the commercial operation date should be 2017 or 2018.

SACE and CCL also push for utility-scale solar to operate in conjunction with the Lee CC Project and contend the company has not adequately pursued all cost-effective energy efficiency and renewable energy alternatives. As discussed in my testimony, the company disagrees.

It is my opinion the company has demonstrated the need for the Lee Combined-Cycle Project in the 2017 timeframe to meet the company's resource needs.

This concludes the summary of my direct and rebuttal testimony.

[PURSUANT TO STIPULATION AND PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF JANICE D. HAGER FOLLOWS AT PGS 51-74]

BEFORE THE PUBLIC SERVICE COMMISION OF SOUTH CAROLINA

DOCKET NO. 2012-XXX-E

In the Matter of	)	
	)	
Application for Certificate of Environmental Compatibility and Public Convenience and Necessity for Lee Combined Cycle Natural Gas-Fired Generating Facility	)	DIRECT TESTIMONY OF JANICE D. HAGER ON BEHALF OF DUKE ENERGY CAROLINAS, LLC
	)	
	)	

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.

A. My name is Janice D. Hager and my business address is 526 South Church Street, Charlotte, North Carolina 28202. I am Vice President, Integrated Resource Planning and Analytics for Duke Energy Business Services LLC, the service company subsidiary of Duke Energy Corporation (collectively "Duke Energy") and an affiliate of Duke Energy Carolinas ("Duke Energy Carolinas," or the "Company").

Q. PLEASE STATE YOUR EDUCATION, BACKGROUND, AND PROFESSIONAL AFFILIATIONS.

A. I am a civil engineer, having received a Bachelor of Science in Engineering from the University of North Carolina at Charlotte. I am a registered professional engineer in South Carolina and North Carolina. I am also a member and past chair of the Southeastern Electric Exchange Rates and Regulation Section and of the Southeastern Electric Exchange Integrated Resource Planning Task Force. I began my career at Duke Power, now Duke Energy, in 1981 and have had a variety of responsibilities across the Company and its predecessors in the areas of nuclear piping analyses, nuclear station modifications, new generation licensing, integrated resource planning and demand-side management, and retail and wholesale rates. In 2003, I was named to the position of Vice President of Rates and Regulatory Affairs for Duke Power. Since the merger between Duke Energy and Cinergy in 2006, I have lead Duke Energy's integrated resource planning process for the regulated jurisdictions, including Duke Energy Carolinas. Upon

close of the Duke Energy and Progress Energy merger in July 2012, I assumed the title of Vice President, Integrated Resource Planning and Analytics for the new Duke Energy.

Q. PLEASE DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS VICE PRESIDENT, INTEGRATED RESOURCE PLANNING, AND ANALYTICS.

A. As Vice President, Integrated Resource Planning and Analytics, I am responsible for planning for the long-term capacity and energy needs of the Duke Energy operating utilities in the Carolinas, Florida, Indiana, Kentucky, and Ohio. My responsibilities include supervising the preparation and filing of integrated resource plans ("IRPs") in accordance with state regulations in each jurisdiction.

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A. Duke Energy has applied for a Certificate of Environmental Compatibility and Public Convenience and Necessity ("CECPCN") in South Carolina to construct a 750 megawatt ("MW") combined cycle natural gas-fired electric generating facility at the Company's existing Lee Steam Station ("Lee Combined Cycle Project" or the "Project"). The purpose of my testimony is to demonstrate, pursuant to South Carolina Code of Laws Section § 58-33-160, the need for the Lee Combined Cycle Project, that the Project serves the interests of system economy and reliability, and that public convenience and necessity require the construction of the Project.

Q. WHAT DID THE COMPANY'S MOST RECENT ANNUAL PLAN OR IRP IDENTIFY AS THE FIRST RESOURCE NEED?

A. The Company filed the public version of its 2013 IRP with the Public Service Commission of South Carolina ("PSCSC") on October 23, 2013. According to the IRP, the first supply-side resource need is a combined cycle resource in 2017. A copy of the confidential version of the 2013 IRP is attached as confidential Exhibit JDH-1.

Q. DID THE COMPANY'S 2012 IRP ALSO SHOW A NEED FOR A NEW COMBINED CYCLE FACILITY?

A. Yes. The 2012 IRP demonstrated the need for a new combined cycle facility. However, the 2012 IRP projected the need to be in 2016, while the 2013 IRP shows the need for the combined cycle to be in 2017. As discussed in more detail later in my testimony, based on the identified need within the Company's 2012 IRP, the Company issued a Request for Proposals ("RFP") for 700 MW of dependable capacity to be available for the summer of 2016.

Q. WILL DUKE ENERGY CAROLINAS OWN ALL 750 MW OF THE LEE COMBINED CYCLE PROJECT?

A. No. As discussed by Mr. Gillespy in his testimony, the North Carolina Electric Membership Corporation ("NCEMC") will own 100 MW of the facility. Consequently, NCEMC has joined in the filing of this application for a CECPCN and is providing testimony in support of their acquisition of 100 MW of the Lee Combined Cycle Project. My testimony specifically supports the need for 650 MW of the Project; however, if NCEMC did not intend to participate in this Project, the Company would still be seeking a CECPCN for the 750 MW Lee Combined Cycle Project.

Q. DID THE COMPANY TAKE NCEMC'S SHARED OWNERSHIP INTO ACCOUNT IN ITS PLANNING AND ANALYSIS OF THE COST-EFFECTIVENESS OF THE LEE COMBINED CYCLE PROJECT?

A. Duke Energy Carolinas and NCEMC have been in discussions about NCEMC's shared ownership for several months, but the parties reached an agreement only in the last few weeks. Consequently, the IRP analysis did not explicitly consider less than the Company's full ownership of the Project. However, as I discuss later, the Company conducted its 2013 IRP analysis based on a generic 680 MW combined cycle station, whereas the Lee Combined Cycle Project has a nominal capacity rating of 750 MW. The nominal capacity of 750 MW represents an extreme operating condition at 100°F. The maximum net dependable capacity ("MNDC") of the combined cycle facility is based on a 95°F operating condition. At this temperature, the MNDC is 770 MW. Thus, the generic unit in the 2013 IRP is only 10 MWs larger than Duke Energy Carolinas' ownership of the Lee Combined Cycle Project. In determining the cost-effectiveness of the Lee Combined Cycle Project for meeting customers' needs, within the Request for Proposals ("RFP") evaluation I discuss below, both full and shared ownership were evaluated. As I discuss later, the results as shown in Exhibit JDH-7 demonstrate the Project is beneficial to customers whether fully owned by Duke Energy Carolinas or shared with NCEMC.

IRP PROCESS AND RESULTS OVERVIEW

Q. PLEASE PROVIDE AN OVERVIEW OF THE 2013 ANNUAL PLAN PLANNING PROCESS.

A. The development of the annual plan or IRP is a multi-step process involving the development of input data, detailed modeling and analysis, and quantitative and qualitative considerations to develop a selected plan. See Exhibit JDH-2 for a pictorial view of this process. The development of input data includes determining planning inputs and assumptions, developing a regulatory construct reflective of appropriate legislation, preparing a load forecast, identifying energy efficiency ("EE") and demand side management ("DSM") options, developing a renewable energy plan, and identifying and economically screening appropriate supply-side resource options. The detailed modeling and analysis step includes integrating the EE, renewable, and supply-side options with the existing system and electric load forecast to develop potential resource portfolios to meet the desired reserve margin criteria. Performing detailed modeling of potential resource portfolios determines the resource portfolio that exhibits the lowest cost (lowest net present value of revenue requirements) to customers while minimizing price and reliability risks to customers. The quantitative and qualitative considerations include factors such as fuel diversity, the environmental footprint, system flexibility, and rate impacts of the selected plan and how it performed in an environment with increased EE, renewables and higher CO_2 prices.

Q. HOW DID THE DUKE ENERGY 2012 AND 2013 IRPS REFLECT THE MERGER WITH PROGRESS ENERGY?

A. Due to the timing of the Duke Energy Carolinas and Duke Energy Progress ("DEP") merger closing, Duke Energy Carolinas and DEP were not able to coordinate their respective 2012 IRP filings. However, with respect to the 2013 IRP, input assumptions such as fuel prices, environmental inputs and generation costs were developed using common assumptions where appropriate. Assumptions around key inputs such as load forecasts, EE, DSM projections and renewable resource additions were developed specific to each company's situation. Neither the Company nor DEP has included joint planning of new capacity or the sharing of existing capacity between the companies in their base case resource plans but rather, they have examined this potential in a scenario subject to future regulatory approvals. A review of the Duke Energy Carolinas and DEP 2013 IRP results indicate common themes, such as the inclusion of additional natural gas generation, the viability of regional nuclear projects to meet future capacity needs, and a strong commitment to EE and renewable energy resources.

Duke Energy Carolinas and Duke Energy Progress file separate IRPs, but the companies plan to align input assumptions and seek opportunities to plan in a way that provides benefits to customers of both companies. For example, joint ownership of new capacity could lead to the deferral of new generation additions and economies of scale in new generation construction resulting in lower costs to customers.

Q. HOW DOES THE COMPANY USE THE INFORMATION DERIVED FROM THE PLAN?

A. A key purpose of the IRP is to provide the Company's management with information that will help them make decisions necessary to ensure the Company has a reliable, economic, diverse and environmentally sound portfolio of resources over time. The information is also used to educate management on those factors that present risk to the Company's planning decisions. With this information in hand, the Company's management directs the actions necessary to ensure the Company is meeting customers' long-term energy needs.

Q. WHAT ARE THE CONCLUSIONS OF THE 2013 IRP?

A. The conclusions of the Company's 2013 IRP are:

1) Renewable, EE, and DSM resources are projected to make significant contributions to meeting resource needs over the planning horizon contributing more than 2,400 MW of summer capacity over the 2014 through 2028 planning horizon.

2) With the completion of Cliffside Unit 6 and Dan River Combined Cycle, as well as the planned conversion of Lee Unit 3 to natural gas, there will be sufficient resources to meet the target planning reserve margin through 2015. For 2016, the Company needs 37 MW. The Company will monitor this small capacity need and take action as necessary.

3) The most substantial and immediate resource need occurs in 2017, and that need is best met with a combined cycle resource. The next resource need occurs in 2019 and is also best met with a combined cycle resource.

4) New nuclear generation is projected to be part of the resource mix to provide reliable, cost-effective, environmentally clean, diverse capacity and energy for our customers. The Company's proposed portfolio shows that full ownership of two nuclear units in 2024 and 2026 continues to be cost-effective, but the Company recognizes the potential benefits to customers of securing new nuclear generation in smaller capacity increments through regional nuclear development. The 2013 IRP also includes the assumption that Duke Energy Carolinas and DEP will procure a total of 10% of the new V.C. Summer Nuclear units in 2018 and 2020. This assumption is contingent on arriving at commercially acceptable terms with Santee Cooper.

5) The Duke Energy Carolinas IRP Joint plan reflects the potential benefits of joint planning.

INPUTS AND ASSUMPTIONS IN ANALYSES

Q. WHAT ARE THE KEY IRP ANALYSES INPUTS?

A. Key IRP analyses inputs include: load forecast; planning reserve margin; information on existing resources, including planned retirements and availability; cost and impacts of EE and DSM options; costs of new resource options; and projected prices for fuel and emission allowances.

Q. WHAT IS THE LOAD FORECAST PROJECTION?

A. The current 15-year forecast of the needs of the retail and wholesale customer classes, which does not include the impact of the Company's new EE programs, projects a compound annual growth rate of 1.9% in the summer and winter peak

demands. The forecasted compound annual growth rate for energy is 1.9% before EE program impacts are subtracted. If the impacts of the Company's new EE programs are included, the projected compound annual growth rate for retail and wholesale customers for the summer and winter peak demands are 1.5%. The forecasted compound annual growth rate for energy is also 1.5% after the impacts of EE programs have been subtracted.

Duke Energy Carolinas' total retail load growth over the planning horizon, 2014-2028, is driven by projected steady increases in the Residential, Commercial and Other Industrial classes. Textiles, however, are expected to moderate over the forecast horizon. See Exhibit JDH-3 for data tables of the forecast with and without EE impacts.

Q. PLEASE DISCUSS THE PLANNING RESERVE MARGIN.

A. The 2013 DEC IRP analysis used a minimum planning reserve margin of 14.5%. As part of the NCUC's approval of the utilities' respective 2010 IRPs, DEC and DEP were ordered to perform a quantitative analysis of the respective reserve margins and to provide the study results in the companies' 2012 IRPs. Based on the study results presented in the DEC's 2012 IRP, the Company established a minimum planning reserve margin of 14.5%. The 14.5% minimum planning reserve margin is 1% lower than the previous minimum reserve margin of 15.5%, which is equivalent to an approximately 200 MW reduction in generation need in the 2016 timeframe. One factor that supports a lower reserve margin is the Company's retirement of the less reliable, old fleet combustion turbines and older coal units and replacement of such units with the more efficient, reliable Buck and

Dan River Combined Cycles and Cliffside Unit 6 coal unit. Carrying a lower reserve margin does come with a slightly increased risk that additional purchases will be required from neighboring utilities during periods when there are low reserves. The Company expects such purchases to be infrequent and at lower cost to customers than carrying a higher reserve margin.

Q. PLEASE DESCRIBE THE COMPANY'S EXISTING RESOURCES, INCLUDING ANY PLANNED RETIREMENTS.

A. Following the completion of Cliffside Unit 6 and the Dan River Combined Cycle and the recent retirements of Riverbend Units 4-7 and Buck Units 5 and 6, the Company's existing generation resource portfolio mix includes 7,172 MW of coal, 1,240 MW of combined cycle, 2,770 MW of combustion turbine, 5,965 MW of nuclear, 3,229 MW of hydro, 251 MW of purchases, 911 MW of DSM and 185 MW of renewable energy. See Exhibit JDH-4 for the Company's expected 2014 capacity mix. EE accomplishments to date are reflected in the load forecast. The Company has retired 1,297 MW (including Buck and Riverbend) of older coal resources and 350 MW of aging combustion turbine resources over recent years.

Q. WHAT ADDITIONAL RETIREMENTS ARE INCLUDED IN THE IRP AND YOUR ANALYSES?

A. In the current planning horizon, Lee Units 1-2 (200 MW) are projected to retire on or before April 15, 2015. Lee Unit 3 (170 MW) is projected to retire as a coal unit and to be converted to natural gas before the summer of 2015. The retirement of these units, as well as those already retired, is driven by the requirements of air permits for the Company's new coal and combined cycle units

at Cliffside, Buck and Dan River, as well as the North Carolina Utilities Commission Certificate of Public Convenience and Necessity order on Cliffside 6, and expected and known environmental regulations such as the Mercury Air Toxics Standard. It is the combination of unit retirements and load growth that is driving the 2017 need that the Lee Combined Cycle Project will satisfy.

Q. DO THE 2013 IRP AND THE COMPANY'S DECISION TO BUILD A COMBINED CYCLE FACILITY TAKE INTO CONSIDERATION THE VARIOUS RETIREMENT DATES OF COAL UNITS ON YOUR SYSTEM?

A. Yes. The 2013 IRP takes into consideration all of these retirements.

Q. HOW WERE THE COSTS OF RESOURCE ALTERNATIVES DEVELOPED?

A. The cost and performance data for each technology being screened is based on research and information from several sources. These sources include, but may not be limited to the following: proprietary third-party engineering studies, the EPRI Technology Assessment Guide (TAG®), Energy Information Administration (EIA) and internal estimates based on recently completed projects. In addition, fuel and operating cost estimates are developed internally by Duke Energy, or from other sources such as those mentioned above, or a combination of the two. Finally, every effort is made to ensure that capital, O&M and fuel costs and other parameters are current and include similar scope across the technologies being screened. While this has always been important, keeping cost estimates across a

variety of technology types consistent in today's markets for commodities, construction materials, and manufactured equipment remains very difficult.

Q. HOW WERE PRICES OF FUELS AND EMISSION ALLOWANCES DEVELOPED?

A. Fuel prices represent a composite forecast which utilizes forward market prices in the near term and a comprehensive fundamental outlook for long term commodity prices. The 2013 Duke fundamental outlook was developed by Energy Ventures Analysis, Inc. ("EVA") in collaboration with the Company's own subject matter experts who reviewed the modeling process and refined the assumption data set. The EVA modeling process is an iterative process utilizing optimization models in conjunction with a detailed simulation model. Fuel prices are derived from detailed supply models which balance the demand for these fuels, both domestic and global, with the available North American supply. The future SO_2 and NO_x emission allowance prices were derived from forward market quotes as of May 2013. The CO_2 allowance price projection was developed internally and is intended to reflect the potential for legislative or regulatory actions that could result in CO_2 emissions pricing.

Q. IN PARTICULAR, HOW IS THE PRICE OF GAS CONSIDERED WITHIN THE COMPANY'S RESOURCE PLANNING PROCESS?

A. The Company's projection of natural gas prices is an input to the resource planning process. The natural gas price projection represents a combination of market prices and fundamental price projections. The first three years of natural gas prices are market prices followed by a two year transition which blends

market prices and the long-term fundamental prices. Beyond the first five years, the gas prices are purely fundamental prices.

Q. NATURAL GAS PRICES ARE CURRENTLY LOW COMPARED TO JUST A FEW YEARS AGO. WHAT HAPPENS IF GAS PRICES RISE CONSIDERABLY IN THE NEAR OR LONG TERM?

A. The resource planning process uses the fundamental price projection process outlined in the previous question. This projection assumes natural gas prices will rise faster than inflation and thus higher gas prices are assumed in the analysis. Furthermore, the addition of the Lee CC will bring DEC's total combined cycle capacity to approximately 2,000 MW in a fleet that contains more than 20,000 MW of generating capacity. The IRP evaluation process itself seeks to develop a reliable portfolio that is not only economic under base case assumptions, but also performs well under varying market conditions. If prices rise more than projected in the fundamental forecast, Duke Energy Carolinas has the supply portfolio diversity to dispatch its controlled coal units before its natural gas combined cycles. Conversely, the combined cycles can operate in a baseload capacity if natural gas prices stay lower than coal dispatch prices.

ANALYSIS METHODOLOGY

Q. PLEASE PROVIDE A BRIEF EXPLANATION OF THE ANALYSIS METHODOLOGY.

A. The Company initially screens all technologies from both a technical perspective and an economic perspective. The technologies are screened to eliminate those with technical limitations, commercial availability issues, or are not feasible in the

Duke Energy Carolinas service territory. Then technologies are screened using relative dollar per kilowatt-year ($/kW-yr) versus capacity factor screening curves. This screening curve analysis model includes the total costs associated with owning and maintaining a technology type over its lifetime and computes a levelized $/kW-year value over a range of capacity factors. The lower envelope along the curves represents the least costly supply options for various capacity factors. While appropriate for screening, this phase of the analysis is insufficient for resource selection since it does not take into account the Company's load profile or its existing resource mix. To drive toward ultimate resource selection, Duke Energy Carolinas conducts a more detailed screening analysis using a capacity expansion model to identify the most attractive capacity options given Duke Energy Carolinas' expected load profile and existing supply portfolio. This analysis considers many theoretical configurations of resources with differing operating (production) and capital costs required to meet an annual 14.5% minimum planning reserve margin while minimizing the long-term revenue requirements to customers. Using the insights from these modeling results, Duke Energy creates a resource plan or plans to perform detailed product costing modeling analysis. In the 2013 IRP, the capacity expansion model selected a 680 MW combined cycle as the best resource to meet the 2017 need. In addition, a sensitivity case was performed by locking in combustion turbine ("CT") generation in lieu of the selected combined cycle generation. The present value of revenue requirements ("PVRR") of each portfolio was calculated to confirm that the combined cycle resource selection was best.

Q. HOW WERE DSM AND EE PROGRAMS ANALYZED WITHIN THE COMPANY'S RESOURCE PLANNING PROCESS?

A. The Company uses the Demand Side Management Option Risk Evaluator ("DSMore") model to evaluate the costs, benefits, and risks of DSM and EE programs and measures. DSMore is a financial analysis tool designed to estimate the value of individual DSM and EE measures at an hourly level across distributions of weather conditions and/or energy costs or prices. By examining projected program performance and cost effectiveness over a wide variety of conditions, the Company is in a better position to measure the risks and benefits of employing DSM and EE measures versus traditional generation capacity additions, and further, to ensure that DSM resources are compared to supply-side resources on a level playing field. This process allows the Company to create a base case portfolio of cost-effective, achievable DSM and EE programs for the first 5 years of the resource plan. For periods beyond the first 5 years, the Company uses information from Market Potential Studies performed by a third party to project expected achievable aggregate EE and DSM achievements. These projections and the associated costs are included in the evaluation of portfolios in the IRP analysis process.

