

INFORMATION SHEET

**OFFICIAL COPY**

PRESIDING: Finley, Brown-Bland, Bailey, Dockham, Patterson and Gray

PLACE: Dobbs Building, Raleigh, NC

DATE: Thursday, April 19, 2017

TIME: 2:00 p.m. – 4:52 p.m.

DOCKET NO.: E-100, Sub 148

COMPANY: Duke Energy Carolinas, LLC; Duke Energy Progress, LLC; and Virginia Electric and Power Company d/b/a Dominion North Carolina Power

DESCRIPTION: General Electric – Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities - 2016

VOLUME: 7

APPEARANCES

FOR DUKE ENERGY CAROLINAS, LLC and DUKE ENERGY PROGRESS, LLC:

Lawrence B. Somers, Esq.

Kendrick C. Fentress, Esq.

E. Brett Breitschwerdt, Esq.

Robert W. Kaylor, Esq.

FOR VIRGINIA ELECTRIC and POWER COMPANY d/b/a DOMINION NORTH CAROLINA POWER:

Andrea R. Kells, Esq.

Bernard L. McNamee, II, Esq.

Horace P. Payne, Jr., Esq.

FOR SOUTHERN ALLIANCE FOR CLEAN ENERGY:

Gudrun Thompson, Esq.

Lauren J. Bowen, Esq.

Peter Stein, Esq.

FOR NORTH CAROLINA SUSTAINABLE ENERGY ASSOCIATION:

Peter Ledford, Esq.

Charlotte Mitchell, Esq.

FOR CAROLINA INDUSTRIAL GROUP FOR FAIR UTILITY RATES I, II and III:

Adam Olls, Esq.

FOR NTE CAROLINAS SOLAR, LLC:

M. Gray Styers, Jr., Esq.

FOR CYPRESS CREEK RENEWABLES:

Thadeus B. Culley, Esq.

FOR NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION:

Michael D. Youth, Esq.

FOR CAROLINA UTILITY CUSTOMERS ASSOCIATION:

Robert F. Page, Esq.

**FILED**

**MAY 09 2017**

Clerk's Office  
N.C. Utilities Commission

FOR NORTH CAROLINA PORK COUNCIL:

Kurt J. Olson, Esq.

FOR THE NORTH CAROLINA ATTORNEY GENERAL:

Jennifer T. Harrod, Esq.

FOR THE USING AND CONSUMING PUBLIC:

Tim R. Dodge, Esq.

Lucy E. Edmondson, Esq.

Heather D. Fennell, Esq.

Robert Josey, Jr., Esq.

WITNESSES

Patrick McConnell

Thomas Vitolo

Ben Johnson

Carson Harkrader

EXHIBITS

DEC/DEP McConnell Cross Exhibits 1 – 3

Admitted

Vitolo Exhibit 1

Identified and Admitted

DNCP Vitolo Cross Exhibits 1 and 2

Identified and Admitted

Harkrader DEC/DEP Cross Exhibit 1

Identified and Admitted

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COPIES ORDERED: Email: Harrod, Fenterss, Somers, Kells, Culley, Ledford, Mitchell, Bowen, Dodge, Fennell, Edmondson and Josey

Hard Copies: Finley, Buffkin, Sessoms

REPORTED BY: Kim Mitchell

TRANSCRIBED BY: Kim Mitchell

DATE TRANSCRIBED: May 3, 2017

TRANSCRIPT PAGES: 128

PREFILED PAGES: 306

TOTAL: 434

**NORTH CAROLINA UTILITIES COMMISSION**  
**APPEARANCE SLIP**

DATE 4/18/17  
DOCKET #: 6-100 SL148  
NAME OF ATTORNEY Lawrence B. Jones  
TITLE Deputy General Counsel  
FIRM NAME Duke Energy Corp.  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
ZIP \_\_\_\_\_

**APPEARING FOR:** Duke Energy Carolinas LLC + Duke  
Energy Progress LLC

APPLICANT ☒ COMPLAINT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Kendrick Fentress  
TITLE Associate General Counsel  
FIRM NAME Duke Energy  
ADDRESS \_\_\_\_\_  
CITY Raleigh NC  
ZIP \_\_\_\_\_

**APPEARING FOR:** \_\_\_\_\_

APPLICANT ☒ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4-18  
DOCKET #: E-100 Sub 148  
NAME OF ATTORNEY F. Brett Breitcheverdt  
TITLE \_\_\_\_\_  
FIRM NAME McGuire Woods LLP  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
ZIP \_\_\_\_\_