Q. HOW WERE RENEWABLE ENERGY RESOURCE PROGRAMS ANALYZED WITHIN THE COMPANY'S RESOURCE PLANNING PROCESS?

A. A portfolio of renewable energy resources is included in the Company's resource plan to meet the North Carolina Renewable Energy Portfolio Standard ("NC

REPS"). The NC REPS requirement was applied to all North Carolina retail load and to wholesale customers who have contracted with the Company to meet their NC REPS requirement. The Company assumed for purposes of the 2013 IRP that a new legislative requirement (imposed by either federal or state level legislation) would be implemented in the future that would result in additional renewable resource development in South Carolina. For planning purposes, Duke Energy Carolinas assumed the requirement would be similar in many respects to the NC REPS requirement, but would have a different implementation schedule. Specifically, the Company assumed this requirement would have an initial 3% milestone in 2018 and would gradually increase to a 12.5% level by 2026. Similar to NC REPS, this assumed legislative requirement would incorporate both renewable energy and EE, as well as a limited capability to utilize out-of-state unbundled purchases of Renewable Energy Credits ("RECs").

Q. WILL YOUR ASSUMPTIONS REGARDING A SOUTH CAROLINA OR NATIONAL RENEWABLE STANDARD NEGATIVELY IMPACT YOUR SOUTH CAROLINA CUSTOMERS PRIOR TO THE PASSAGE OF SUCH STANDARDS?

A. No. With respect to renewable energy resources used to comply with the NC REPS program, Duke Energy Carolinas currently shields South Carolina customers from any renewable costs that are above the Company's avoided costs. In addition, while the IRP includes an assumption regarding a South Carolina or national renewable standard, the Company does not anticipate taking action to

purchase non-economic renewable resources or RECs for South Carolina customers until such state or federal action is taken.

Q. HOW ARE PURCHASED POWER PROGRAMS ANALYZED WITHIN THE COMPANY'S RESOURCE PLANNING PROCESS?

A. Purchased power as resource options are not generally considered within the IRP process. The IRP process instead identifies the type and size of resources to meet customers' needs. Once a type and size are identified, the best way to secure that resource is determined outside of the IRP process. Based on the initial 2016 combined cycle need as projected in the 2012 IRP, the Company issued an RFP. This led to consideration of long-term purchase power agreements ("PPAs"), as well as the Lee Combined Cycle Project, as discussed below.

ANALYSIS RESULTS

Q. WHAT ARE THE RESULTS OF THE ECONOMIC ANALYSIS?

A. Diversification of Duke Energy Carolinas' existing portfolio continues to be most beneficial to customers. The selected optimal portfolio reflects the need for new baseload, intermediate and peaking resources. These needs are shown to be best met by building, purchasing, or procuring power purchase agreements from combined cycle, combustion turbine and nuclear resources, in addition to expected additions of cost-effective EE and DSM, as well as renewable resources to meet existing and potential renewable standards. In the preparation of the 2013 IRP, an analysis was performed utilizing detailed system planning models to determine the most economic and reliable portfolio. This analysis demonstrated that generic combined cycle generation was preferred to meet the 2017 need in

lieu of CT generation. In addition, the Company performed a separate, more detailed analysis for the first capacity need in 2017 using the Lee 770 MW combined cycle in lieu of the 680 MW generic combined cycle. This analysis compared the optimal portfolio of the first need being met with the Lee Combined Cycle Project to the need being met with CT generation using the detailed production cost model. This analysis included two sensitivities, one including higher gas prices and the other excluding the impacts of CO_2. In each of these three cases, the portfolio including the Lee Combined Cycle Project was lower in costs for customers. See the table below for the analysis results.

System PVRR (Prod Cost + Capital) 2013 Thru 2033, Millions of Dollars

System Optimizer Analysis, System Reoptimized	Base Plan With Generic CC in 2017 PVRR	Base Plan With 805 MW CT Replacing CC in 2017 PVRR	Delta (CC Minus CT)	% of CC PVRR
Base Case	$83,589	$83,720	($131)	0.16%
Prosym Analysis, IRP Reference Plan	Base Plan With Lee CC Bid in 2017 PVRR	Base Plan With 805 MW CT Replacing CC in 2017 PVRR	Delta (CC Minus CT)	% of CC PVRR
Base Case	$95,192	$95,541	($350)	0.37%
High Gas Case	$98,074	$98,277	($204)	0.21%
No CO2 Case	$88,272	$88,394	($122)	0.14%

Q. PLEASE DESCRIBE THE JOINT PLANNING SCENARIO DEVELOPED AS PART OF THE 2013 DUKE ENERGY CAROLINAS IRP.

A. A Joint Planning Scenario that begins to explore the potential for Duke Energy Carolinas and DEP to share firm capacity between the companies was also developed as part of the 2013 IRP process. The focus of this scenario is to illustrate the potential for the utilities to collectively defer generation investment by utilizing each other's capacity, when available, and by jointly owning new capacity. This scenario does not address the specific implementation methods or

issues required to implement shared capacity. Rather, this scenario illustrates the benefits of joint planning between Duke Energy Carolinas and DEP with the understanding that the actual execution of capacity sharing would require separate regulatory proceedings and approvals. Exhibit JDH-5 provides an illustration of the resource plan in both the Base Case and the Joint Planning Scenario. The Joint Planning Scenario indicates that under the proper conditions, the Lee Combined Cycle Project could be deferred until 2018.

Q. IF THE COMBINED CYCLE NEED CAN BE DEFERRED UNTIL 2018 IN A JOINT PLANNING SCENARIO, WHY ARE YOU REQUESTING A CECPCN FOR A 2017 NEED?

A. The Company is requesting the CECPCN for the Lee Combined Cycle Project to ensure we can reliably and cost-effectively meet our customers' energy needs in 2017. At this point, we do not have any arrangement in place to share capacity with DEP. We will be investigating such an arrangement and will be on the alert for changes in load forecast projections, EE adoption rates, and renewable resource projections that could impact the timing of the need for the Project, and will make the decision of whether and when to build the Lee Combined Cycle Project based on, among other things, the timing of the need.

REQUESTS FOR PROPOSALS PROCESS AND RESULTS

Q. DID THE COMPANY CONSIDER OPTIONS OTHER THAN A SELF BUILD OF THE LEE COMBINED CYCLE PROJECT?

A. Yes. Based on the Duke Energy Carolinas' 2012 IRP identified need for capacity in 2016, Duke Energy Carolinas issued an RFP on October 26, 2012, for up to

700 MW of non-peaking capacity beginning either June 1, 2016, and/or June 1, 2017, for fifteen to twenty years. Duke Energy Carolinas engaged a third-party administrator to receive the bids, serve as an intermediary with bidders, and review the Company's analytical methodology. Thirty-four bids from twelve bidders were received. The Lee Combined Cycle Project was one of the thirty-four bids. The majority of the bids were for natural gas-fired combined cycle capacity, both new build generation and existing capacity.

Duke Energy Carolinas performed an initial analysis to determine the relative value of the bids and selected seven bidders for the short-list in February 2013. The third party evaluator worked in conjunction with Duke Energy Carolinas to review the comprehensive evaluation of the bids and notify the bidders of the short list selection. By this time, the Company had developed the 2013 Load Forecast and concluded the need for 2016 was sufficiently reduced such that the combined cycle could be deferred until 2017. Consequently, the seven short-listed bidders (including the Lee Combined Cycle Project) were then asked to refresh their bids for a June 2017 start date. Refreshed bids were received in May 2013 and were again ranked by relative value with the lowest cost bids subjected to more detailed production cost modeling analyses. In the detailed modeling, the Lee Combined Cycle Project was evaluated with Duke Energy Carolinas owning 100% of the Project and with shared ownership between Duke Energy Carolinas and NCEMC, with NCEMC owning 100 MWs. The detailed production cost modeling results for each bid were combined with the bid's fixed costs to produce a total cost. These costs were converted to a levelized cost per kW and compared.

The result of the analysis is the Lee Combined Cycle Project (whether fully owned by Duke Energy Carolinas or shared with NCEMC) is lowest total cost for customers.

Q. PLEASE DISCUSS FURTHER THE ANALYSIS METHODOLGY.

A. The analyses were completed in two phases. Phase I methodology was used to screen the bids to develop the short list. Phase II methodology subjected the short-listed bids to a more detailed production cost modeling analysis.

Q. PLEASE DESCRIBE THE PHASE I ANALYSIS AND RESULTS.

A. The purpose of the Phase I analysis was to identify the most cost-effective bids for further analysis. In order to put all bids on an equal footing, all bids were dispatched against the Company's hourly marginal cost curve to develop the energy value of each bid. The resulting energy value was then compared to the Lee Combined Cycle Project's energy value and the "delta" (bid energy value minus Lee Combined Cycle energy value) was used to adjust the capacity price of the bid. A credit to the capacity price was applied to those bids providing more energy value, and an increase to the capacity cost was applied to those bids with less energy value. The resulting adjusted "capacity costs" for these bids were then stacked from lowest cost to highest cost.

As I have previously noted, based on this analysis we selected seven bidders, including the Lee Combined Cycle Project, for a short list. This short list represented a wide variety of resources including both existing and new build combined cycles in our balancing authority, as well as existing resources outside

our balancing authority. We asked these bidders to refresh their bids including only a 2017 start date and refreshed bids were received on May 29, 2013.

Q. PLEASE DISCUSS THE EVALUATION OF THE REFRESHED BIDS.

A. The Company performed the same screening analysis for the refreshed bids as for the original bids. Those results are shown in Exhibit JDH-6. No bidder names other than the Lee CC Project are shown pursuant to our confidentiality agreements with bidders. This completed the first phase of the analysis.

Q. PLEASE DISCUSS THE SECOND PHASE OF THE ANALYSIS.

A. Dispatching the bids against the marginal costs is useful for screening bids, but the Company selected to run the refreshed bids in the detailed production cost models to more accurately determine the relative benefits of the bids to the production costs of the system. To establish a relative production cost value for the bids, the IRP team determined a base case production cost savings for a 2017 680 MW generic combined cycle plant addition as modeled in the 2013 IRP. This was determined by modeling the system with and without the generic combined cycle plant. The IRP team performed an additional production cost model run for each bid resource by substituting the bid resource for the generic plant, which provided the production cost savings for each bid resource. The production cost savings for each bid resource was compared to the production cost savings for the generic plant. If the production cost savings for the bid resource was greater than the production cost savings for the generic plant then the difference was applied to the bid capacity cost, resulting in a lower capacity cost. If the production cost savings for the bid resource was less than the production cost savings for the

generic plant, the savings shortfall was applied as an increase to the capacity cost. The team then stacked the resulting "adjusted capacity cost" for the bids from lowest to highest, as previously explained for the Phase I analysis. The results of this analysis are shown in Exhibit JDH-7. No bidder names other than the Lee Combined Cycle Project are shown pursuant to our confidentiality agreements with bidders.

Q. DID THE AGREEMENT WITH NCEMC IMPACT YOUR SELECTION OF THE LEE COMBINED CYCLE PROJECT AS THE BEST PROJECT TO MEET YOUR NEED IN 2017?

A. No. Our analyses showed that whether the Lee Project was fully owned or shared with NCEMC, it was the best option for meeting our customers' needs.

Q. IS IT YOUR OPINION THAT THE COMPANY NEEDS TO BUILD THE LEE COMBINED CYCLE PROJECT IN THE 2017 TIMEFRAME TO MEET THE COMPANY'S RESOURCE NEEDS AND THE CONSTRUCTION OF THIS FACILITY THAT PUBLIC CONVENIENCE AND NECESSITY REQUIRE CONSTRUCTION OF THE PROJECT ?

A. Yes. It is my opinion the Company needs to build the Lee Combined Cycle Project in the 2017 timeframe to meet the Company's resource needs and that public convenience and necessity require construction of the Lee Combined Cycle Project.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes. This concludes my pre-filed direct testimony.

[PURSUANT TO STIPULATION AND PREVIOUS INSTRUCTION, THE PREFILED REBUTTAL TESTIMONY {CORRECTED} OF JANICE D. HAGER FOLLOWS AT PGS 76-95]

Correction noted as reflected in hearing testimony.

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

DOCKET NO. 2013-392-E

In the Matter of	)	
	)	
Application for Certificate of Environmental Compatibility and Public Convenience and Necessity for Lee Combined Cycle Natural Gas-Fired Generating Facility	)	REBUTTAL TESTIMONY OF JANICE D. HAGER ON BEHALF OF DUKE ENERGY CAROLINAS, LLC
	)	
	)	
	)	

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

A. My name is Janice D. Hager and my business address is 400 South Tryon Street, Charlotte, North Carolina 28202. I am Vice President, Integrated Resource Planning and Analytics for Duke Energy Business Services LLC, the service company subsidiary of Duke Energy Corporation (collectively "Duke Energy") and an affiliate of Duke Energy Carolinas ("Duke Energy Carolinas," or the "Company").

Q. ARE YOU THE SAME JANICE HAGER WHO SUBMITTED DIRECT TESTIMONY?

A. Yes.

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my testimony is to address the issues raised by the witnesses for Carolina Coastal Conservation League ("CCL") and Southern Alliance for Clean Energy ("SACE") and for Invenergy Thermal Development LLC ("Invenergy"). Through my direct testimony and this rebuttal testimony, I am seeking to demonstrate, pursuant to South Carolina Code of Laws Section § 58-33-160, the need for the Lee Combined Cycle Project ("Project"), that the Project serves the interests of system economy and reliability, and that public convenience and necessity require the construction of the Project.

Q. HAVE YOU REVIEWED THE JOINT TESTIMONY OF HAMILTON DAVIS AND JOHN D. WILSON ON BEHALF OF CCL AND SACE?

A. Yes, I have.

Q. DO YOU AGREE WITH CCL AND SACE'S RECOMMENDATION THAT THE COMMISSION SHOULD CONDITION ITS CERTIFICATION OF THE LEE COMBINED CYCLE PROJECT ON AN IN-SERVICE DATE OF 2018, RATHER THAN 2017?

A. No, I do not. As I note in my direct testimony (page 20), the Company is seeking the CECPCN for 2017 to ensure we can reliably and cost-effectively meet our customers' energy needs in the 2017 time frame. While my testimony further explains that the ability for Duke Energy Carolinas and Duke Energy Progress to share capacity, as well as other considerations, could allow Duke Energy Carolinas to defer the Project to 2018, I note, and CCL and SACE acknowledge, that we are not yet authorized to do so (CCL and SACE Direct Testimony, p. 9). The Company needs to move forward with the Project for a 2017 in-service date until it has confidence that the Project can be deferred. I discuss this in more detail below.

Q. CCL AND SACE ASSERT DUKE ENERGY CAROLINAS MISCALCULATED ITS RESERVE MARGIN. DO YOU AGREE?

A. No, I do not. First, CCL and SACE have mischaracterized the North American Electric Reliability Corporation ("NERC") Guidelines. Second, they mistakenly assume how the treatment of demand side management ("DSM") programs would impact the calculation of reserve margin. As I explain below, treating DSM programs as an offset to load versus as a resource does not result in the utility suddenly having excess reserves.

The Company stands behind its calculation of reserve margin used in determining the need for the Project. Duke Energy Carolinas' treatment of DSM

programs in the calculation of reserve margin is a reasonable and appropriate method of treating these programs. CCL and SACE contend that Duke Energy Carolinas' treatment of DSM as a resource is "contrary to North American Electric Reliability Corporation ("NERC") definitions and guidance." (CCL and SACE testimony at page 7) They cite their comments in the North Carolina Utilities Commission ("NCUC") 2012 Integrated Resource Planning ("IRP") docket (E-100, Sub 137), as well as the NCUC Order in that docket.

The NERC document cited by CCL and SACE (NERC Reliability Assessment Guidebook V3.1) in their December 6, 2013, comments filed in the Public Service Commission of South Carolina ("PSCSC") Docket No. 2012-10-E does NOT find the treatment of DSM as a resource a violation of NERC guidance. In fact, the cited document notes that "DSM resources can be modeled in a variety of ways, all of which are appropriate." (NERC Reliability Assessment Guidebook 3.1, August 2012, p. 18). In addition, in NERC's 2012 Long Term Reliability Assessment, NERC's definition for demand response (the term NERC uses for DSM) includes the statement that demand response can be counted in resource adequacy studies either as a load-modifier or as a resource. (NERC 2012 Long-Term Reliability Assessment, November 2012, Appendix VII, p. 319).

CCL and SACE reference the October 14, 2013, NCUC Order in the 2012 IRP docket which found that Duke Energy Carolinas' and Duke Energy Progress' reserve margins were reasonable, although the order does require the Company, in future reserve margin studies, to consider DSM programs as load reductions rather than as resources. NCUC Order Approving 2012 Biennial IRP & Compliance

Plans, Docket No. E-100, Sub 137 (October 14, 2013). The Order was issued the day before Duke Energy Carolinas' and Duke Energy Progress' 2013 IRPs were filed. Duke Energy Carolinas will address this requirement in its 2014 IRP.

At issue is whether DSM programs such as "Power Manager" and "Power Share" are treated as a resource or an offset to load. Duke Energy Carolinas and Duke Energy Progress have historically treated DSM differently in their calculation of reserve margin. Duke Energy Carolinas has treated the programs as resources similar to a generating unit; Duke Energy Progress has treated the programs as offset to load. As the NERC Guidelines suggest, either is appropriate. Upon the merger between Duke Energy and Progress Energy, the Integrated Resource Planning and Analytic group considered both options and chose to treat the programs as resources rather than as a load reduction. Our basis for this decision stems from how we treat them in our system operations. Our system dispatchers and grid managers know when they call on these programs the response is similar to the response of a combustion turbine unit. And, while the Company seeks to ensure the programs are available when called upon, like a generating unit, they are not 100% responsive. This is in contrast to energy efficiency ("EE") programs, such as installation of high efficiency lighting, motors, and HVAC equipment, that are appropriately treated as a reduction to load. Once an EE measure is installed, the customers' electricity usage is reduced.

Q. IS CCL AND SACE'S ASSUMPTION THAT CHANGING THE TREATMENT OF DSM PROGRAMS RESULTS IN EXCESS RESERVES FOR DUKE ENERGY CAROLINAS ACCURATE?

A. No. CCL and SACE appear to believe the Company would keep the same target reserve margin with the change in methodology. This is an incorrect assumption. If Duke Energy Carolinas adopts the methodology to treat DSM as a reduction to load, the Company will be required to raise its reserve margin to maintain the same level of reliability.

Target reserve margins are developed to achieve a specific level of reliability, typically expressed in a loss of load expectation ("LOLE") of one day in ten years. This LOLE level is the constant, irrespective of whether DSM is treated as a resource or as a load reduction. Below are results from the Company's most recent reserve margin study, conducted by Astrape Consulting (an energy consulting firm with a focus on resource adequacy and resource planning) in 2012. As shown in the table, Astrape Consulting proposed a minimum target reserve margin of 14.5% if DSM (called DR for Demand Response by Astrape) is treated as a resource and 15.25% if treated as a reduction to load. For the reasons discussed above, the Company chose to treat DSM as a resource and used the 14.5% Reserve Margin. If the Company adopts the methodology to treat DSM as a load reduction, using the 15.25% minimum target planning reserve margin would be appropriate.

RM with DR as a resource	***Physical***
Company	LOLE: 1 day in 10 Yr
DEC	14.50%

RM with DR removed from load	***Physical***
Company	LOLE: 1 day in 10 Yr
DEC	15.25%

The table below shows the level of resources needed to meet the minimum target reserve margin for Duke Energy Carolinas in 2017. The table demonstrates that there is virtually no difference (25 MWs on an almost 20,000 MW load) in the level of resources needed regardless of the way DSM is treated.

	DSM as a Resource	DSM as a Reduction to Load
System Peak, Net of EE	19,445	19,445
Cumulative DSM		1,118
System Peak, Net of EE & DSM		18,327
Minimum Required Reserves (%)	14.5%	15.25%
Minimum Required Reserves	2,820	2,795

In conclusion, CCL and SACE's claim that Duke Energy Carolinas' treatment of DSM as a resource has resulted in excess reserves is in error. Duke Energy Carolinas has properly calculated its reserve margin and the values presented in its Application in this docket are correct.

Q. IS CCL AND SACE'S CALCULATION OF THE RESERVE MARGIN BASED ON THE JOINT PLANNING CASE OR ON THE DUKE ENERGY CAROLINAS STAND-ALONE CASE?

A. CCL and SACE's calculation of the reserve margin is based on the joint planning case, not on the Duke Energy Carolinas stand-alone case. The reserve margin on the joint planning case is not relevant unless and until Duke Energy Carolinas and Duke Energy Progress are able to share capacity.

Based on the Duke Energy Carolinas 2013 IRP, if the Lee Project is not operational in 2017, Duke Energy Carolinas' reserve margin in 2017 would be 12.9%, well below Duke Energy Carolinas' MINIMUM target planning reserve margin of 14.5%. Thus, Duke Energy Carolinas is ensuring through this CECPCN process that it has the ability to obtain sufficient resources to meet the minimum target planning reserve margin of 14.5%.

While the shortfall to meet the minimum target planning reserve margin is 317 MWs in 2017, it grows to 573 MWs by 2018. It is not unusual in IRP planning space, given the economies of scale which support larger units, to add generating units in a manner that leads to higher reserve margins for a year or two. The 2017 need, on a Duke Energy Carolinas stand-alone basis, is real and cannot be ignored.

Q. DOES THE COMPANY NEED AUTHORIZATION FROM BOTH THE PSCSC AND THE NCUC BEFORE PROCEEDING WITH JOINT PLANNING?

A. Yes. The Company has already received authority for joint planning, but further approvals are needed. Regulatory Conditions 3.10(b) and (c) requires Duke Energy

Carolinas and Duke Energy Progress to seek authorization from the PSCSC and the NCUC before jointly planning and sharing capacity. The Company has recently received the required authorization from PSCSC and NCUC to jointly plan. PSCSC Order Approving Joint Generation & Transmission Planning Agreement, Docket No. 2011-158-E, Order No. 2013-777 (Nov. 8, 2013) and NCUC Order Approving Affiliate Agreement Providing For Joint Planning, with Conditions, Docket No. E-7, Sub 986A (September 27, 2013). The joint planning case shown in the 2013 IRP demonstrates the potential of joint planning to defer the need for the Lee Project until 2018. Joint planning, however, in and of itself, does not allow the two utilities to share capacity. Regulatory approval to share generating capacity is required by the PSCSC, NCUC, and the Federal Energy Regulatory Commission in order to realize the opportunity afforded by joint planning.

Q. WHAT ARE THE COMPANY'S PLANS WITH REGARD TO SEEKING AUTHORIZATION TO EXECUTE A JOINT PLAN?

A. Duke Energy Carolinas and Duke Energy Progress are developing a proposal for sharing capacity. Because the sharing involves transactions between affiliates, there are numerous issues to address including how the transaction will be priced to ensure fairness to both utilities.

Q. SHOULD THE COMMISSION CONDITION ITS CERTIFICATION OF THE LEE PROJECT ON THE COMPANY'S SEEKING AUTHORIZATION FOR JOINT PLANNING?

A. No. The Company may determine for good reason that it should not seek authorization for capacity sharing at this time. As I noted in my direct testimony,

joint planning is not the only factor determining whether the Lee CC Project can be delayed until 2018. The Company will also be monitoring load forecast projections, EE adoption rates and renewable resource projections to determine whether the Project is best suited for 2017 or 2018. The Company is asking this Commission for flexibility in the CECPCN to place the project into service as early as 2017. If the Company determines it is in fact able to delay the project cost effectively and without harming reliability, it will.

Q. CCL AND SACE POINT OUT THAT THE LEE PROJECT IS ONLY THE FIRST OF FIVE CC PROJECTS IN DUKE ENERGY CAROLINAS' AND DUKE ENERGY PROGRESS' PLANS OVER THE NEXT DECADE. IS THIS RELEVANT?

A. No. Duke Energy Carolinas is seeking approval of only the Lee CC Project at this time. The future CCs reflected in Duke Energy Carolinas' and Duke Energy Progress' IRPs are today's projections only. These projections can, and likely will, be adjusted (upward or downward) in the future based on changes in the load forecast, participation in EE programs, renewable resource costs, and a host of other factors.

Q. DO YOU AGREE WITH CCL AND SACE'S ASSERTION THAT THE COMPANY HAS NOT ADEQUATELY PURSUED ALL COST-EFFECTIVE ENERGY EFFICIENCY AND RENEWABLE ENERGY ALTERNATIVES?

A. No, to the contrary, the Company has included significant levels of EE and renewable resources in its 2013 IRP, surpassing the level included in the 2012 IRP. First, I will address EE. Duke Energy Carolinas projects that it will have delivered

close to 5,000,000 MWHs of EE savings between 2009 and 2018. The estimated peak load impact of these EE savings is 750 MWs (the equivalent of one Lee CC Project) in that same timeframe. In addition, the Company projects over 1000 MWs of peak load savings from DSM programs by 2018.

CCL and SACE state that Duke Energy Carolinas projects that it will reduce demand and load by about 900 MWs by 2022 through EE programs. This value ignores the accomplishments to date as well as the contributions of DSM programs. They note that if the Company could double its accomplishments in that time frame it could avoid at least one future CC plant. The Company has included in its 2013 IRP the level of EE it believes is reasonably achievable and economic. The IRP also includes an Environmental Focus Scenario that reflects significantly greater levels of EE than in the base plan and includes the deferral of a future CC for 3 years. Duke Energy Carolinas continues its commitment to EE and will be seeking to achieve this higher level of EE. However, until the Company has more certainty that it can achieve these aspirational levels of EE, it is using the more moderate assumptions in the IRP base plan.

Q. HAS DUKE ENERGY CAROLINAS ALREADY INCLUDED SIGNIFICANT LEVELS OF RENEWABLE RESOURCES IN ITS PLAN?

A. Yes. Duke Energy Carolinas' 2013 IRP includes almost 900 MWs of renewable resources by 2018 and over 1500 by 2023. Duke Energy Carolinas' 2013 IRP includes approximately 850 MWs of nameplate renewable resources by 2018 and over 1550 by 2023. Solar resources make up the majority of these MWs (730 of the 850 and 1300 of the 1550). Duke Energy Carolinas is currently relying on almost

200 MWs of peak contributions from renewable generation to meet its projected upcoming summer peak of 2014. The underlying need for the Lee CC project is in addition to these existing and future projected renewable resources outlined in the Company's IRP.

CCL and SACE reference a 2012 South Carolina Public Utility Review Committee Energy Advisory Council Report that concludes there is over 1700 MWs of near-term solar potential in South Carolina. A closer review of the report shows that the potential range is 850 to 1700 MWs for the entire state. Potential does not equal cost-effective or achievable. In fact the report goes on to say that "the true barrier to achieving the … potential is cost" and that "current incentives available in the state and at the federal level are not sufficient to close the gap between the cost of solar compared to the cost of electricity." (2012 South Carolina Public Utility Review Committee Energy Advisory Council Report, p. 4–9).

Q. CCL AND SACE ASSERT THAT GIVEN LEE'S OPERATING COSTS WILL BE 80 TO 90 PERCENT FUEL AND OTHER VARIABLE COSTS, UTILITY SCALE SOLAR IS THE RIGHT ALTERNATIVE TO OPERATING A COMBINED CYCLE FACILITY. DO YOU AGREE?

A. No. CCL and SACE conclude that because the operational costs, mainly fuel, of the plant account for 80 to 90 percent of the revenue requirements, Duke Energy Carolinas' customers will benefit from any cost-effective alternative to operating the unit. I am unclear as to how they reach their conclusion based on the data. Our IRP analyses are performed solely from a customer basis and are designed to ensure that the reliable portfolio with the lowest reasonable cost is the selected proposal. In

doing these analyses, we look at the combination of capital and operating costs for portfolios. From our IRP and Request for Proposals ("RFP") analyses, we concluded the Lee Project is the best alternative for customers.

Q. CCL AND SACE PROPOSE BUILDING AN ADDITIONAL 375 MWS OF SOLAR CAPACITY AT OR NEAR THE LEE SITE IN ADDITION TO THE PROPOSED PROJECT. PLEASE RESPOND TO THIS SUGGESTION.

A. CCL and SACE do not request that the Commission deny Duke Energy Carolinas' request, but rather, condition it. Thus, it appears they are suggesting Duke Energy Carolinas add 375 MWs of solar in addition to the Lee CC Project. As CCL and SACE witnesses note, the largest solar facility in the world is under construction in Arizona and will provide 290 MWs of capacity. It is unclear why CCL and SACE believe the Anderson, South Carolina, area is a likely spot for an even larger facility. In addition, a 375 MW solar facility would be a poor substitute for the Lee CC Project. It would only provide approximately 150 MWs of summer peak equivalent capacity compared to the 750 MW Lee Project and can only provide about 10% of the energy that the Lee Project is capable of providing. Finally, based on the 2012 South Carolina Public Utility Review Committee Energy Advisory Council Report which CCL and SACE cite, utility scale solar takes approximately 7 acres of land to produce a single MW of nameplate capacity. The 375 MW facility proposed by CCL and SACE would require approximately 2,625 acres of land. By contrast the footprint of the 750 MW Lee CC Project is estimated to be approximately 20 acres.

Q. **SINCE LARGE SCALE SOLAR IS NOT AN APPROPRIATE ALTERNATIVE TO OPERATING THE LEE COMBINED CYCLE,**

WOULD MULTIPLE SMALLER PROJECTS, AS ASSERTED BY CCL AND SACE, BE A GOOD ALTERNATIVE?

A. No. All of CCL and SACE's economics are based on utility scale solar. They appear to recognize the economies of scale associated with utility scale solar. Multiple smaller projects would have a higher installed cost per KW.

Q. HAVE YOU REVIEWED THE TESTIMONY OF DANIEL EWAN ON BEHALF OF INVENERGY?

A. Yes, I have.

Q. INVENERGY COMPLAINS THAT DUKE ENERGY CAROLINAS DID NOT ALLOW BIDDERS TO REVIEW THE INPUTS, ASSUMPTIONS, AND OUTPUTS USED TO EVALUATE THE BIDS IT RECEIVED. WHY DID DUKE ENERGY CAROLINAS NOT GIVE BIDDERS THIS OPPORTUNITY?

A. Duke Energy Carolinas is not required to and does not believe it is appropriate to allow bidders to review the inputs, assumptions, and outputs used to evaluate the bids. The RFP provides detailed information regarding the type of information that is needed from bidders, information on the evaluation process, and a proposed contract. This information is sufficient to allow bidders to provide a bid that can then be evaluated. Much of the other information such as assumptions regarding fuel price projections used in the evaluation are market sensitive information that Duke Energy does not normally disclose. One aspect of the contract with the Third Party Consultant is to ensure that Duke Energy's assumptions, inputs, internal bid, models, and evaluation of bids are reasonable.

The Third Party Consultant is also available to bidders to request further information if needed to prepare their bids. Finally, probably the most important factor in the RFP evaluation process is how one bid compares to another. Bidders typically ask Duke Energy Carolinas to sign nondisclosure agreements to ensure their bid information is not disclosed to other bidders.

Q. PLEASE DESCRIBE THE LEE CC PROJECT TEAM'S INVOLVEMENT IN THE DEVELOPMENT OF THE RFP AND IN THE EVALUATION PROCESS.

A. The Lee CC Project Team had no involvement in the development of the RFP or in the evaluation process. The teams working on both the Project and the RFP development and evaluation were instructed not to have any discussions regarding the RFP. The teams were frequently reminded of this requirement and, to my knowledge, no one violated this requirement. Communications to all bidders, including the Lee CC Project team, related to the RFP were conducted by or with Burns & McDonnell during the RFP submittal, evaluation, and selection process. The Project Team saw the RFP at the same time as other bidders and was informed of its status on the short list and the winner in the same time frame as other bidders.

Q. WAS THERE INTERACTION BETWEEN THE PROJECT TEAM AND THE IRP TEAM IN ADVANCE OF ISSUANCE OF THE RFP?

A. During the development of the 2012 IRP, the IRP team worked with members of the Major Projects Organization department that develops self-build projects to identify the optimal site and configuration of a new combined cycle. These discussions included some who were ultimately part of the Project Team. Mr. Landseidel

discusses this process in his direct testimony. (Landseidel Testimony, Docket No. 2013-392-E, pp. 4-6, Oct. 24, 2013). The information developed in this process allowed the Company to ensure that the self-build option was the best self-build option for customers. The Company issued the RFP to determine whether there were better options for customers other than the self-build project. That is the purpose of the evaluation process.

Q. INVENERGY COMPLAINS THAT DUKE ENERGY CAROLINAS, RATHER THAN THE THIRD PARTY CONSULTANT, CONDUCTED THE EVALUATION OF THE BIDS. WHAT ASSURANCE CAN DUKE ENERGY CAROLINAS GIVE THE PSCSC THAT THE EVALUATION OF THE BIDS WAS NOT BIASED TOWARDS SELECTING THE LEE CC PROJECT?

A. Duke Energy goes to great lengths to ensure there is no bias in the selection of the self-build project in its RFPs. Bid evaluation with proposals that exhibit different characteristics such as ownership versus PPAs, length of contract terms, and differing technologies is a complex process. I am proud of the evaluation process that our Company uses to compare all bids on an apples-to-apples basis to ensure we select the best option for customers with no bias toward the self-build bid. I describe that process in my direct testimony. In addition, the Third Party Consultant's role is to ensure no bias toward the self-build bid. (*See* Hager Rebuttal Exhibit 1).

Q. WHAT ROLE DID THE THIRD PARTY CONSULTANT PLAY IN THE RFP PROCESS?

A. Duke Energy Carolinas' Third Party Consultant, Burns & McDonnell, provided a substantial and wide-ranging role in ensuring that the Carolinas RFP process was performed in a fair and equitable way to ensure the lowest cost bid was selected to best serve Duke Energy Carolinas' customers. Hager Rebuttal Exhibit 1A details the contracted Scope of Services for Duke Energy Carolinas Power Supply RFP. As detailed in Hager Rebuttal Exhibit A, Burns & McDonnell was contractually involved in all aspects of the RFP, from the beginning to the end, to perform its role as an independent third party consultant. All communications with RFP bidders were coordinated by Burns & McDonnell, including bid receipt, follow up questions if necessary for bid clarifications, and final communications with bidders of short list selections and final bid selection results. In summary, Burns & McDonnell operated in the context as an independent third party consultant to ensure that all the proper steps were taken to ensure the entire RFP process and evaluation was unbiased and even met the additional criteria established by FERC for utility affiliate purchase transactions even though no affiliate transaction was involved (*See* Hager Rebuttal Exhibit 1, No. 5).

Q. WAS THE RFP EVALUATION TEAM SATISFIED WITH THE LEVEL OF COST DETAIL THE LEE CC PROJECT TEAM SUBMITTED?

A. Yes. The bid was submitted in compliance with the RFP directly to Burns and McDonnell consistent with the other RFP bids. The information submitted by the Project Team was used to evaluate the Project in the RFP evaluation process. Burns & McDonnell coordinated two calls with the Lee CC Project team for bid clarification. Similar facilitated calls were conducted with other bidders as well.

Q. DID THE LEE CC PROJECT TEAM SUBMIT A FIXED PRICE BID?

A. No. The Lee CC Project team submitted a bid based on what I understand was the then current estimate, with appropriate contingency, of the cost to complete the Project.

Q. INVENERGY COMPLAINS THAT THE LACK OF A FIXED PRICE BID FOR THE PROJECT PUTS CUSTOMERS AT RISK. HOW DO YOU RESPOND?

A. First, I would note that RFP bids are not fixed price contracts at the point of submittal as bids. In fact, bidders commonly include a disclaimer as to the non-binding nature of their bids when submitted. Also, bidders sometimes include pricing attributes in their bids that are not fixed. The bids are subject to change during the course of negotiations. As negotiations with bidders proceed, the goal is to reach a mutually agreeable performance contract that would address multiple issues including operational performance guarantees, cost overrun issues for newly developed projects, project milestone guarantees, fuel supply, and other issues that would meet typical utility performance standards. Often these contractual issues result in upward contract price adjustments as compared to the initial RFP bid that take into account the shifting of performance and monetary risk from the utility to the equipment owner and operator. Assuming that contract negotiations are successful and the RFP bid price is still the lowest cost option, the bidder would be expected to deliver the project in accordance with the agreed upon contract price. The contract would provide guidance as to opportunities, if any, for further price revision.

The risk of Duke Energy Carolinas' customers bearing cost overruns due to a Duke Energy Carolinas' owned project is mitigated by the regulatory process. The PSCSC has the final say as to which costs are allowed and disallowed. Importantly, Duke Energy Carolinas' customers will receive the benefit of any cost savings realized by bringing the plant into service at a cost lower than the estimate. Such a benefit would not occur with PPAs as any cost savings would flow to the asset owner, and not Duke Energy Carolinas' customers.

Q. IS DUKE ENERGY CAROLINAS CONCERNED THAT THE LACK OF A FIXED PRICE BID FOR THE LEE CC PROJECT COULD LEAD TO COST OVERRUNS SIMILAR TO THOSE EXPERIENCED FOR THE EDWARDSPORT PROJECT?

A. No. Duke Energy (both legacy Duke Energy and legacy Progress Energy) has extensive experience in constructing traditional natural gas-fired combined cycle projects. The Edwardsport Project was a first of a kind scale up of an existing technology. The Lee CC Project is very similar to the Buck and Dan River Projects, which were completed at or within their estimated costs.

Q. IF THE LEE CC PROJECT DOES EXPERIENCE COST OVERRUNS, IS THERE A RISK THAT ANOTHER BID DUKE ENERGY CAROLINAS RECEIVED COULD ACTUALLY BE THE LEAST COST OPTION?

A. While this is possible, given the fact that the second best bid was 40% higher on an apples-to-apples comparison with the Project, that seems extremely unlikely. (*See* Hager direct Exhibit 7.)

Q. ARE YOU SATISFIED THAT THE PROCESS DUKE ENERGY CAROLINAS USED TO EVALUATE THE BIDS IT RECEIVED WAS FAIR AND IMPARTIAL AND LED TO THE SELECTION OF THE LEAST COST OPTION?

A. Yes.

Q. **WHY IS THE LEE CC PROJECT THE RIGHT ASSET FOR THE COMPANY'S CAPACITY NEED IN 2017?**

A. The Duke Energy Carolinas' IRP processes in 2012 and 2013 demonstrated the need for a natural gas-fired combined cycle plant in the 2017 timeframe. The RFP process demonstrated that the Lee CC Project is the best option to meet that need.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes it does.

MS. SHAFEEK-HORTON: Mr. Chairman, Ms. Hager is available for questions.

CHAIRMAN HAMILTON: Thank you, very much.

Mr. Holman or Ms. Thompson?

MS. THOMPSON: Yes, thank you, Mr. Chairman. And it's the Commission's preference that I ask my questions from the --

CHAIRMAN HAMILTON: You can --

MS. THOMPSON: -- podium?

CHAIRMAN HAMILTON: -- do it there, if you'd like. It's up to you.

MS. THOMPSON: Thank you.

CROSS EXAMINATION

BY MS. THOMPSON:

Q Good morning, Ms. Hager.

A Good morning.

Q How are you?

A Good, and you?

Q Fine, thank you. Ms. Hager, Duke Energy Carolinas -- or DEC -- has in its 2013 IRP about 1,500 megawatts of new natural-gas combined-cycle plants over the IRP planning horizon, correct?

A Did you say 1,500 megawatts --

Q Roughly?

A -- of new combined-cycle?

Q Yes, that's right.
A Hold on just a second [indicating]. Yes.
Q And the Lee Combined-Cycle Plant would be the first new natural-gas combined-cycle plant in the DEC IRP -- or of those plants in the DEC IRP?
A That is correct.
Q Now, the Duke Energy Progress -- or DEP -- 2013 IRP has, in addition to the Sutton Plant that's already been approved, three 843-megawatt NGCC capacity additions?

MS. SHAFEEK-HORTON: I would object to the relevance of DEP in this matter.

MS. THOMPSON: Mr. Chairman, may I respond?

CHAIRMAN HAMILTON: Yes, ma'am.

MS. THOMPSON: The company has put forth the 2013 IRP as Exhibit 1 to Ms. Hager's testimony, in support of this certificate application. That IRP, which is Exhibit 1 to Ms. Hager's testimony, discusses a joint planning scenario in which DEC and DEP would share firm capacity; and that is, I believe, an issue that's relevant to this docket.

CHAIRMAN HAMILTON: Go ahead, Ms. Hager. If you can answer the question, please answer.

WITNESS: And I believe you were saying there were three?

<

BY MS. THOMPSON:

Q Yes, ma'am. Three roughly eight hundred -- three 843-megawatt NGCC units, so about 2,500 megawatts.

A Yes, in DEP's 2013 IRP, correct.

Q And so that amounts to -- adding the 1,500 and the 2,500 together, that amounts to about 4,000 megawatts of new natural-gas combined-cycle capacity?

A Yes.

Q Now, one industry watcher, whom I believe might be in the gallery -- John Downey, of the *Charlotte Business Journal* -- estimated that the company's proposed new gas capacity could cost -- and I'm just talking about DEC -- could cost about $1.8 billion. Does that sound roughly correct?

A Could you say that again?

Q That DEC's roughly 1,500 megawatts of new combined-cycle capacity could cost roughly $1.8 billion?

A That does not sound right to me. Sorry, Mr. Downing.

[Laughter]

Q Now, without getting into any confidential territory, could you give me a ballpark figure that would sound correct to you?

A I don't think I could do that without getting into confidential information.

Q Okay, fair enough. Now, would -- is it fair to say that

we would be talking about in excess of a billion dollars, without getting --

A For two combined-cycles, correct?

Q Yes.

MS. SHAFEEK-HORTON: Again, I would caution the witness not to reveal confidential information.

BY MS. THOMPSON:

Q And that's fine. If it would reveal confidential information, of course I'm not asking you to give that level of detail.

A I'd prefer not to answer the question, as that's --

Q Fair enough. Now, some of that the capacity will cost either on the order of several hundred millions, if not over a billion dollars for ratepayers, and so if some -- is that correct?

A I would agree that adding new combined-cycle would add costs that ultimately ratepayers would be asked to bear. I would note that, in this proceeding, we're talking about the first of those, and that our plan is something -- we update it every year, and things can change and be deferred or be eliminated by changes in circumstances. So it's certainly not a given, sitting here today, that that is what will happen. It's certainly not what we're asking for approval for today.

Q So as you've just said, some of the capacity could, in

fact, be delayed or avoided, potentially, and if that were possible, that would save ratepayers money, wouldn't it?

A I think that's generally a true statement, but I think it depends on how you defer it; and, if you were replacing the capacity, what you're replacing it with and at what cost.

Q Now, I'd like you to turn the page 36 of your Exhibit 1, which is the 2013 IRP. And, again, I know this was filed in a confidential version, and I won't be asking about anything that's confidential.

A Okay, I'm there.

Q So at the top of page 36 of your Exhibit 1, there's a Table 8-H, which is entitled "DEC and DEP Joint Planning Scenario"?

A That's correct.

Q Now, that scenario -- or, this chart depicts the scenario that was a modeling exercise to look at the impact on the IRPs if DEC and DEP could share firm capacity, correct?

A Yes.

Q And, looking at Table 8-H, under that scenario, the need for that first new combined-cycle unit is delayed by one year, from 2017 to 2018, as depicted by the little arrow, right?

A Yes.

Q Now, again, I know -- I'm not asking you to cite any confidential numbers, but, again, I'm going to quote Mr. Downey or cite Mr. Downey's article in the *Charlotte Business Journal* that estimated the total capital cost of the Lee combined-cycle unit at between $680-$760 million, based on EIA data. Does that sound -- does that range sound like a reasonable range?

MS. SHAFEEK-HORTON: Objection again.

CHAIRMAN HAMILTON: Confidential?

MS. SHAFEEK-HORTON: Yes, sir.

CHAIRMAN HAMILTON: Okay.

BY MS. THOMPSON:

Q So it would be confidential to -- that's a fairly large range there, between 680 to 760, but even confirming that we're talking about something within that range would be something the company would consider confidential?

A I think that, at the point that I start commenting on the range, I start revealing information that would reveal information -- the reason it's confidential is because it's a concern that bidders can gather information about what the cost of our option is, and then our fear is it would ultimately raise costs to customers, because they would bid something higher than

they would have otherwise.

Q Fair enough. I'll move on -- well, Mr. Davis and Mr. Wilson have estimated in their testimony that the company's 650-megawatt ownership interest in the Lee NGCC unit would cost roughly $650 million. And, again, I know that you can't -- you know, I'm guessing you can neither confirm nor deny that that is an accurate estimate?

A That's correct.

Q Well, we'll just -- why don't we just take that as an estimate that is out there, that may or may not bear any relation to the true confidential number. The Dan River 620-megawatt combined-cycle plant, that capital cost of that plant came in at $673 million; is that correct?

A I don't know the answer to that. Mr. Landseidel would know the answer to that.

Q Okay. And sometimes these major capital projects are completed on time and on budget?

A That is correct.

Q Other times, the actual cost to construct a plant can end up being more than the original cost estimate, correct?

A While that is true, I think if you're looking at this type of plant that we now have significant experience in building, this plant is very similar to the Buck and Dan

River projects that we completed on time and within the budget. So I think we have a lot of confidence in this estimate.

Q Now, the company's going to seek to recover whatever the costs ultimately are to build the plant -- the company is going to seek to recover those costs from customers, correct?

A I believe we will, and we'll obviously have a burden of demonstrating that we acted prudently.

Q And you recover the capital costs of construction through a general rate case.

A Typically, yes.

Q So those costs would be added to base rates?

A Yes.

Q Now, for example, in the company's most recent rate case, the Commission granted a rate increase and allowed the company to recover $160 million, which was the jurisdictional -- the South Carolina jurisdictional share for the Dan River CC Plant, correct?

A I don't know.

Q Would you accept that, subject to check, that was Docket No. 2013-59-E?

A Okay.

Q Now, the nonfuel operation and maintenance costs, those would also be recovered through base rates in a general

rate case?
A Typically, yes.
Q How about fuel costs? Would those be recovered through an annual rider on rates?
A Yes.
Q Okay. Now, in your rebuttal of the direct testimony of Mr. Davis and Mr. Wilson, you take issue with their estimate that 80 to 90 percent of the cost of the -- of the cost of the Lee gas combined-cycle unit that would be borne by ratepayers would be operating costs, mainly fuel.
A Can you point me to that place in my rebuttal?
Q Yes, if you'll bear with me just a moment while I get there. It's on page 12 of your prefiled rebuttal. The question begins at line 14.
A Okay, I have it. Would you repeat your question, please?
Q You disagree with Mr. Davis's and Mr. Wilson's estimate that the operational costs, mainly fuel, of the Lee gas plant, would be roughly 80 to 90 percent of the revenue requirements?
A I don't believe I disagreed with their conclusion. I merely disagreed as to the importance of it, or the relevance of it. I also said I did not check their math. And the reason I didn't do that is because I

didn't -- in my view, that wasn't a, you know -- it wasn't relevant, the information.

Q So setting aside the relevance of the information, you don't disagree with that estimate that the 80 to 90 percent -- you don't disagree with that 80 to 90 percent estimate.

A I cannot confirm or deny that. I have not checked that number.

Q So you have not personally looked at the company's rough estimate of what percentage of the revenue requirement from this plant would come from the operating costs?

A No, because I don't believe it's relevant to the analysis. When we do our analysis for integrated resource planning, we look at the combination of capital and operating costs. We compare the cost of a portfolio with, for example, the Lee CC Project -- it's the total system capital and operating costs -- to an alternative portfolio that doesn't have the Lee CC, has another alternative, and its total capital and operating costs. And then we look at how those two compare. So we're typically looking at the totals, and the relative level of capital versus O&M is not something that we focus on.

Now, we capture some of the variance on capital and O&M when we do sensitivities on things like capital costs or fuel costs or emission costs. And in doing

that, you may begin to see a bigger spread between resource options. And that's the only point at which we're looking, even indirectly, at capital versus operating costs.

Q So when you are -- let's set that aside for the moment. If operating costs of a plant could be avoided while maintaining reliable service, that would save ratepayers money, wouldn't it?

A I think there's a -- say that again. If -- say -- just repeat the question. Let me hear that one more time.

Q Now I have to remember what my question was. If the operating costs of the -- if the costs of operating a unit could be avoided, that would save ratepayers money, wouldn't it?

A I think it would depend upon how you're achieving that. If all you're doing is making less sales and so you're reducing your operating costs, that reduces the company's total revenue requirement; it actually could raise rates for individual customers, because you've got fewer kilowatt-hours over which to spread your fixed costs. If you're doing that by substituting -- if you're reducing an operating cost on one unit by adding another resource, that resource obviously has to be paid for and the cost of that recovered, so that may or may not reduce costs. So I think the part of that that I

could agree with was, if you reduced operating costs, in the absence of anything else -- you've reduced the operating costs; you may not have reduced rates -- there would have been a reduction in costs.

Q Now going back to the joint planning scenario that we discussed that was in the company's 2013 IRP that forms part of the basis for this Application, one way to potentially delay the need for the Lee unit to 2018 is through joint planning between DEC and DEP, correct?

A I would say it a little differently. I would say that the potential -- at the time we filed the IRP, we saw the potential to defer the Lee CC unit, if we had permission to share capacity. We needed two sets of permissions: We needed the permission to jointly plan, and then we also needed permission to share capacity. And upon both of those and upon coming up with a cost-effective means to share capacity, then that's where we had the potential to defer the plant.

Q And I understand that there are some regulatory approvals that are necessary for DEC and DEP to be able to share firm capacity?

A Yes.

Q And will the companies be pursuing those regulatory approvals, in order to be able to save their customers money through joint planning?

A We are -- we're certainly going down that path at this point to pursue that.
Q I'm going to shift gears a little bit and just talk in a little bit more abstract way about the IRP process that formed the basis for this Application. Duke is a publicly -- I'm sorry. Duke Energy Carolinas is a publicly traded company that needs to create value for its shareholders, right?
A Duke Energy is, yes.
Q Duke Energy is. And part of running a business is planning for the future.
A Absolutely.
Q And one way the company does that is through its Integrated Resource Plans?
A That is true.
Q The company has a certain amount of flexibility to conduct its business?
A Yes.
Q But DEC also has a monopoly franchise in its service territory, correct?
A That is true. We also have the utility commissions that oversee that, to ensure that we are acting prudently and in a way that serves the best interest of our customers.
Q And that was going to be -- you've anticipated my next question. And so, in exchange for this monopoly

franchise, the company is regulated by state commissions, including this Commission, correct?

A Just wanted to make sure we got that in.

[Laughter]

Q And by law, under the South Carolina Statutes, the Commission has oversight over the company's IRPs?

A That's correct.

Q Now, one reason IRPs are important is that they serve as the basis for certificate proceedings, such as this one, correct?

A Absolutely.

Q And we've already gone over a couple of these questions, so let me skip them. You describe in your testimony, in your direct testimony -- and I'm not going to point you to anything specific. You generally describe the process that the company used to select a 680-megawatt generic combined-cycle unit as the lowest-cost way to meet the company's identified capacity need, correct?

A That is correct.

Q And am I right in understanding that your IRP model could pick from various different supply-side options -- various different supply-side resource options?

A That's correct.

Q So the other -- the other supply-side options were not selected by the model; this 680-megawatt combined-cycle

unit was, correct?

A Yes.

Q Now, the company's base case modeling for the 2013 IRP did not allow the capacity expansion model to select energy efficiency as a resource, did it?

A The -- our IRP models do not -- do not select energy efficiency. We have a different model that we use that is used to screen energy efficiency measures for cost-effectiveness in a way that is equivalent to having used our IRP models. And the reason we do that is, what looks like an energy efficiency program, to you and I, may be made up of 20 different measures -- think of like a lighting program. Well, it has all different sizes, types, et cetera, of lighting, and so it's made up of a lot of small measures to make up a program. And on a system like -- on any large system, any large generating system, trying to compare a very small measure, in the DEC example, to a 20,000-megawatt system, is not very effective. So we use this model called D.S. Moore within our group that does our energy efficiency planning, to screen the measures, to create a portfolio of cost-effective energy efficiency measures that is then passed over to our IRP needs. So it's --

Q I understand.

A Okay.

Q So the IRP model is using the product of the D.S. Moore model as its input for the energy efficiency that will be in the IRP.
A That's correct. And the D.S. Moore model uses -- is compared against -- every measure is compared against what capacity it avoids and what energy it avoids. We pass over, from our group to that group, the avoidable energy costs and the avoidable capacity costs. So they're using the same values; it's just done within a model that can handle much smaller measures.
Q Now, it would be possible to -- it would be possible for the capacity expansion model to select generic energy efficiency DSM resources, would it not?
A We certainly don't think our model that we use within the IRP Group is the best way to do that. I think it's conceptually possible. Whether or not it's desirable is another thing.
Q So I understand there are some reasons why this was not done, but going back to my original question, it is true that the base case modeling for the 2013 IRP didn't allow the capacity expansion model to select energy efficiency? Just to make sure that I'm --
A Correct.
Q -- understanding that? And the company also did not include solar as a resource that could be selected by

the capacity expansion model in the base case?
A That is correct.
Q Now, a few minutes ago, we were talking about the fact that the Commission has oversight of the company's IRPs?
A Yes.
Q And you agreed that the IRPs are important because they serve as the basis to build new general generating capacity -- or, a basis for the company's decision to build new generating capacity?
A Yes.
Q And would you also agree that it's appropriate for the Commission and ORS and other stakeholders, like my clients, to pay close attention to the IRPs?
A That is certainly up to the individual to make that decision.
Q So you would not agree that it's appropriate for the Commission to pay close attention to the company's IRPs?
A I think the Commission should pay close attention to the company's IRPs.
Q And if the Commission or ORS or other stakeholders don't question the new capacity that's identified in the company's IRPs, then the first time that that issue is going to be addressed would be in a certificate proceeding like this one, correct?
A I think I would say, perhaps, that the -- obviously,

there is the opportunity within the IRP process to identify that, and then there's also the opportunity within the CECPCN process.

Q Now, the opportunity that you have mentioned in the IRP process for stakeholders to do that would be through intervention and filing comments?

A Yes.

Q And is there another opportunity that you're aware of, for stakeholders to have input into the IRP process?

A That's certainly the official means of providing input into the IRP process.

Q Now, once the company has made their internal decision to build new generation and go forward with the certificate application, is it accurate to say that there's a lot of institutional momentum behind that decision?

A Would you mind defining what you mean by that?

Q The company has presumably put a lot of work into doing the analysis that forms the basis for its decision to build new generation?

A I don't think I would agree with that. At the point that we come forward -- we make a decision to go forward with proposing to build a plant -- we've looked at many other options. Sometimes we are continuing to look at other options, but we're at a point where we know, in

order to make sure that we have generation available to meet customer needs, that we must move forward, that there are -- in order to complete construction in time to meet those customers' needs. You know, we continually evaluate all along the process, "Are we still making the best decision for customers? Are we still doing the right thing?" -- regardless of whether it's a Duke-owned asset or a purchase from another generator or any other option.

The reason I took a little umbrage with your comment was it sounded almost as though we would move forward with a project that perhaps was no longer a good idea because of its momentum, and I just cannot agree with that premise.

Q Fair enough. Are there instances you can point to where the company has applied for a certificate and then decided not to proceed with construction of the project?

A Yes. We did that with -- actually, the Buck CC Project was originally proposed as a CC project. I believe sometime in the mid-2000s, we withdrew that certificate, and then later refiled and moved forward with it. You know, that's certainly not outside the realm of possibility, and we have done that in the past. I believe we've also done it in other jurisdictions, as well.

Q I want to ask you a question about the process that I understand Duke Energy's subsidiary in another jurisdiction goes through, and this is the Duke Energy Indiana IRP process.
A Uh-huh.
Q DEC has a stakeholder process in Indiana, correct? Sorry, DEI.
A Yeah. At Duke Energy Indiana, we do have a stakeholder process in Indiana.
Q And that stakeholder group was formed to comply with an order from the Indiana Utility Regulatory Commission?
A Yes.
Q That stakeholder group meets on a quarterly basis?
A No, the stakeholder group is required to meet at least two times during the course of preparing the IRP in Indiana, which is only done every two years. We actually did five meetings in preparation for the IRP we filed in November of 2013 in Indiana.
Q And are those meetings led by an independent facilitator, or a Duke staff person?
A We were not required to use an independent facilitator, but we did choose to.
Q And does the company submit -- other than the IRP that's filed, does the company submit some sort of report on the stakeholder process to the commission in Indiana?

A I believe we did include information about that in our -- excuse me. I know we've included information about that in our Indiana IRP; whether we were required to or not, I don't recall.

Q Has that stakeholder process in Indiana been an effective way for the company to share information about the process with interested parties?

A I believe you'd have to ask the interested parties whether they found it to be an effective means.

Q Has the company found it to be an effective process in terms of hearing feedback from interested parties?

A Frankly, no. It has been a very difficult process and it was one that, for a tremendous amount of effort, I feel like we did not glean a significant amount of useful, actionable information. We are looking to improve that for the next process. I had high hopes for it. Frankly, I was disappointed.

Q There has been -- just so I understand, there has been one -- this process has occurred for just one IRP planning cycle at this point?

A Yes.

Q And there's no plan to seek relief from the commission and not have to do this -- not have to go through this process anymore; it sounds like the company is --

A We certainly plan to comply with the Indiana

Commission's regulations.
Q And it sounds like the company is going to be taking steps to improve the process based on lessons learned in the first cycle?
A Yes.
Q Finally, I want to ask you a couple of questions about natural gas. Natural gas costs have come down significantly in recent years -- fuel costs?
A Yes, they are -- I would agree with you that they are significantly lower now than they have been at times. Natural gas prices have been high and low.
Q And that was my next question: Natural gas prices have historically been volatile?
A That is true, although I think most folks would agree that we expect volatility to be much lower, going forward.
Q And that's because of the availability of reserves of shale gas, that formerly could not be extracted but now can be?
A Yes.
Q Natural gas prices are -- in addition to being volatile in the past, they are subject to supply disruptions from things like natural disasters, correct?
A Yes.
Q And if natural gas prices increase, then customers would

pay more for the electricity that was produced by a natural gas plant?

A To the extent that more energy is produced from natural gas at a higher cost, I would agree. There are alternatives, however. One of the nice things about having a diverse portfolio is that, as the cost of one resource goes up, we turn to another resource, such as our coal plants.

Q So you could dispatch -- instead of dispatching the natural gas plant, you could dispatch a type of generating facility that had lower fuel costs.

A Yes.

Q Solar electricity has no fuel cost, correct?

A That is correct.

Q And the fuel is sunshine, which is free, right?

A That is correct. It's also intermittent and it's not always there.

Q Correct. Fair enough. And the 2013 IRP, though, does state that solar is an important part of the energy future for the Carolinas. That's right up front in the executive summary, on page --

A That is absolutely true. As a matter of fact, our IRP reflects the addition of almost 1,700 megawatts of solar resource over the planning horizon.

Q And those resources would be -- are included in the

company's plan, in order to comply with the North Carolina REPS, as well as a potential South Carolina renewable portfolio standard, correct?

A That's correct.

Q The company currently has no RFPs -- requests for proposals -- out for solar energy capacity, does it?

A That is correct, but, of course, we don't have to have an RFP out for folks to propose to sell us solar energy. And, as a matter of fact, we have over 2,000 megawatts of solar that folks have given us an indication they would like to sell to us -- the "us" there being DEP or DEC, Duke Energy Progress or Duke Energy Carolinas.

MS. THOMPSON: Ms. Hager, thank you. I believe that's all the questions I have.

Thank you, Mr. Chairman.

CHAIRMAN HAMILTON: Thank you, very much. Commissioners?

COMMISSIONER RANDALL: Mr. Chairman.

CHAIRMAN HAMILTON: Commissioner Randall.

EXAMINATION

BY COMMISSIONER RANDALL:

Q Hi, Ms. Hager. I have just a couple of quick questions. On page four of your direct testimony, you discuss the results of Duke Energy Carolinas' 2012-2013 IRP showing a one-year delay in the on-line date for the Lee

Project. Is there a possibility that the 2014 IRP might show a delay, as well?

A We will have to make a decision before the 2014 IRP is filed on when this plant would be built. We will need to move forward immediately after an order from this Commission, if so granted, and board approval, to meet a 2017 date. Now, we could, conceivably, make a decision in that timeframe to defer it to 2018, and that could be reflected in the 2014 IRP. But it would be -- you know, we can't wait a long time to make that decision.

Q Thank you. Just one other question that I had. Will you know whether the Duke Energy Carolinas energy efficiency programs will be or are meeting forecasts in time to have supply-side resources in place?

A We know -- we have some information about how our energy efficiency programs are doing, and we depend on our folks who are the experts in that to help us project where we will get with our energy efficiency programs. We are planning to have those resources in place. We can't know now exactly what will be there in 2017 or 2018, but our -- each year, we're updating our projected level of energy efficiency. We're actually looking for an update this spring to do our new IRPs, and we'll get an idea then as to how much -- what we are projecting for 2017 and 2018, and whether that can impact the

timing of this plant.

COMMISSIONER RANDALL: Thank you, ma'am.

CHAIRMAN HAMILTON: Commissioner Hall?

VICE CHAIRMAN HALL: Thank you, Mr. Chairman.

EXAMINATION

BY VICE CHAIRMAN HALL:

Q Good morning, Ms. Hager.

A Good morning.

Q Let me ask you, I think you and Ms. Thompson talked a little bit about whether it's appropriate to treat the DSM as a reduction in load or as a resource. And on page six of your rebuttal testimony, you discussed a study by Astrapé, I guess it's called?

A Yes.

Q Do you have a citation for that study? I think our staff was a little bit interested in knowing a little bit more about it.

A I think we can certainly provide that --

Q Okay, please.

A -- as a late-filed exhibit.

WITNESS: I'm saying that. Can we do that, attorneys?

MS. SHAFEEK-HORTON: Absolutely.

VICE CHAIRMAN HALL: I know you don't want to make it late-filed, so if y'all can get it today,

that's fine, too.

CHAIRMAN HAMILTON: Okay. We will enter it in the record and make it a Late-Filed Exhibit 3.

VICE CHAIRMAN HALL: Thank you, Mr. Chairman.

BY VICE CHAIRMAN HALL:

Q Also, I always ask, when do you think that DEC may have a capacity sharing arrangement in place with DEP? I know that it's ongoing, but I was just wondering.

A I would hope before the end of the year.

Q Before the end of this year.

A Before the end of --

Q 2014.

A -- 2014. Have approval -- have approval to share capacity and perhaps have an agreement in place. That may be a little optimistic. I'm not going to look back to see what my person who's doing that is thinking at this point.

Q Okay.

A But it will be -- it will require approval from this Commission, as well as the North Carolina Commission, as well as from FERC.

VICE CHAIRMAN HALL: Okay. Thank you. That's it. Thank you, Mr. Chairman.

CHAIRMAN HAMILTON: Thank you. Commissioner Whitfield?

COMMISSIONER WHITFIELD: Thank you, Mr. Chairman.

BY COMMISSIONER WHITFIELD:

Q Good morning, Ms. Hager.

A Good morning.

Q Good to have you with us. Got a couple of questions for you, also. On pages 10 and 11 of your direct testimony -- if you need a minute -- you can probably answer this one without looking at it.

A Okay.

Q You there?

A Yes.

Q You discuss the reduction of DEC's reserve margin from 15.5 to 14.5 percent, going back I think to a study that was a result of the North Carolina Commission's approval of your 2010 IRPs. My question to you is, can you quantify the increased costs for purchased power if the 14.5 percent reserve proves inadequate?

A I certainly can't, sitting here, quantify what that might entail. I think there's a couple of things to think about, though.

Q Because I think you talk about some risk being associated with that lower margin, as well.

A Right, there is a risk associated with carrying a lower reserve margin. There's also a cost savings to

customers by not carrying that additional capacity at all times. And the study that was done looked at reliability as well as economics. And the reliability measure that we used is -- what they'll say is one day in 10 years, and that's an industry standard for looking at reliability. And this study indicated that, for DEC, the 14½ percent looked about right for that measure. For economics, it was also in that range, as well. So it would say that it's economic for customers for the company to carry that level of reserves.

There's a trade-off at all times when you're looking at reserve margin. We can also add more capacity, which adds more cost ongoing to customers, or you can lower that reserve margin and then you are at risk for higher costs, at times, as well as you, frankly, have a higher cost of not being able to serve customers at times.

Q Is that the standard that Duke uses to determine if the reserve margin is appropriate or optimal? And how does Duke determine if a reserve margin is excessive?

A That is the measure that we use. We hired a company, Astrapé, to do that work for us, for both DEC and DEP, and so that was their report out to us. There was -- what was the last part of your question?

Q How do you determine --

A Oh, if --
Q -- if it's --
A -- it's excessive.
Q -- excessive, yes, ma'am.
A I feel like, if we plan to that target planning reserve margin, you may, for a year or two, have additional reserves -- I don't want to call them excess -- because of the size of generation that you have, to get the economies of scale. Or you may find -- as we did in the late 2000s, with the recession, that our load was not growing as fast as we thought, and yet we already had plants underway and we ended up a little long for a few years -- obviously, not too long or we wouldn't be back here today.

So I think "excess" is something we always want to avoid, but at times we will end up with reserve margins that are a little higher for a short period of time, but we always want to make sure that we're not going to drop below that minimum -- and it is a minimum, in my mind.
Q So additional, just for a short period of time as the new generation comes on --
A And as you grow into it.
Q Yeah. I've got one more question for you. On or around page 20 of your direct testimony, you mention -- and I'll give a second to get there. Page 20 of your

direct.

A Yes.

Q -- you mention the joint planning scenario and how, as you say, "Under the proper conditions," the need for the Lee Project generation could be deferred until 2018. What are those conditions, and how likely are they to occur?

A The conditions that I specifically had in mind were load forecast, level of energy efficiency, level of renewable projects, and the ability to share capacity. Then the next element is time, in terms of at what point do we have to fish or cut bait on meeting the 2017 need. We are still in the process of looking at all of those elements. As I sit here today, I haven't seen enough change in any of those that would tell me we can defer it, but we are still looking to defer it, if we can.

Load forecast, I think could be a small change. Energy efficiency, could be a small change. Renewable resources, I think it's very uncertain as to how much of the renewable resources that folks are proposing to us will actually come to fruition, how much we would be able to procure in that timeframe. And then the joint -- the capacity sharing is something I don't think we'll have a final answer on before we have to make a decision on 2017 versus 2018. But if we had a good feeling

about, you know, all of these heading in the right direction, we might be more comfortable making that decision, but time is really running out to do that.

COMMISSIONER WHITFIELD: Yes, ma'am. Thank you for your answers, Ms. Hager.

Thank you, Mr. Chairman. That's all I have.

CHAIRMAN HAMILTON: Thank you, Commissioner. Commissioner Fleming?

EXAMINATION

BY COMMISSIONER FLEMING:

Q Good morning, Ms. Hager.

A Good morning.

Q Nice to have you here today. In your testimony, when you were talking about the Duke Energy Carolinas IRP, which simulates the joint planning between Duke Energy Carolinas and Duke Energy Progress, will this proposed project have any impact on that scenario, specifically?

A On the joint planning scenario?

Q Uh-huh. You talked about it on page seven.

A Yes. At the time we prepared the 2017 -- "2017" -- the 2013 IRP, we saw that, if we were able to execute a joint planning scenario, it could impact the timing of this project. We did get approval to do joint planning from this Commission, as well as the North Carolina Commission, and now we're working through the steps of

execution. But we are not going to complete those in time to allow that to be the factor that allows us to defer this plant, and that would be -- that was the anticipated impact of joint planning on this plan.

I think if you look at the joint plan altogether, you will see that it has impacts throughout the planning horizon of deferring or eliminating the need for projects through being able to jointly share capacity.

Q Okay. So I guess what I'm saying, that if this proposed project, though, is approved --

A Yes.

Q -- what impact could that have? I mean, you're saying that the joint planning could possibly delay the need for it.

A Right.

Q But I'm asking, if it's approved, what will -- did you look at that, as well?

A Not specifically. Having the plant in our system in 2017 will begin to provide production cost savings to customers as soon as it's in place. And because of the presence of the joint dispatch agreement between DEC and DEP, there will be a sharing of the benefits between DEP and DEC customers. So from that standpoint, approving the project for 2017 continues the benefits of joint dispatch, but it would not impact our plan for joint

planning -- for joint planning or for capacity sharing. Does that help?

Q Yes, it does. I wanted to go back. You were talking about the reserve margin with Commissioner Whitfield.

A Yes.

Q A few weeks ago, we had a sustained cold spell that taxed all of the reserve margins up and down the East Coast. Would a reserve margin of 14.5 percent have been sufficient during that time?

A The answer to that depends a lot on what the circumstances were. For DEC, that was a very -- it's been very trying times. At times, I would say the 14.5 percent reserve margin would have been adequate. We're over that, at this point; we have a little length in our generating capacity right now. At other times, it would have forced us to more measures of implementing more of our demand response programs, looking more to the market to make purchases, and perhaps moving to that last resort of interrupting customers.

Q The market was even a problem, though, during that.

A The market was -- the market was having issues in those days; there was certainly very high cost. Those are extremes of temperature, and that's really what reserve margin is designed for. It's really designed to cover several things: One is weather that's different than

normal weather, and certainly the weather we've had in the past few weeks has not been normal weather.

Q But we're kind of going into these swings of extremes.

A We certainly do seem to be seeing more of them. It's also designed to cover forced outages of plants, that you have a plant that isn't available when you need it. Our system was -- did operate very well during those times, and we were able to get through them with the reserves that we have.

It is certainly a trade-off, in terms of a high reserve margin, as I said, comes with a price tag. And I feel good about the study that was done by Astrapé -- and we're certainly glad to provide that to this Commission -- that looks at these sorts of things and reaches a reasonable conclusion that 14½ percent strikes a good balance. But it will not always -- it does not guarantee that we would not have interruptions.

Q So this is something that you would reevaluate on a regular basis --

A Yes.

Q -- given the uncertainty of what's happening with our --

A Yes. It's something that should be --

Q -- climate?

A -- reevaluated periodically as things change, because it depends on -- how much reserve margin you carry depends

on a lot of things, including the size of your units, and how new your units are on your system, how well you're interconnected to your neighbors, how much of your reserves are carried in demand response programs -- so many things that do impact what is the appropriate level of reserves, and those things do change over time.

Q And then I wanted to ask you -- I believe it's pages 17 and 18, you talk about that, at this point, because there are no state or federal renewable portfolio standards for South Carolina, that you don't anticipate purchasing noneconomic renewable resources or renewable energy credits for South Carolina. Do you currently do that for North Carolina?

A We currently purchase noneconomic resources for North Carolina that we recover the premium above avoided cost through the Renewable Energy and Energy Efficiency Portfolio Standard Rider. But there is -- the fact that we have to pay RECs, that we have to pay for a premium to secure those resources in North Carolina, indicates that they are noneconomic. They are economic for meeting the renewable portfolio standard, but without that renewable portfolio standard, we do not believe we'd be seeing anywhere near the level of solar interest that we're seeing in North Carolina.

There's another factor in North Carolina which is

huge, and that is a 35 percent state tax credit on the capital cost of a solar facility in North Carolina. So there's a 30 percent federal credit, a 35 percent state credit, plus we pay a level of cost for the renewable attribute to pass through the REPS rider there. That's a policy decision that the State of North Carolina made, that North Carolina customers of Duke are bearing.

COMMISSIONER FLEMING: Thank you.

CHAIRMAN HAMILTON: Commissioner Howard?

EXAMINATION

BY COMMISSIONER HOWARD:

Q Good morning, Ms. Hager. How are you?

A I'm fine. How are you?

Q First, you agree with Mr. Gillespy: 30 percent?

A I believe he is in the right ballpark, but you actually need to ask Ms. Shrum that question. We didn't bring her today.

Q Okay. You mentioned, and I see in your summary, that the growth rate for energy is 1½ percent after you subtract EE programs. What was it before you subtracted EE programs?

A Just a moment, and I'll give you that information [indicating]. We were projecting the load growth for retail and wholesale customers from 2014 to 2028, without considering EE programs, to be 1.9 percent for

summer peak, winter peak, and energy.

Q So 1.9? Basically, four-tenths of a percent?

A Yes.

Q Just subtracting? You discussed in your testimony and made some assumptions on the future of natural gas prices. With your knowledge of any kind of future environmental regulations that might come down, any infrastructure needs to get the supply, the conflict now between using natural gas or electric in residential, that conflict, improving infrastructure, what are your thoughts about the trends of natural gas, say five years out?

A Thank goodness we have experts in the company who know a whole lot more about that than I do. But what I hear from them is that we do expect -- and we model within our models -- the price of natural gas to rise over time, as the demand for natural gas increases. I think we're definitely projecting lower cost than we would have been two, three, five years ago, but still we are projecting that costs will increase over time. Our models would still suggest that natural gas generation is -- particularly, for this project -- the best alternative of the alternatives we considered. And that's our best guess, at this point, or our best estimate at this point.

We typically also -- we know that the price of natural gas is uncertain, and we keep that in mind as we are making decisions. One of the things I think is really important to look at is DEC still has relatively low levels of natural gas, compared to many other utilities. In my testimony, I show a graph -- I don't see the one I want. I'll look at my testimony, or the IRP. We project, by 2028 -- well, where is that graph?

I see the capacity. The capacity we would show, we have 22 percent of our total capacity would be in natural gas. We would still have about a third in nuclear, a quarter in coal, and the rest in renewable purchases, DSM, EE. The point there being that we are not as subject to price changes in natural gas as others might be.

Q You mentioned awhile ago that North Carolina created a 35 percent. Is there a time on that credit, when it expires?

A Yes, it is scheduled to end December 31, 2015.

Q 2015?

A [Nodding head.]

Q You mentioned the standard of one day in 10 years, of 14.5 percent reserve margin?

A Yes.

Q What if that margin was 13 percent, what would that do

to the one-day-in-10-years scenario?
A It would certainly be higher. I can't sit here and tell you how much higher.
Q Does your study that you said you would give us, would that show that?
A I believe it does show a range of reserve margins and impacts on reliability.
Q I don't know why I'm hesitant to go there, because it hasn't been discussed and I think it's something obvious. Talk to me about Duke's nuclear energy future -- particularly since, you know, I see two items on here about 66 kilowatts coming in -- or megawatts coming in, in the next few years.
A Right.
Q Is that still a viable situation?
A Let me make sure we're looking at the same megawatts.
Q I'm looking on page 34 at your Table 8-F.
A Okay. Those megawatts are concerned with V.C. Summer, which we've notified this Commission that we will not be pursuing. But you will still see two large amounts of nuclear in 2024 and 2026, as that would be the placeholder there for our Lee Nuclear Station here in South Carolina, and we are still certainly pursuing that Combined Construction and Operating License at this point.

Q Well, that was my next thought process, that just as a rule of thumb we say 10 years to construct a nuclear plant.

A Uh-huh.

Q So if you're going to bring that on in 2024 and we're sitting in 2014 now, we're getting close to decision day, right?

A Well, certainly, we have to keep moving forward on it. We need the license, but then we would need the CPCN. We would need then to make the decision to go forward with construction. I haven't -- we'll be reevaluating that date for our 2014 IRP. But we continue to believe that nuclear is a very important part of our resource planning.

Q Did you say "if"? Or "we do" consider?

A We do consider it to be --

Q Okay.

A -- a very important part of our resource plan.

Nuclear faces challenges, but it also has proven to be a -- I consider -- a no-regrets strategy for Duke Energy. We certainly have -- our customers have certainly reaped the benefits of those decisions we made many years ago. But it is a decision that shouldn't be made lightly; it's a decision that will need the cooperation of a lot of different folks to make that

happen. At a minimum, we consider it to be important to replace retiring nuclear. Without that, I think the portfolio mix -- the resource mix in the portfolio would tend to skew toward natural gas, as we sit here today, and that may be where we end up, for reasons, but at this point it looks like nuclear has a place in our portfolio.

COMMISSIONER HOWARD: Thank you, very much.

CHAIRMAN HAMILTON: Commissioner McGee.

COMMISSIONER McGEE: Thank you, sir.

EXAMINATION

BY COMMISSIONER McGEE:

Q Good morning, Ms. Hager.

A Good morning.

Q I just wanted to go back, real quickly, to something you and Commissioner Fleming were talking about, the renewable portfolio standards. Page 17 of your testimony, you mentioned the company, for the IRP purposes, assumed new legislative requirements that could come either at the federal level or the state level. Based on these assumptions, what do you think are the actual chances of passage of such legislation, either at the federal level or here in South Carolina?

A It's very hard to predict governmental actions at any level. You know, as I sit here and think about it, I do

believe that there will be an increasing emphasis in this country on renewable resources, and that, if the market doesn't deliver that, then I think there's a likelihood of continued help from -- through public policy to make that happen. It could be in the form of a federal renewable standard; it could be in the form of a federal clean energy standard that would promote nuclear and renewables and other clean technologies. I think there are many ways it could happen. I know that there has been interest in South Carolina for some encouragement of solar, and we are involved in these discussions and are eager to see what comes of it.

Q Well, given that interest, do you know of anything specific in the pipeline, in terms of South Carolina legislation perhaps coming through now?

A I don't know, of what's being looked at now. I did understand there was some legislation proposed last year, that did not go forward. I think Mr. Gillespy is actually involved in those discussions.

COMMISSIONER McGEE: Thank you, Ms. Hager. That's all I have, Mr. Chairman.

CHAIRMAN HAMILTON: Thank you.

Ms. Horton, do you have any redirect?

MS. SHAFEEK-HORTON: Just a couple.

I'm not sure if my mic is -- is it on?

CHAIRMAN HAMILTON: Yes, ma'am.

MS. SHAFEEK-HORTON: Okay, thank you.

REDIRECT EXAMINATION

BY MS. SHAFEEK-HORTON:

Q Ms. Hager, you said, in response to questions from Ms. Thompson, that the capacity expansion model could not choose solar or EE; is that right?

A I believe I said we did not allow it to. If I said it could not, I was mistaken.

Q Okay. In not allowing it -- if you had allowed it, if it had been allowed, would a resource other than a Lee CC have been chosen to fulfill the need that DEC has in the 2017-20187 time period?

A I certainly don't believe so, based on my experience as a resource planner, and my experience in resource planning across many jurisdictions.

And I'd like to make clear the issue of modeling of renewable energy resources within our screening models, within our IRP models. The evidence that we have, at this point, based on discussion I was having with Commissioner Fleming, is that solar energy at this point is not a cost-effective alternative for traditional resources, such as this project we're proposing. Our focus in the 2013 IRP was implementing the joint dispatch agreement between DEC and DEP, getting that in

place for our resource planning to make sure our resource plans are reflecting how we're operating the system, as well as bringing together the two companies, and lots of things going on. And so we chose to simplify our modeling for the 2013 IRP by not putting in resources that we believed would not be cost-effective, particularly for the focus of the plan being "What decisions do we need to make today or over the next 12 months out of this plan?" And that was mainly around, "Where do we think -- what is our next resource need? What does it look like it's cost-effective to do to meet that resource need?" I don't believe that, even if we had modeled the solar as an option, it would not have displaced the need for this project; it would not have shown up for this as -- any more than what we already have baked in for compliance.

And the same with the energy efficiency. What we've included within our model is what we believe is cost-effective and achievable within the next few years, and then we escalate that energy efficiency up to the level of the market potential study that has been done.

So, in summary, I'd say that we certainly don't see that any renewable or energy efficiency alternative could displace or even defer the need for this project at this point.

Q Thank you. Directing your attention to page six of your rebuttal testimony -- this is in regards to the Astrapé study.

A Yes.

Q -- at lines approximately 11 through 14 --

A Yes.

Q -- you mentioned the table that discusses the target reserve margin, and then on the next page there is the table. And this might just be clarification for me, and you can correct me if I'm wrong. But is that table taken directly from the Astrapé study?

A No, it is not. That table was created by the Astrapé Consulting Group to present -- to include in a presentation to the North Carolina Commission Public Staff. And so that's where that particular table came from, and it's the one that shows that, if we are going to model DSM as a load reduction, instead of as a resource, that it would be appropriate to raise our reserve margin to accommodate that, such that it would not change the actual need for the plant at all.

MS. SHAFEEK-HORTON: And so, if I may, Commissioner Hall, you asked for a copy of the Astrapé study, which we will provide, but I just wanted to clarify for the Commission that that particular table is in another document, and

whether you are interested in that, I'm sure you'll let me know.

VICE CHAIRMAN HALL: Okay, thank you.

BY MS. SHAFEEK-HORTON:

Q And then the final question I have, again, is for clarification. I think you made this point. But regarding the noneconomic renewable purchases that DEC makes for North Carolina, is South Carolina and South Carolina customers -- are they held harmless from those costs?

A Yes, they are.

MS. SHAFEEK-HORTON: Thank you. Those are my questions?

CHAIRMAN HAMILTON: Thank you, ma'am.

Ms. Thompson, do you have any?

MS. THOMPSON: No, thank you, Mr. Chairman.

CHAIRMAN HAMILTON: Okay. I think we're nearing time for a break, and we might as well combine it, I guess, with lunch. So if it is agreeable with all, we will take our lunch break now and be back at 1 o'clock.

You can be excused, Ms. Hager. I don't want you to have to stay here for lunch.

WITNESS: No.

[WHEREUPON, the witness was excused.]

[WHEREUPON, a recess was taken from 11:30 a.m. to 1:00 p.m.]

AFTERNOON SESSION

CHAIRMAN HAMILTON: Please be seated. We'll call the hearing back to order, and I believe, Ms. Shafeek-Horton, you have the next witness.

MS. SHAFEEK-HORTON: Yes. Duke Energy calls Mark Landseidel.

[Witness sworn]

THEREUPON came,

M A R K E . L A N D S E I D E L ,

called as a witness on behalf of the Applicant Duke Energy Carolinas, who, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. SHAFEEK-HORTON:

Q Please state your full name and business address for the record.

A My full name is Mark Eugene Landseidel. My business address is 400 South Tryon Street, Charlotte, North Carolina 28202.

Q How are you employed?

A I'm director of Project Development and Initiation in our Project Management and Construction Department.

Q For Duke Energy?

A For Duke Energy.

Q Mr. Landseidel, did you cause to be prefiled direct

testimony consisting of 13 pages and six exhibits in this case?

A Yes, I did.

Q On page eight, line 16, of your testimony, you stated, "...5,800 million standard cubic feet per hour." Correct?

A Yes.

Q Should this read instead: five thousand eight hundred thousand -- excuse me -- five thousand eight hundred [5,800] standard cubic feet per hour?

A Five thousand eight hundred thousand standard cubic feet per hour, correct.

Q So just for clarification, since I completely muddled that up --

[Laughter]

-- instead of saying "5,800 million standard cubic feet," it should say five thousand eight hundred thousand standard cubic feet?

A Yes, that's correct. I'm sure that makes a difference for everybody here.

Q Great.

A Apart from the correction you just made, if the questions put to you in your direct testimony were asked of you today, would your testimony or would your answers be the same?

A Yes.

MS. SHAFEEK-HORTON: Mr. Chairman, I would move to have the prefiled direct testimony and exhibits admitted into the record as if given orally today from the stand.

CHAIRMAN HAMILTON: Thank you, ma'am. Mr. Landseidel's direct testimony, corrected, with his exhibits, will be entered into the record as if given orally from the stand --

[See pgs 150-162]

-- and his exhibits will be a composite exhibit, I believe No. 4.

[WHEREUPON, Hearing Exhibit 4 was marked and received in evidence.]

BY MS. SHAFEEK-HORTON:

Q Mr. Landseidel, would you please summarize your prefiled testimony.

A Yes, thank you. Good afternoon, Mr. Chairman and Commissioners.

The Lee Combined-Cycle Project, which will be located at the company's existing Lee Steam Station, will consist of one new nominal 750-megawatt combined-cycle natural-gas-fired electric generating plant and related transmission facilities, and is expected to provide base and intermediate generating capacity to the

company's system.

The two-on-one technology selection was chosen based on the need, as well as the company's and industry experience. The need fits well with current F Class technologies that are designed with moderate duct burning capabilities. Recent Duke Energy Carolinas projects at Buck and Dan River were successfully executed and operated with the same technology and configuration. The experience gained from construction and operation of the Buck and Dan River facilities can be used effectively in the execution of the proposed Lee Combined-Cycle Project.

The location of the project was selected based on a study completed in 2011 and updated in early 2013 to evaluate sites specifically for combined-cycle generation that could be ready for 2015 construction activity in support of a 2017 commercial operation date. The Lee site offers inherent benefits, given the new facility would be constructed adjacent to an existing generating station where critical infrastructure -- such as available land, water supply, and transmission facilities -- is already in place. Additional inherent benefit is derived from the natural-gas interstate pipeline located approximately one mile from the site.

The project will have minimal effects on the visual

resources and scenic quality of the area surrounding the site. The project scope proposes to connect to the electric transmission grid at 100 kV. To accommodate the interconnection, a new 100 kV switchyard will be constructed. All new transmission facilities will be located on existing company property at the Lee Steam Station site. No new rights-of-way or additional property will be required.

The Lee Project will feature state-of-the-art environmental control technology for natural-gas combined-cycle generation, and will employ a wet cooling tower for steam turbine condenser cooling, which will minimize both the intake and discharge impacts to the Saluda River. Once Units 1 and 2 at the Lee Station are retired, the thermal impacts to the Saluda River, as well as the wastewater discharges from the ash basin to the Saluda River, are expected to be greatly reduced.

The plant is currently scheduled to begin commercial operation in the summer of 2017. The plant technical requirements include those aspects deemed necessary by Duke Energy Carolinas, as an experienced power plant owner and operator, for effective and efficient long-term operation of the plant. The project estimate includes all required equipment, engineering, construction, project management, transmission

interconnect, and gas interconnect capital costs.

The two-on-one technology is proven within the industry. Because this is an existing generation site, the critical infrastructure required to operate a generating station is already in place or located nearby. As such, selecting the Lee Combined-Cycle Project site will reduce the company's construction costs and minimize the environmental impacts associated with the construction and operating of a generator station.

This concludes the summary of my direct testimony.

[PURSUANT TO STIPULATION AND PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY {CORRECTED} OF MARK E. LANDSEIDEL FOLLOWS AT PGS 150-162]

Correction noted herein as reflected in hearing testimony.

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

DOCKET NO. 2013-XXX-E

In the Matter of Application for Certificate of Environmental Compatibility and Public Convenience and Necessity for Lee Combined Cycle Natural Gas-Fired Generating Facility	DIRECT TESTIMONY OF MARK E. LANDSEIDEL ON BEHALF OF DUKE ENERGY CAROLINAS, LLC

Q. PLEASE STATE YOUR NAME, ADDRESS, AND POSITION.

A. My name is Mark Landseidel. My business address is 400 South Tryon Street, Charlotte, North Carolina. I am Director of Project Development and Initiation in the Project Management and Construction Department of Duke Energy Corporation, and I am responsible for the initiation and development of new non-nuclear generation projects for Duke Energy Carolinas, LLC (hereinafter "Duke Energy Carolinas" or the "Company").

Q. PLEASE STATE YOUR EDUCATION, BACKGROUND, AND PROFESSIONAL AFFILIATIONS.

A. I graduated from Colorado State University in May 1982 with a Bachelor of Science in Engineering. I completed the General Manager Program at Harvard Business School in November 2001.

Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND EXPERIENCE.

A. I joined Duke Energy Corporation in July 1982 and have worked in a number of departments including plant operations, plant maintenance, business development and project management and construction in my 31 year career with Duke Energy Corporation. I have been responsible for project development, project management and construction of a number of major projects since August 1996, including responsibility for the initiation, development, and construction of the recent 620 MW Buck and Dan River combined cycle projects. I assumed my current position in July 2012.

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my testimony is to describe the combined cycle technology and environmental controls selected for the new Lee Combined Cycle Plant, which I will refer to as the "Lee Combined Cycle Project" or the "Project." I will also discuss Duke

Energy Carolina's process for selecting the generation technology and the site for the Project. In addition, I will discuss the schedule and costs for the Project and provide the status of required permits.

Q. PLEASE GENERALLY DESCRIBE THE LEE COMBINED CYCLE PROJECT.

A. The Lee Combined Cycle Project, which will be located at the Company's existing Lee Steam Station, will consist of one new nominal 750 MW combined cycle natural gas-fired electric generating plant and related transmission facilities and is expected to provide base and intermediate generating capacity to the Company's system. The Company's existing Lee Steam Station is located on the Saluda River, near the town of Williamston in Anderson County, South Carolina. The Lee Steam Station began operation in 1951 and has three operating coal-fired generating units: Units 1 and 2 are 100 MW units that began operation in 1951. Unit 3 is a 170 MW unit that began operation in 1958. There are also two existing simple cycle combustion turbine units at the Lee Steam Station site with a combined capacity of 84 MW that began commercial operation in 2007. The Company currently plans to retire Lee's existing coal-fired Units 1 and 2 by 2015 and to convert Unit 3, which is also coal-fired, to natural gas by 2015.

Q. PLEASE DESCRIBE THE TECHNOLOGY SELECTED FOR THE LEE COMBINED CYCLE PROJECT.

A. The combined cycle generating facility will use two combustion turbine generators ("CTG"), two heat-recovery steam generators ("HRSGs"), and one steam turbine generator to produce electricity. I will refer to the combined technology as the "2X1" technology. Natural gas is burned in the combustion turbines to produce mechanical power that is converted to electric power by the generators. For increased efficiency, the

hot exhaust gases resulting from this process are routed through the HRSGs generating steam, which produces additional electric power through the steam turbine generator. Inlet chillers will be used to cool the ambient air entering the combustion turbines increasing unit output in warm weather conditions. Additional natural gas will be fired within the HRSGs to generate additional steam and produce higher output from the steam turbine at times of peak load demand. The thermal efficiency of this combined cycle electric generation technology is relatively high compared to other large electric generation plant technologies.

Q. PLEASE DESCRIBE THE COMPANY'S PROCESS FOR SELECTING THE CHOSEN TECHNOLOGY.

A. Duke Energy Carolinas evaluated F Class and Siemens H Class combustion turbine technologies in various configurations. The 2X1 technology selection was chosen based on the need as well as the Company's and industry experience. The need fits well with current F Class technologies that are designed with moderate duct burning capabilities. Recent Duke Energy Carolinas projects at Buck and Dan River were successfully executed and operated with the same technology and configuration. The experience gained from construction and operation of the Buck and Dan River facilities can be used effectively in the execution of the proposed Lee Combined Cycle Project. The industry is now in the process of constructing and commissioning advanced air cooled CTG combined cycle plants, but there is limited operating experience. Previous industry experience with steam cooled CTGs in combined cycle configuration showed less flexibility for serving both a base load and an intermediate load need. In contrast, many F Class combined cycle plants have been built throughout the world over the last 10-12

years. These F Class plants, including Buck and Dan River, have demonstrated operational flexibility (including multiple starts, minimum load capability, and minimum start times) as well as efficiency and cost-effectiveness required to adapt to fuel price volatility and regulatory uncertainty.

Q. PLEASE DESCRIBE THE COMPANY'S PROCESS FOR EVALUATING AND SELECTING THE SITE WHERE THE NEW FACILITY SHOULD BE LOCATED.

A. In late 2011, the Company completed a siting study to identify potential sites for combustion turbine generation need in the 2016-2017 timeframe as documented in the Duke Energy Carolinas 2011 Integrated Resource Plan ("IRP"). The study evaluated potential sites based on siting criteria including land availability, cultural and land use, gas availability, water availability, electric transmission, air permitting, constructability, proximity to existing facilities, and time constraints. The study concluded that the Lee Steam Station site was the best site for new combined cycle generation pending further review of water supply and transmission right-of-way.

In early 2013, the Company updated the 2011 study to evaluate sites specifically for combined cycle generation that could be ready for 2015 construction activity in support of a 2017 commercial operation date. This study reviewed previously evaluated sites and new sites in the Duke Energy Progress service territory. Evaluation criteria similar to the earlier studies were used and again the results identified the Lee Steam Station site as the best option for new combined cycle generation. The Lee site offers inherent benefits given the new facility would be constructed adjacent to an existing generating station where critical infrastructure such as available land, water supply, and transmission

facilities is already in place. Additional inherent benefit is derived from the natural gas interstate pipeline located approximately one mile from the site. Siting the new facility at an existing site with such favorable access to gas supply and transmission interconnect, in addition to constructability and permitting benefits, will help to reduce overall cost and minimize environmental impacts. Siting studies referenced in this testimony are provided in Landseidel Exhibits 1 through 3.

Q. DID THE COMPANY CONSIDER CULTURAL RESOURCES, INCLUDING POTENTIAL HISTORIC AND ARCHEOLOGICAL SITES, AS PART OF ITS EVALUATION OF WHERE TO SITE THE FACILITY?

A. Yes. Duke Energy Carolinas engaged a cultural resources consultant in 2012 to conduct an intensive cultural resources survey for the proposed Lee Combined Cycle Project. The survey was carried out in accordance with Section 106 of the National Historic Preservation Act ("NHPA"). The State Historic Preservation Office ("SHPO") oversees surveys to ensure they are performed in cooperation with federal and state agencies, local governments, and private organizations and individuals. Personnel participating in the survey met the Secretary of Interior professional qualification standard as described in 36 CFR Part 61.

In the 2012 survey, the consultant determined that no archaeological sites located within a one-mile radius of the site justified national register of historic places NRHP status. In its report to the South Carolina SHPO, the consultant recommends archaeological clearance for the project area.

Additionally, Duke Energy Carolinas conducted a Probable Visual Effect Analysis to characterize the existing visual conditions within five miles of the proposed Lee

Combined Cycle Project and to determine the future plant's effects on the scenic quality of the region. The Project, which is located in the rolling foothills of the Appalachian Mountains, is surrounded by sloping topography and large expanses of forests. As a result, the analysis determined the Project will have minimal effects on the visual resources and scenic quality of the area surrounding the proposed site.

Q. PLEASE DESCRIBE THE COMPANY'S PROCESS FOR EVALUATING THE ELECTRIC TRANSMISSION INTERCONNECT SCOPE FOR THE PROPOSED PROJECT.

A. System impact and optional studies were requested of the Company's Transmission Planning organization to fully evaluate impacts of interconnecting the proposed Lee Combined Cycle Project to the Company's 100 kV electric transmission system. These studies evaluate thermal impacts, fault duty impacts, stability impacts, reactive power support impacts, and interconnect requirements to determine the full scope of switchyard and transmission system network upgrades required as a result of the Lee Combined Cycle Project. This electric transmission interconnect work scope has been included in the Project's cost estimate provided in this Application and incorporated into the site selection evaluations discussed above. Transmission interconnect studies referenced in this testimony are provided in Landseidel Exhibits 4 and 5.

The Project scope proposes to connect to the electric transmission grid at 100 kV. To accommodate this interconnection, a new 100 kV switchyard will be constructed. All new transmission facilities will be located on existing Company property at the Lee Steam Station site. No new rights of way or additional property will be required.

A. The projected capital costs and operating expenses are confidential and proprietary and have been filed under separate cover as Landseidel Confidential Exhibit 6. The plant is currently scheduled to begin commercial operation in the summer of 2017. Duke Energy Carolinas engaged a qualified power engineering company with experience in 2X1F combined cycle projects as Owner's Engineer ("OE") in mid 2012. Duke Energy Carolinas worked with the OE to review the Lee Combined Cycle Project scope and specific plant technical requirements, using the recent construction of the Buck and Dan River plants as a basis. The plant technical requirements include those aspects deemed necessary by Duke Energy Carolinas, as an experienced power plant owner and operator, for effective and efficient long term operation of the plant. Duke Energy Carolinas used the actual costs associated with each of these plants, as well as recent pricing estimates from major equipment vendors, to assist with developing the project cost estimate, including the EPC scope of work. The Project estimate includes all required equipment, engineering, construction, and project management cost as well as transmission and gas interconnect costs.

Q. PLEASE SUMMARIZE THE BASIS FOR THE COMPANY'S DECISION TO CONSTRUCT A COMBINED CYCLE FACILITY AT THE CHOSEN SITE.

A. The 2X1 technology is proven within the industry and meets the need identified by the IRP process. The selected site is located in the rolling foothills of the Appalachian Mountains surrounded by expanses of forests which reduce visual impacts. Additionally, because this is an existing generation site, the critical infrastructure required to operate a generating station, such as land, water, and fuel and transmission facilities, are already in place or located nearby. As such, selecting the Lee Combined Cycle Project site will

reduce the Company's construction costs and minimize the environmental impacts associated with the construction and operation of a generating station.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes, it does.

MS. SHAFEEK-HORTON: Mr. Chairman, Mr. Landseidel is available for cross-examination and questions from the Commission.

CHAIRMAN HAMILTON: Thank you, very much. Mr. Holman.

MR. HOLMAN: Thank you, Mr. Chairman.

CROSS EXAMINATION

BY MR. HOLMAN:

Q Good afternoon. Mr. Landseidel. I'm Blan Holman.

A Good afternoon.

Q I have a few questions for you, basically about the operational characteristics of the plant. Your testimony discusses the facility's abilities to conduct the multiple starts, and it has a minimum load capability and minimum start times, at page five of your testimony. I'm wondering if you can explain what advantage that gives to the plant. What are those capabilities? What does that mean for this facility?

A Thank you. Yes, the combined-cycle technology that we've selected and the two-on-one configuration does provide significant capability to ramp the plant up and down quickly, as well as come to relatively low minimum loads in off-peak situations, so it's designed well to be flexible as an intermediate, as well as a base-load generating facility.

Q Compared to a combustion turbine, in terms of the costs, are the capital costs for a combined-cycle plant maybe higher capital costs but that's offset by some of those advantages and the lower operating costs? Is that one of the advantages of the combined-cycle?

A That's correct. Typically, for combustion turbines, they're employed when you need peaking capacity, lower-capacity-factor generation. For this specific need, the Integrated Resource Plan specified a need for intermediate and base-load facilities, which is better suited to combined-cycle here.

CHAIRMAN HAMILTON: Could you get nearer the mic, please, Mr. Landseidel?

WITNESS: [Indicating.]

CHAIRMAN HAMILTON: Thank you, sir.

WITNESS: Sorry.

CHAIRMAN HAMILTON: That's fine.

BY MR. HOLMAN:

Q Turning to minimum loads, this facility is different than a nuclear facility, in that it can operate at less than its maximum capacity it's designed to. Is that what that means, to have the minimum load capability?

A Yes, it can reduce load much more significantly than a nuclear plant, which is typically run at full output around the clock.

Q Is that true also compared to, say, a base-load coal facility; it's designed to operate at a higher capacity factor?

A The coal plants can cycle reduced load as well, but not as low of a minimum as the combined-cycle technology can do.

Q And then, in terms of running at lower loads, would that affect the reliability of this facility if it were to run at lower loads? Does that decrease the lifespan of the facility or make it any less stable?

A No. The plant is designed for that cycling capability for starts and minimum load capability, so it wouldn't have any impact on the plant as it's designed.

Q And in terms of its ability to change output levels, you mentioned the ramp rate. I take it, this is the kind of facility that can change its rate of production relatively quickly, and also that would not affect the lifespan of the facility; that's part of its design capability?

A That's correct.

Q And that is a distinction between, say, a nuclear facility, which is designed not to go up and down in terms of its production rates, but to operate at a high level?

A Yes.

Q Do you -- that ability to ramp quickly up and down, does it make the facility any better paired than a nuclear facility to operate in conjunction with intermittent generation, such as solar?

A I would say that the intermediate capability of the plant allows it to fluctuate as needed to meet the system needs, which could be varying for various reasons, including intermittent power sources.

Q Turning to just the more environmental aspects, your testimony discusses water use by the facility. If I understood correctly, there's already, I guess, an intake structure and maybe an impoundment that withdraws water from the Saluda River, and then water would be taken and used for this facility from that impoundment? And the maximum rate of water use, I think, was 10 cubic feet per second, with about eight cubic feet per second of that for the makeup for the cooling tower?

A That's correct.

Q Okay. If that's the maximum use, does -- would the water use -- what would happen if you reduced -- if the plant were not operating at its highest output? Would it reduce its water use?

A It would reduce its water usage. It depends on both the load of the facility, as well as the ambient air -- ambient conditions.

Q And I guess the same would go for, in terms of the air emissions, you've got controls on the plant, but there are still some pollutants being emitted. Those are somewhat dependent on the level of operation of the facility and its production factor? Or, the level at which it's operating? In other words, if you're running it flat out, it's going to produce more air pollution, even with the controls, than it would at lower levels -- if it were operating at lower levels?

A Could you be more specific with what you mean, the level of pollution?

Q Well, for example, the annual rate of pollution in tons per year of nitrous oxides, if the facility is operating at a lower level -- if it's operating at 100 percent production every day at maximum power, that would be more annual pollution than if the facility were operating at, say, 75 percent power every day.

A I believe that's correct, yes.

Q And then finally -- and this is a follow-up question from Ms. Hager's testimony. I think she punted to you on this one. There was a question about whether or not the Dan River gas unit -- the cost of that -- was $673 million. Are you aware of that figure, or can you tell us what the figure is for that, the construction cost for that facility?

A I don't know the source of your information and, if it was a filing, I don't have that information, but 673 sounds about right.

MR. HOLMAN: Okay, thank you. No further questions.

CHAIRMAN HAMILTON: Thank you, sir. Commissioners.

COMMISSIONER HOWARD: Mr. Chairman.

CHAIRMAN HAMILTON: Commissioner Howard.

EXAMINATION

BY COMMISSIONER HOWARD:

Q Good afternoon. How you doing?

A Good afternoon.

Q Your testimony stated that the interstate natural-gas pipeline passes within a mile of the facility.

A [Nodding head.]

Q And then, later on, I think you say Transco will furnish the natural gas to the facility. Is that mile -- do y'all have to do that, or is it Transco does that?

A Actually, the gas transmission pipeline is owned by Transco, and that's about a mile from the facility.

Q Right.

A And there's an existing pipeline lateral that connects the main pipeline to the existing plant; it's provided by Piedmont Natural Gas. So we'll be contracting with

Piedmont Natural Gas to provide the gas lateral from the main line to the new plant, and they'll do that adjacent to the existing gas lateral pipeline.

Q It'll just be going parallel to it?

A Correct.

Q That's all the infrastructure you would require, really, to get the gas from the Transco pipeline to the generating facility?

A Yes, sir -- well, there's a meter and regulating station that will be located adjacent to the plant, as well.

Q Okay. This may be one of those kicked-to-you questions, but I think Mr. Gillespy or somebody looked at you when I asked about mercury emissions? Is that not a factor in --

A Not for combined-cycle burning of natural gas; there are virtually no mercury emissions from these plants. And with the shutting down or retiring of Units 1 and 2 at the Lee Station, which are coal-fired, and converting Unit 3 to gas-fired, it will be a net reduction in mercury emissions from the site.

COMMISSIONER HOWARD: Okay. Thank you.

CHAIRMAN HAMILTON: Commissioner McGee?

COMMISSIONER McGEE: Thank you, sir.

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EXAMINATION

BY COMMISSIONER McGEE:

Q Good afternoon, sir.

A Good afternoon.

Q On page seven of your testimony, you discuss tying the Lee Project generator into the Duke 100-kV transmission system. I believe that voltage falls under the revised NERC definition of "bulk electric system facilities." Tell us, what will tying this in -- what will this mean in terms of additional cost to customers?

A Relatively speaking, it's a low cost for the transmission interconnect. We look at our siting alternatives and evaluate transmission costs as one of those options. This is one of the lowest transmission-and-interconnect-cost facilities that we had for the new plant sites.

COMMISSIONER McGEE: Thank you, Mr. Chairman.

CHAIRMAN HAMILTON: Thank you.

Commissioner Fleming.

COMMISSIONER FLEMING: Yes, Mr. Chairman.

EXAMINATION

BY COMMISSIONER FLEMING:

Q Good afternoon.

A Good afternoon.

Q In your testimony, you talk about the impact for Saluda

River and the use of the water from there for this operation. Could you talk a little bit about the implications if we have a drought situation? How does that impact the operation of the facility?

A Well, we believe, looking at the flows of the Saluda River, including if there are any drought conditions, there is sufficient water to provide the new plant with the makeup water it requires. The overall impact to the river, again, retiring Units 1 and 2 -- which, they use once-through cooling through their condensers and they have a much larger volume of withdrawal and thermal impact to the river. So by replacing those with this combined-cycle facility, the impact to the river will be less than it is.

Q And there's never been a problem with drought, with Units 1 and 2?

A There have been times, I think, with the existing steam plant, we had low-flow drought conditions in the summer where they put in some augmented cooling towers to help ease the situation with the cooling, so this will take that pressure off the river and the plant.

COMMISSIONER FLEMING: All right. Thank you.

CHAIRMAN HAMILTON: Commissioner Randall?

COMMISSIONER RANDALL: Yes, sir, thank you.

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EXAMINATION

BY COMMISSIONER RANDALL:

Q Mr. Landseidel, one question: Back when we were having all of our real cold weather, I know in my district we had a lot of folks that are on interruptible gas supplies and got interrupted. Is your contract going to be -- for gas -- going to be firm or interruptible?

A For this --

Q For this facility.

A -- combined-cycle facility, our fuels will -- we'll procure firm transportation to support the plant, so that it will be available in that situation, yes.

Q Okay. I figured that, but I wanted to make sure that was on there. Thank you. That's all I have.

A You're welcome.

CHAIRMAN HAMILTON: Thank you, very much, Commissioner.

Ms. Horton, do you have anything else?

MS. SHAFEEK-HORTON: No, sir, Mr. Chairman.

CHAIRMAN HAMILTON: Okay. You may be excused, sir. Thank you, very much.

WITNESS: Thank you.

[WHEREUPON, the witness was excused.]

CHAIRMAN HAMILTON: Y'all need a minute to get set up for the panel?

MS. THOMPSON: Thank you, Mr. Chairman.

CHAIRMAN HAMILTON: While we're getting set up, I think we probably need to enter the confidential exhibits as separate for the Duke witnesses.

MS. SHAFEEK-HORTON: I believe that Landseidel Exhibit -- I believe it's Landseidel Exhibit 6 --

CHAIRMAN HAMILTON: Landseidel 6?

MS. SHAFEEK-HORTON: -- is confidential.

CHAIRMAN HAMILTON: All right.

MS. SHAFEEK-HORTON: And also Hager Exhibit 1, I believe, is the confidential version of the IRP. And I believe that's the only confidential exhibit in Ms. Hager's testimony. So we would move that those exhibits be admitted as confidential exhibits.

CHAIRMAN HAMILTON: They will be entered as confidential, and they'll be a composite, Exhibit No. 5.

[WHEREUPON, Hearing Exhibit No. 5 was marked and received in evidence.]

CHAIRMAN HAMILTON: Mr. Holman.

MR. HOLMAN: Thank you, Mr. Chairman. South Carolina Coastal Conservation League and Southern Alliance for Clean Energy call Hamilton Davis and

John Wilson to the stand.

[Witnesses affirmed]

THEREUPON came,

T. HAMILTON DAVIS, IV,

JOHN D. WILSON,

called as witnesses on behalf of the Intervenors, Southern Alliance for Clean Energy and South Carolina Coastal Conservation League, who, having been first duly affirmed, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. HOLMAN:

Q Please state your names and addresses for the record, please.

A *[DAVIS]* Thomas Hamilton Davis, IV. 328 East Bay Street, Charleston, South Carolina 29401.

A *[WILSON]* I'm John D. Wilson. Southern Alliance for Clean Energy at 1810 Sixteenth Street, Washington, DC.

Q Mr. Davis and Mr. Wilson, did you cause to be prefiled in this docket joint direct testimony consisting of 21 pages, along with two exhibits?

A *[DAVIS]* We did.

Q And did you also cause to be prefiled joint surrebuttal testimony consisting of eight pages?

A *[DAVIS]* We did.

Q Do you have any changes or corrections to either your

prefiled direct or surrebuttal testimony?
A *[DAVIS]* No, we don't.
Q If the questions put to you in your testimony were asked here today, would your answers be the same?
A *[DAVIS]* They would be.
Q Mr. Davis, was Exhibit 1 to your joint direct testimony, which was a copy of your resumé, prepared by you or under your direction?
A *[DAVIS]* It was.
Q And Mr. Wilson, was Exhibit 2 to your joint direct testimony, which was a copy of your resumé, prepared by you and under your direction?
A *[WILSON]* It was.

MR. HOLMAN: Mr. Chairman, I would move to have Mr. Hamilton and Mr. Wilson's prefiled joint direct testimony entered into the record as though it were given orally from the stand and to have the exhibits attached to their prefiled direct testimony marked for identification as premarked.

CHAIRMAN HAMILTON: Thank you, sir. Mr. Davis and Mr. Wilson's prefiled direct joint testimony will be entered into the record as if given orally from the stand --

[See pgs 183-203]

-- and their joint exhibits will be entered as

Exhibit No. 6.

[WHEREUPON, Hearing Exhibit 6 was marked and received into evidence.]

MR. HOLMAN: Very good.

BY MR. HOLMAN:

Q Mr. Davis and Mr. Wilson, did you prepare a summary of your testimony today?

A *[DAVIS]* Yes, we did.

Q And I believe a copy of that summary has been provided to the Commission and to all the parties. Would you please give your summary to the Commission?

A *[DAVIS]* Yes, we will.

And Commissioners, good afternoon. My name is Hamilton Davis. I have been the Energy and Climate director for the South Carolina Coastal Conservation League -- or CCL -- since 2009, where I oversee all of CCL's energy-related policy and regulatory work at the local, state, and federal level.

A *[WILSON]* Good afternoon, Commissioners. My name is John D. Wilson. I've been director of Research for Southern Alliance for Clean Energy -- or SACE -- since 2007. And since 1992, I've worked in the private nonprofit and public sectors on a wide range of public policy issues, usually related to energy, environmental, and planning topics. Commissioners, I appreciate the opportunity to

appear before you once again.

A *[DAVIS]* As the Commission is aware, this proceeding involves an application by Duke Energy Carolinas for a certificate to build a new combined-cycle natural-gas plant at Duke's Lee site near Anderson. The plant would represent a roughly $650 million capital investment, and we estimated long-term planning and operating costs of this plant to be about eight times that much.

If the Commission grants the certificate, once the plant is placed into service, Duke will seek to raise base rates to pay for the cost of the plant and will raise fuel rates over time, as needed, to cover fuel costs. Both general rate cases and fuel rate cases are, essentially, backward-looking exercises; they are not forward-looking like this proceeding.

In this proceeding, the Commission evaluates whether the environmental impacts of Duke's proposed project are justified, considering the state of technology available and the nature and economics of the various alternatives. A determination must also be made that the facility will provide reliable, economic service at the lowest reasonable cost.

We have made three recommendations to the Commission: First, we recommend that the Commission condition any certification of the Lee combined-cycle

unit on an in-service date of 2018, rather than 2017 as proposed in the Application. Most of the capacity of the proposed plant isn't needed in 2017 and could be delayed to 2018, which would save homes and businesses money. The 2017 capacity need that Duke Energy describes in its Application can be addressed by correcting the company's reserve-margin calculation and by engaging in joint planning with Duke Energy Progress.

In the Application for the Lee combined-cycle unit and the IRPs filed by both Duke Energy and Duke Energy Progress, the utilities treat demand response as a resource with its own reserve requirement, rather than treating demand response programs as a load adjustment. This method used in the Lee Application results in an underestimate of available system reserve margin and means that the companies are planning to build too much capacity.

A *[WILSON]* In its order on the 2012 IRPs, Commissioners, the North Carolina Utilities Commission agreed with our recommendation on this issue. Proper treatment of demand response as a load adjustment is described in the North American Electric Reliability Corporation -- or NERC -- guidance. Following the NERC guidance, Duke Energy's calculation of resources for 2017 would be increased by about 102 megawatts. Only 214 megawatts

are needed that year, to maintain a sufficient reserve margin, once you take that into consideration.

Assuming the load-growth forecast by Duke actually occurs by 2017, Duke could obtain this 214 megawatts by either market power purchase or the solar facility we propose. A 650-megawatt gas plant would not be needed in 2017.

A *[DAVIS]* Furthermore, Duke Energy and Duke Energy Progress have stated their intention to consider entering into a joint planning arrangement. If this is achieved, the utilities forecast that the proposed plant's capacity could be deferred until 2018.

Our second recommendation: We recommend that, in its review of this Certificate Application, the Commission consider whether a more robust integrated planning and review process could ensure that Duke Energy and Duke Energy Progress evaluate all opportunities to defer or avoid additional costly natural-gas combined-cycle plants.

The proposed Lee natural-gas unit is the first of five natural-gas combined-cycle units projected by Duke Energy and Duke Energy Progress over the next decade. Unless the planning process changes, we can anticipate four more applications similar to this one in the next few years.

Over the past several years, CCL and SACE have recommended that Duke Energy and Duke Energy Progress develop energy efficiency programs designed to achieve at least 1 percent retail savings per year, or roughly a 10 percent reduction in generation and load over a 10-year period. This is a level being achieved and even exceeded by leading utilities around the nation.

A *[WILSON]* In its 2013 IRP, which is the basis for this Application, Duke projects energy efficiency programs will produce energy savings of about 5 percent by 2022. If Duke achieved 1 percent per year savings from energy efficiency, however, those savings would be roughly 10 percent by 2022, and Duke could avoid at least one additional combined-cycle unit. Similar performance by Duke Energy Progress could avoid the need for another large combined-cycle unit. Avoiding these units alone would save ratepayers over $1 billion.

A *[DAVIS]* Third, we recommend that the proposed facility include a solar component to reduce the costs of this plant. We propose that the Commission require Duke Energy to include a request for proposals for a solar project that would have to be accepted only if the bid came in at or lower than the cost of operating the Lee Plant using gas. This component would add no additional cost to ratepayers and would save ratepayers money if

solar costs go down and gas prices go up.

A *[WILSON]* Our analysis indicates that 80 to 90 percent of the long-term ratepayer impact associated with the Lee Combined-Cycle Plant is due to operating costs, mainly fuel. A utility-scale solar power component delivering power at a benchmark price of $2,000 per kilowatt would meet energy needs while reducing the gas plant's operating costs. Because the cost of a solar power component would be delivered at or below the benchmark, the incremental capital costs of the solar facility would be more than compensated for by the savings in the operating costs.

We estimate the benchmark would be roughly $2,000 per kilowatt, using basic assumptions about the proposed Lee combined-cycle unit's capital and operating costs. Duke could update the solar benchmark price based on its most recent forecast of the cost to operate and maintain the gas plant, taking into account the utility's 30-year projection of fuel and other variable costs. There would be no risk associated with issuing the RFP, since Duke could simply continue operating the gas plant until a bid came in at or under the benchmark price.

A *[DAVIS]* Modifying Duke's proposed facility to include this solar component would be both conservative and prudent. This proposal is conservative, in that it

presents no risk to the ratepayers and allows them to take full advantage of steadily declining solar costs. This feature is also prudent, since it insulates ratepayers from the risk of increasing and volatile gas prices in the future.

This concludes our summary.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED JOINT DIRECT TESTIMONY OF T. HAMILTON DAVIS, IV, and JOHN D. WILSON FOLLOWS AT PGS 183-203]

STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION
DOCKET NO. 2013-392-E

In the Matter of:	)	
	)	
Joint Application of Duke Energy Carolinas, LLC and North Carolina Electric Membership Corporation for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the Construction and Operation of a 750MW Combined Generating Plant Near Anderson, SC	)	JOINT DIRECT TESTIMONY OF HAMILTON DAVIS AND JOHN D. WILSON ON BEHALF OF SOUTH CAROLINA COASTAL CONSERVATION LEAGUE AND SOUTHERN ALLIANCE FOR CLEAN ENERGY

Q. MR. DAVIS, PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Hamilton Davis. I am the Energy and Climate Director for the South Carolina Coastal Conservation League ("CCL"), and my business address is 328 East Bay Street, Charleston, SC 29401.

Q. PLEASE STATE BRIEFLY YOUR EDUCATION, BACKGROUND AND EXPERIENCE.

A. I have a Bachelor of Science degree from Clemson University and a Juris Doctor degree from the University of South Carolina School of Law. I joined CCL in 2006 and have directed the Energy and Climate program since 2009. I oversee all of CCL's energy-related policy and regulatory work at the local, state, and federal level. I currently serve on a number of boards and committees, including the South Carolina Solar Business Alliance Board, the Energy Advisory Council for the S.C. Public Utility Review Committee, the S.C. Energy Office Advisory Committee, and the S.C. Offshore Wind Regulatory Task Force. I have

previously served on the S.C. Offshore Oil & Gas Legislative Study Committee, the S.C. Offshore Wind Legislative Study Committee, and the S.C. Shoreline Change Advisory Committee. A copy of my resume is attached as Davis/Wilson Exhibit 1.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE SOUTH CAROLINA PUBLIC SERVICE COMMISSION ("COMMISSION")?

A. No, I have not yet had the opportunity to testify before the Commission, although I have previously appeared before the Commission in a 2012 allowable ex parte briefing on SCE&G's integrated resource plan.

Q. MR. WILSON, PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is John D. Wilson. I am Director of Research for Southern Alliance for Clean Energy ("SACE"), and my business address is 1810 16th Street, NW, 3rd Floor, Washington, DC 20009.

Q. PLEASE STATE BRIEFLY YOUR EDUCATION, BACKGROUND AND EXPERIENCE.

A. I graduated from Rice University in 1990 with a Bachelor of Arts degree in physics and history. I received a Master in Public Policy from the John F. Kennedy School of Government at Harvard University in 1992 with an emphasis in energy and environmental policy, and economic and analytic methods. Since 1992, I have worked in the private, non-profit and public sectors on a wide range of public policy issues, usually related to energy, environmental and planning topics.

I became the Director of Research for SACE in 2007. I am the senior staff member responsible for SACE's utility regulatory research and advocacy, as well

as energy resource analysis. In this capacity, I am responsible for leading dialogue with utilities and regulatory officials on issues related to resource planning and financial regulation, particularly as they relate to energy efficiency, renewable energy, and conventional generation resources. This takes the form of formal testimony, comments, presentations and/or informal meetings in the states of Georgia, Florida, North Carolina and South Carolina, and with respect to the Tennessee Valley Authority. A copy of my resume is attached as Davis/Wilson Exhibit 2.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

Yes, I testified before the Commission in Docket No. 2007-358-E, which concerned Duke Energy Carolinas, LLC's ("DEC" or the "Company") "Save-a-Watt" energy efficiency program, and in Docket No. 2009-226-E, a DEC general rate case.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. We are testifying on behalf of CCL and SACE.

Q. WHAT IS THE PURPOSE OF YOUR JOINT TESTIMONY?

A. On October 24, 2013, Duke Energy Carolinas, LLC ("DEC" or the "Company") and the North Carolina Electric Membership Corporation ("NCEMC") filed a joint Application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for the construction and operation of a 750 megawatt ("MW") combined cycle natural gas-fired generating facility at DEC's existing Lee Steam Station near Anderson, South Carolina (the "Lee NGCC unit"). DEC

proposes to own 650 MW of the unit, and NCEMC would own the remaining 100 MW.

The purpose of our testimony is to highlight certain issues raised by the Application and make related recommendations to the Commission. We also critique the Company's position that its prior Integrated Resource Plans ("IRPs") demonstrated the need for a new combined cycle facility, and point out concerns regarding future NGCC units that DEC and Duke Energy Progress ("DEP") identify as potential future needs in their Joint Planning Scenario.[1]

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE COMMISSION.

A. We are making three recommendations to the Commission. First, we recommend that the Commission condition any certification of the Lee NGCC unit on an in-service date of 2018, rather than 2017 as proposed in the Application. Second, we recommend that, in its review of IRPs and certification applications, the Commission ensure that DEC and DEP have exhausted cost-effective opportunities to defer or avoid the additional NGCC plants through lower-cost, lower-risk resources. Third, to take advantage of potential synergies between NGCC generation and solar generation and hedge against the risk of higher-than-projected fuel costs, we recommend that the Commission direct DEC to solicit developer interest in a 375 MW solar facility located at or near the Lee site at a cost consistent with the cost to operate the Lee NGCC unit.

[1] We are not addressing NCEMC's claimed need for 100 MW of the Lee NGCC unit's capacity in this testimony.

Q. PLEASE DESCRIBE YOUR ORGANIZATIONS' PAST WORK RELATED TO THE COMPANY'S RESOURCE PLANNING PROCESS THAT FORMS THE BASIS FOR THE CURRENT APPLICATION.

A. CCL and SACE have participated in the Commission proceedings related to the DEC resource planning process for the past three planning cycles. In conjunction with the proceedings on the 2011 and 2012 DEC IRPs, our organizations obtained relevant documents and data from the Company; conducted a detailed analysis of the assumptions, methodology and conclusions in the Company's IRPs; and filed comments with the Commission reporting the results of that analysis, along with recommendations to improve DEC's resource planning. CCL and SACE are currently engaged in a similar effort with regard to DEC's 2013 IRP. In addition, SACE has participated in North Carolina Utilities Commission dockets related to the 2005, 2006, 2009, 2010, 2011 and 2012 DEC IRPs.

Q. ARE YOU FAMILIAR WITH SOUTH CAROLINA'S REQUIREMENTS FOR CERTIFICATION OF NEW GENERATING FACILITIES?

A. Yes, generally. Without purporting to offer a legal opinion, it is our understanding that the South Carolina Utility Facility Siting and Environmental Protection Act requires an applicant to obtain a Certificate of Environmental Compatibility and Public Convenience and Necessity ("certificate") before constructing a major utility facility like the Lee NGCC unit. S.C. Code Ann. § 58-33-110. An application for a certificate must contain, at a minimum:

> (a) a description of the location and of the major utility facility to be built;
> (b) a summary of any studies which have been made by or for applicant of the environmental impact of the facility;
> (c) a statement explaining the need for the facility; and
> (d) any other information as the applicant may consider relevant or as the commission may by regulation or order require.

S.C. Code Ann. § 58-33-120. The Commission may not grant a certificate unless it finds and determines:

> (a) The basis of the need for the facility.
> (b) The nature of the probable environmental impact.
> (c) That the impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.
> (d) That the facilit[y] will serve the interests of system economy and reliability.
> (e) That there is reasonable assurance that the proposed facility will conform to applicable State and local laws and regulations issued thereunder, including any allowable variance provisions therein, except that the Commission may refuse to apply any local law or local regulation if it finds that, as applied to the proposed facility, such law or regulation is unreasonably restrictive in view of the existing technology, or of factors of cost or economics or of the needs of consumers whether located inside or outside of the directly affected government subdivisions.
> (f) That public convenience and necessity require the construction of the facility.

S.C. Code Ann. § 58-33-160.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE APPLICATION.

A. First, it does not appear that DEC has a need for 650 MW of NGCC capacity in 2017. As discussed in greater detail later in this testimony, DEC has an adequate reserve margin for 2017, when calculated correctly. To the extent that DEC does need additional capacity in 2017, it could be met by short-term market power purchases or investment in a solar facility, as recommended below.

Second, DEC and DEP have not adequately pursued cost-effective energy efficiency and renewable energy alternatives that could have deferred the need for this unit, and that could defer or avoid entirely their projected need for several more major generation facilities. Over the next four years, the proposed Lee

NGCC unit is only the first of four to five projected NGCC units that DEC and DEP could seek to commit into the rate base paid for by their customers.

Third, fuel and other variable costs are forecast to make up 80 to 90 percent of the revenue requirement associated with the proposed Lee NGCC unit; therefore, DEC should seek cost-effective alternatives to operating the unit even if the Commission issues a certificate and the unit is built and placed into service. A large utility-scale solar power development could complement the proposed unit, providing a cost-effective hedge against the risk to customers of future increases in natural gas prices.

PROPOSED IN-SERVICE DATE FOR LEE NGCC UNIT

Q. DO YOU BELIEVE THAT DEC HAS AN ADEQUATE RESERVE MARGIN FOR 2017?

A. Yes. DEC's application overstates its need for capacity in 2017 for two reasons: because it miscalculates its reserve margin, and because DEC should seek an arrangement to share capacity with its fellow Duke Energy operating company in the Carolinas, DEP.

Q. COULD YOU EXPLAIN WHY DEC'S CALCULATIONOF ITS RESERVE MARGIN RESULTS IN AN OVERSTATED NEED FOR CAPACITY?

A. In its reserve margin calculation, DEC treats demand response as a resource with its own reserve requirement, contrary to North American Electric Reliability Corporation ("NERC") definitions and guidance.[2] In its order on the 2012 utility

[2] CCL and SACE have commented on DEC's improper calculation of its reserve margin in comments to the Commission on DEC's 2011 and 2012 IRPs. See Comments of CCL, SACE and Upstate Forever on Duke Energy Carolinas, LLC's 2011 Integrated Resource Plan, Docket No. 2011-10-E (Oct. 31, 2011) at 10-11 and Comments of CCL, SACE and Upstate Forever on Duke Energy Carolinas, LLC's 2012 Integrated Resource Plan Docket No. 2012-10-E (Dec. 6, 2013) at 35-37.

IRPs issued on October 14, 2013, the North Carolina Utilities Commission ("NCUC") stated that DEC "should consider demand response in programs that it is able to control or dispatch as adjustments to net internal demand, similar to DEP."[3] DEC's 2013 IRP, which was filed just days after the NCUC's order, does not apply that method. DEP's 2013 IRP has also improperly calculated its reserve margin, having switched to the method used by DEC which was recently rejected by the NCUC.

In assessing DEC's reserve margin for purposes of this testimony, we adjusted the reserve margins of both DEC and DEP by treating demand response as a load adjustment consistent with NERC guidance and the NCUC's recent order. This calculation revealed that DEC's 2017 reserve margin was underestimated by about 102 MW, and DEP's by about 128 MW, or a total of about 230 MW; these underestimates were slightly greater in 2018. We then applied this adjustment to correct DEC's 2017 reserve margin under the Joint Planning Scenario, which DEC reports as 14.6%. Correcting the reserve margin for the 230 MW underestimation results in a Joint Planning Case Reserve Margin for 2017 of 15.3%—approximately about 260 MW above the 14.5% minimum planning reserve margin.

This indicates the 650 MW DEC claims to need from the proposed Lee NGCC unit are not needed to meet DEC's 2017 minimum planning reserve margin if DEP and DEC arrange to share capacity, and that in fact, sharing of

[3] North Carolina Utilities Commission, Order Approving Integrated Resource Plans and REPS Compliance Plans, Docket No. E-100, Sub 137 (Oct. 14, 2013) at 20-21.

capacity would result in 260 MW of available capacity in excess of their minimum planning reserve margins.

Even though DEC and DEP could meet system needs utilizing joint planning, they are not yet authorized to rely on the results of a joint planning case. Accordingly, in its 2013 IRP, DEC identified a need of 317 MW in 2017. Correcting the reserve margin calculation for DEC only (102 MW) results in a capacity need of 214 MW, which is less than one-third of the proposed 650 MW of capacity that DEC claims it needs. To the extent that a 214 MW shortfall needs to be addressed in 2017, short-term market power purchases or investment in the recommended solar facility discussed later in our testimony should be considered.

Q. COULD JOINT PLANNING BY DEC AND DEP DEFER DEC'S NEED FOR NEW CAPACITY?

A. Potentially. DEC acknowledges that under the Joint Planning Scenario, the proposed Lee NGCC unit could be deferred to 2018 "under the proper conditions," and states that the Company will be investigating an arrangement to share capacity with DEP.[4] As a condition of any certification of the Lee NGCC unit, the Commission may wish to consider directing DEC to pursue the necessary regulatory proceedings and approvals to complete such an arrangement.

Q. WHAT IS YOUR CONCLUSION ABOUT THE PROPOSED IN-SERVICE DATE FOR THE LEE NGCC UNIT?

A. In 2018, DEC projects an additional 256 MW in resource needs. Considering DEC's need for 214 MW in 2017, coupled with the likelihood that DEP would

[4] Direct Testimony of Janice D. Hager at 20.

have some resource needs in 2018 as well, the 2013 DEC IRP appears to support the need to add a generation unit in 2018. We therefore recommend that in any certification of the Lee NGCC unit, the Commission revise the in-service date to 2018.

IMPROVING THE CONSIDERATION OF ALTERNATIVES TO NATURAL GAS POWER PLANTS IN PLANNING

Q. COULD DEC HAVE AVOIDED THE NEED FOR THE PROPOSED LEE NGCC UNIT IN THE PROPOSED TIMEFRAME?

A. Potentially. It is true that a major reason that DEC (and DEP) forecast thousands of megawatts of capacity needs over the next decade is that a number of aging coal-fired power plants have been or will soon be retired. Retirement of these aging, uneconomic plants is consistent with least-cost planning and the right decision for customers. However, another equally important reason for DEC's capacity needs is the Company's failure to exploit cost-effective alternatives to conventional generation.

As CCL and SACE have pointed out repeatedly in comments on the DEC and DEP IRPs over the past several years, DEC and DEP have failed to capture all cost-effective energy efficiency, the least-cost system resource. Nor have DEC and DEP fully explored renewable energy opportunities that could reduce risks to customers from variable fuel costs and other factors. If DEC and DEP had made greater investments in energy efficiency and pursued opportunities to procure renewable energy in South Carolina, it might have been possible to defer the proposed Lee NGCC unit—and the costs that it represents for customers—until a later date.

Q. WHAT ADDITIONAL NATURAL GAS COMBINED CYCLE UNITS ARE PROJECTED BY DEC AND DEP DURING THE NEXT DECADE?

A. The proposed Lee NGCC unit is only the first of five NGCC units projected by DEC and DEP over the next decade, taken together. If DEC and DEP are able to shift to joint planning, one NGCC unit would change to a CT unit, and all but one NGCC unit could be delayed for at least one year.[5]

Q. IS DEC ADEQUATELY PURSUING ENERGY EFFICIENCY AS A COST-EFFECTIVE ALTERNATIVE TO THE PROJECTED NEED FOR SEVERAL MORE MAJOR GENERATION FACILITIES?

A. No. While it is unlikely that all of the forecast NGCC units can be avoided through energy efficiency alone, aggressive but achievable levels of energy efficiency could avoid at least 900 MW in needed capacity by 2022.

Over the past several years, CCL and SACE have recommended that DEC and DEP develop energy efficiency programs designed to achieve at least 1% retail savings per year, or roughly 10% reduction in demand and load over a 10 year period. In its 2013 IRP, DEC projects energy efficiency programs will reduce demand and load by about 5% by 2022, or just over 900 MW. Achieving this level of savings will avoid the need for at least one large generating unit. However, if DEC doubled the performance of its energy efficiency programs through 2022 and achieved 10% savings—a rate achieved by numerous utilities across the nation—DEC could avoid at least one additional NGCC plant. Similar performance by DEP could result in reducing the four or five planned NGCC units to only two or three such units. And if DEC and DEP pursued all available

[5] DEC 2013 IRP, Table 8-H.

cost-effective energy efficiency, it could be possible to defer and even eventually avoid even more of the planned NGCC capacity.

Q. COULD WIND AND SOLAR RESOURCES DEFER, ELIMINATE OR REDUCE THE NEED FOR THE REMAINING TWO TO THREE NGCC UNITS?

A. Due to deficient evaluation of renewable energy resources in prior IRPs, it is unclear how much of the Company's identified need for additional capacity through 2022 could be met with renewable energy resources like wind and solar. Only in the 2013 IRPs have DEC and DEP provided any evaluation of renewable energy as a resource (as opposed to a compliance strategy), and we have not yet obtained the data supporting that evaluation. In contrast, another major electric utility in the region, Georgia Power, plans to have over 750 MW of solar on its system by 2018. Notably, a 2012 report from the South Carolina Public Utility Review Committee ("PURC") Energy Advisory Council ("EAC") concluded that there is over 1,700 megawatts of near-term solar potential available in South Carolina.

Furthermore, while DEC and DEP have acknowledged the market-driven growth in installation of solar power by their customers, neither utility's IRP evaluated sharp increases in distributed solar generation. Recently, the PURC EAC's initial draft report on distributed energy resources identified the potential for large numbers of South Carolina utility customers to meet some or all of their energy needs from distributed generation, including solar. According to the report:

> As a State, we are poised on the edge of a sea change that requires proactive policymaking and the *Energy Advisory Council* (EAC) recognizes that it will be best to ride the crest of the *distributed-generation* wave in a proactive rather than reactive way. How state policymakers structure the legal, regulatory, and economic environment will be critical in setting the stage for successful development and promotion of *distributed generation* in South Carolina.[6]

The report also notes the potential for customers to purchase electricity from third-party vendors. The Energy System Freedom of Ownership Act currently pending in the General Assembly would allow two percent (2%) of a utility's peak system demand to be met by third-party sales of distributed renewable resources.[7]

Q. ARE THERE OTHER NEW GENERATION PROJECTS IN SOUTH CAROLINA THAT RELATE TO THE NEED FOR NEW NGCC UNITS?

A. The V.C. Summer nuclear units 2 and 3 now under construction by SCANA and the South Carolina Public Service Authority ("Santee Cooper") will result in significant excess generation capacity on the Santee Cooper system. As the Commission is aware, in accordance with the Commission's policy that "joint ownership of new nuclear units in South Carolina is to be encouraged among the electric service providers operating in whole or in part in South Carolina," DEC has "committed to continuing to pursue good faith negotiations with [Santee Cooper] and/or SCANA regarding an interest in V.C. Summer Units 2 and 3."[8] It is our understanding that Santee Cooper remains in negotiations with DEC, DEP

[6] State Regulation of Public Utilities Review Committee Energy Advisory Council, Distributed Energy Resources Initial Draft Report (November 2013) at 1, available at http://www.scstatehouse.gov/committeeinfo/EnergyAdvisoryCouncil/EAC Distributed Energy Resources Initial Draft Report.docx.

[7] House Bill 3425; Senate Bill 536.

[8] Commission Order No. 2011-454 at 4.

and multiple out-of-state utilities in an effort to sell additional ownership or capacity shares in the new V.C. Summer units.

We believe that it is in the best interest of utility customers and South Carolina citizens to have a robust resource planning process in place that is capable of anticipating and addressing situations of this type. Excess generation capacity can compromise opportunities for increased investment in lower-cost energy efficiency and lower-risk renewable energy resources, as well as place unnecessary increased burdens on utility customers in the form of higher rates.

Q. IN LIGHT OF IMPACTS TO CUSTOMERS OF EXCESS CAPACITY, WHAT DO YOU RECOMMEND?

A. We recommend that the Commission ensure that South Carolina utilities, including DEC and DEP, pursue all available cost-effective energy efficiency and renewable energy resources. To this end, we recommend that the Commission carefully scrutinize IRPs and certification applications, including the likely upcoming proposals for additional NGCC plants, to ensure that the state's utilities have fully exhausted lower-cost, lower-risk resources before building new fossil or nuclear generation.

UTILITY SCALE SOLAR ENERGY RESOURCES

Q. WHY SHOULD THE COMMISSION CONSIDER SOLAR ENERGY RESOURCES AS PART OF THIS DOCKET?

A. The proposed Lee NGCC unit would provide power, reliability and other services to the DEC system. The type of unit proposed can be started and reach full output very quickly, so it meets system reliability needs even when it is not operating. Because the proposed Lee NGCC unit is of a technology class that offers fast

ramping capability, it appears well suited for supporting a transition to a future with a high penetration of solar, wind and other renewable energy resources.

Q. IF THE COMMISSION CERTIFIES THE LEE NGCC UNIT AND IT IS BUILT, WHY WOULD IT BE IN CUSTOMER INTEREST FOR DEC TO SEEK COST-EFFECTIVE ALTERNATIVES TO OPERATING THE UNIT?

A. Since operational costs, mainly fuel, account for 80 to 90 percent of the revenue requirement associated with the plant—that is, the cost of the plant that will be borne by customers—DEC's customers will benefit from any cost-effective alternative to operating the unit, such as energy efficiency or solar energy.

Q. WHAT IS THE BASIS FOR YOUR ASSERTION THAT FUEL AND OTHER VARIABLE COSTS ARE FORECAST TO MAKE UP 80-90% OF THE REVENUE REQUIREMENT ASSOCIATED WITH THE PROPOSED LEE NGCC UNIT?

A. As discussed in the direct testimony of DEC witness Janice D. Hager, the 2012 IRP's identified need for a 700 MW NGCC facility in 2016 formed the original basis for the RFP process in which the Lee NGCC unit was selected. Forecasted costs for the generic 700 MW NGCC unit included fuel, variable, fixed and capital costs for each year from 2016-32. These data indicate that fuel and other variable costs make up 80 to 90 percent of the annual revenue requirement forecast for this unit in the 2012 IRP.[9] Although DEC does not appear to have done a head-to-head comparison of its generic NGCC unit with the proposed Lee NGCC unit, based on DEC witness Hager's testimony it appears that the proposed unit's costs closely resembles those of the generic unit.[10]

[9] Data provided by DEC from its 2012 IRP were relied upon for this calculation because we had not yet received detailed information from DEC from its 2013 IRP.

[10] Direct Testimony of Janice D. Hager at 19.

Q. WOULD IT BE FEASIBLE TO BUILD A SOLAR POWER PLANT THAT DELIVERS POWER AT A COST COMPARABLE TO THE FORECAST OPERATING COST FOR THE PROPOSED LEE NGCC UNIT?

A. Yes. Utility-scale solar power may be developed at a cost that appears to be about the same as the long-term operating cost of the proposed Lee NGCC unit. This conclusion is based on the following assumptions:

- If in line with recent industry estimates, the capital cost of the proposed Lee NGCC unit would be at least $1,000 per kW.[11]
- The operating cost of the proposed Lee NGCC unit is about eight times the revenue requirement of its capital costs (i.e., operating costs are 80 to 90 percent of total costs), or at least $8,000 per kW if fuel and other variable costs, as forecast, are expressed as an up-front capital cost.
- The output of a solar facility is about 25% that of the proposed Lee NGCC unit, assuming a 22% solar capacity factor and a 90% NGCC plant capacity factor.[12]

Based on these assumptions, a utility-scale solar power facility constructed for $2,000 per kW would be cost-effective relative to the long term operating cost of the proposed Lee NGCC unit. Currently, industry experts estimate that solar developers are building solar projects at a cost that ranging from under $2,000 per kW (Lazard) to under $4,000 per kW (Lawrence Berkeley National Laboratory).

[11] Lazard, Lazard's Levelized Cost of Energy Analysis – Version 7.0 (August 2013).

[12] Utility-scale solar net capacity factors typically exceed 20% for both fixed-tilt and tracking systems in the Southeast. See Lawrence Berkeley National Laboratory, *Utility-Scale Solar 2012: An Empirical Analysis of Project Cost, Performance and Pricing Trends in the United States* (September 2013). Industry experts, relying on these data, have advised the Tennessee Valley Authority that a 22% capacity factor for utility-scale systems is an appropriate value. This represents an increase over recent values, driven by project designs that oversize the PV array relative to inverter capacity, resulting in an increased capacity factor (in AC terms).

Q. WOULD MORE PRECISE DATA HELP REFINE THE ESTIMATED COST FOR A COST-EFFECTIVE UTILITY-SCALE SOLAR DEVELOPMENT AT THE SITE PROPOSED FOR THE LEE NGCC UNIT?

A. Yes. DEC's 30-year forecast of fuel and other variable costs could be used to develop a benchmark price per kW at which customers would be indifferent between natural gas and solar power. DEC should also develop specific operating expectations (e.g., annual output per kW installed) for the solar facility to use in calculating this benchmark. Any impacts of operational changes, such as increased ramping, on the operating costs of the proposed Lee NGCC unit should also be taken into consideration.

Q. WHAT WOULD HAPPEN IF A SOLAR PROJECT CANNOT BE DEVELOPED AT OR BELOW THE BENCHMARK PRICE OF $2,000 PER KW (AS REFINED BY MORE PRECISE DATA)?

A. Subject to appropriate parameters, such as periodic refreshment of bids or re-issuance of RFPs, DEC could simply wait until a cost-effective solar power development proposal was received. Since the power plant can produce its full output upon completion, there would be no impact on reliability.

Q. HOW LARGE SHOULD A SOLAR POWER PLANT AT THE LEE SITE BE?

A. A cost-effective solar facility could be as large as the combined output of all the generating units at the Lee site, without creating any reliability concerns (assuming all the fossil units stand idle during periods of full solar output). The proposed Lee NGCC unit would likely to be one of the most fuel-efficient plants on the DEC system, and thus a solar power plant that meets the criteria we

described above would also be less costly than other existing units at the same location.

Q. CAN YOU PROVIDE EXAMPLES OF THE TYPE OF UTILITY-SCALE SOLAR POWER PLANT THAT COULD BE APPROPRIATE AT THE LEE SITE?

A. Yes, we can offer two examples of the type of solar power plant that should be technically feasible in South Carolina.

First, the largest operational solar photovoltaic ("PV") plant in the world is First Solar's Agua Caliente Solar Project in Arizona. Upon completion, Agua Caliente will have a generating capacity of 290 MW (AC). The plant is connected to a 500 kV transmission line and includes grid integration and plant control systems to manage grid reliability and stability. First Solar's plant design includes capabilities to regulate voltage, frequency and power factor; control active and reactive power, ramp rates, and power curtailments; and ride through faults and disturbances. These capabilities allow the plant to operate more like a thermal generation plant than a typical solar PV project.[13]

Second, Xcel Colorado recently proposed adding 450 MW of wind, 170 MW of utility-scale solar, and 317 MW of natural gas generation.[14] According to the independent evaluator's report, the wind and solar reduce the overall system cost by $262 million.[15] Notably, the operating cost would be reduced by $246

[13] First Solar website, http://www.firstsolar.com/Projects/Agua-Caliente-Solar-Project (accessed December 6, 2013).

[14] Xcel Colorado website, http://www.xcelenergy.com/About_Us/Energy_News/News_Releases/Xcel_Energy_proposes_adding_economic_solar,_wind_to_meet_future_customer_energy_demands (accessed December 6, 2013).

[15] Accion Group, Independent Evaluator's Final Report: Public Service Company of Colorado, 2013 All-Source Solicitation, Colorado Public Utilities Commission Proceeding 11A-869E (October 9, 2013),

million (i.e., total cost savings less surplus capacity cost benefits), consistent with our finding that a utility-scale solar power project could help to offset the operating costs of the proposed Lee NGCC unit.

These two projects illustrate how a large PV solar project could offer the scale and operational characteristics necessary to complement to the proposed Lee NGCC unit and also reduce the overall cost to customers associated with owning and operating the unit. A large-scale solar project could offer a substantial economic development opportunity as well. Installation of a large solar PV project at the Lee site would allow DEC to take advantage of appropriately scaled transmission interconnection facilities, but the Commission may also wish to consider multiple smaller solar projects.

Q. COULD MULTIPLE SMALLER SOLAR PROJECTS BE A GOOD ALTERNATIVE OR COMPLEMENT TO A SINGLE LARGE SOLAR INSTALLATION AT THE LEE SITE?

A. Yes. Siting considerations and existing transmission infrastructure could make a portfolio of smaller utility-scale solar installations economically and/or operationally preferable to a single large solar installation at or near the Lee site. Individual projects in such a portfolio could range from approximately 10 MW to 100 MW, and could be sited across DEC's South Carolina service territory in favorable locations based on local load, transmission congestion, existing infrastructure, and land availability.

available at https://www.dora.state.co.us/pls/efi/EFI.Show_Filing?p_fil=G_195074&p_session_id= (accessed December 10, 2013).

Q. WHAT WOULD BE THE RISKS OF MAKING A LARGE INVESTMENT IN SOLAR POWER?

A. Natural gas prices may turn out to be lower than forecast. DEC's current natural gas fuel price forecast is intended to represent a price range that is a midpoint among reasonably foreseeable prices. If the solar power plant costs $2,000 per kW (as assumed above), but natural gas fuel prices average 75% below forecast, then customers would end up paying $500 per kW more for the solar power plant than they would have to operate the natural gas unit.

Q. WHAT ARE THE POTENTIAL BENEFITS OF MAKING A LARGE INVESTMENT IN SOLAR POWER?

A. A large, co-located, utility-scale solar power project could mitigate risks and reduce the operating costs of the Lee NGCC unit with the following quantifiable benefits:

- Direct cost savings: If the actual cost to build a solar power plant is $1,500 per kW (as forecast by Lazard for 2015), then customers would save $500 per kW.
- Long term fuel price risk mitigation: If natural gas fuel prices average 25% above forecast—a potential outcome given the history of gas price volatility and upward pressure caused by demand for this fuel—then customers would save $500 per kW.
- Short term fuel price spike mitigation: If natural gas fuel prices spike temporarily due to market disruption, the impact on the fuel cost recovery rates would be mitigated by solar power generation.
- Regulatory risk mitigation: A co-located solar power plant could provide direct emissions reduction benefits for any plant or system emission limits for carbon dioxide under Clean Air Act Section 111(d).

In addition, construction of a solar power plant would have economic development benefits in the form of jobs and business development in South

Carolina. On the other hand, reduced operation of the proposed Lee NGCC unit would primarily impact out-of-state natural gas suppliers.

Q. WHAT STEPS DO YOU RECOMMEND THAT THE COMMISSION REQUIRE DEC TAKE TO UTILIZE SOLAR POWER TO REDUCE THE OPERATING COST OF THE PROPOSED LEE NGCC UNIT?

A. We recommend that the Commission, as a condition of any certification of the proposed Lee NGCC unit, require the Company to develop or procure, through an RFP process initiated in 2014, an additional 375 MW of solar capacity at or near the Lee site.[16] No definite in-service date or specific minimum amount that must be delivered at any particular time should be required; we further recommend that the Commission require that the best proposals that meet DEC's minimum terms be accepted up to 375 MW of solar capacity.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

[16] The 375 MW of solar capacity represents 50% of the capacity proposed for the Lee NGCC unit.