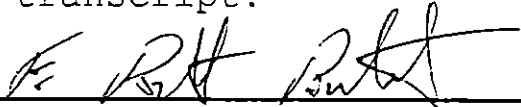
APPEARING FOR: Dulce Progress

APPLICANT X COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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**NORTH CAROLINA UTILITIES COMMISSION**  
**APPEARANCE SLIP**

DATE April 16, 2017  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Robert W. Kaylor  
TITLE Attorney  
FIRM NAME Law Office of Robert W. Kaylor, P.A.  
ADDRESS 353 E. Six Forks Rd. Ste. 260  
CITY Raleigh NC  
ZIP 27609

**APPEARING FOR:** Duke Energy Carolinas, LLC  
Duke Energy Progress, LLC

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/17  
DOCKET #: E100 Sub 148  
NAME OF ATTORNEY Andrea Kells  
TITLE Counsel  
FIRM NAME McOmre Woods  
ADDRESS 434 Fayetteville St.  
CITY Raleigh  
ZIP 27601

APPEARING FOR: Dominion

APPLICANT ☒ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
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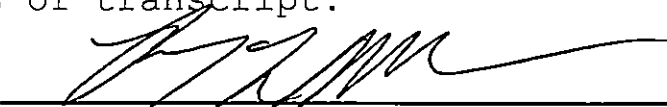
DATE 4-18-17  
DOCKET #: E-100 sub 148  
NAME OF ATTORNEY Bernard L. McNamee  
TITLE Sr. Counsel  
FIRM NAME McGuire Woods LLP  
ADDRESS 800 E. Canal St  
CITY Richmond, VA  
ZIP 23219

APPEARING FOR: Dominion North Carolina Power

APPLICANT ☒ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE April 16, 2012  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Adam Olls  
TITLE \_\_\_\_\_  
FIRM NAME Barley & Dixon, LLP  
ADDRESS 434 Fayetteville Street, Suite 2500  
CITY Raleigh  
ZIP 27601

APPEARING FOR: Carolina Industrial Group for Fair Utility Rates I, II + III

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR \_\_\_\_\_  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/17  
DOCKET #: E-100 Sub 148  
NAME OF ATTORNEY Peter Stem  
TITLE Attorney  
FIRM NAME Southern Environmental Law Center  
ADDRESS 601 W Rosemary St.  
CITY Chapel Hill  
ZIP 27516

APPEARING FOR: Southern Alliance for Clean Energy

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE April 18, 2017  
DOCKET #: E-100 Sub 148  
NAME OF ATTORNEY Lawren J. Bowen  
TITLE Staff Attorney  
FIRM NAME Southern Environmental Law Center  
ADDRESS 601 W. Rosemary St. #220  
CITY Chapel Hill, NC  
ZIP 27516

Gudrun Thompson-


APPEARING FOR: Southern Alliance for Clean Energy

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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**NORTH CAROLINA UTILITIES COMMISSION**  
**APPEARANCE SLIP**

DATE 4/18/17  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Michael D. Youth  
TITLE Associate Gen Counsel  
FIRM NAME NCEMC  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
ZIP \_\_\_\_\_

**APPEARING FOR:** NCEMC

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR X  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/17  
DOCKET #: E 100 Sub 148  
NAME OF ATTORNEY Kurt Olson  
TITLE \_\_\_\_\_  
FIRM NAME Law Office of Kurt Olson  
ADDRESS 3737 Glenwood Ave. Suite 100  
CITY Raleigh NC  
ZIP 27602

APPEARING FOR: North Carolina Pork Council

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/2017  
DOCKET #: E-100 Sub 148  
NAME OF ATTORNEY Peter Ledford  
TITLE General Counsel  
FIRM NAME North Carolina Sustainable Energy Association  
ADDRESS 4800 Six Forks Road Suite 300  
CITY Raleigh, NC  
ZIP 27609

APPEARING FOR: North Carolina Sustainable Energy Association

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR X  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/17  
DOCKET #: E-106 SUB 148  
NAME OF ATTORNEY CHARLOTTE MITCHELL  
TITLE \_\_\_\_\_  
FIRM NAME LAW OFFICE OF CHARLOTTE MITCHELL  
ADDRESS PO Box 26212  
CITY RALEIGH NC  
ZIP 27611

APPEARING FOR: NCSEA

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

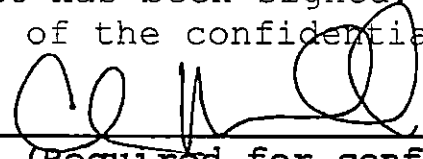
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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/17  
DOCKET #: E-100 Sub 148  
NAME OF ATTORNEY Thad Culley  
TITLE Partner  
FIRM NAME Ceyer and Fox LLP  
ADDRESS 401 Harrison Oaks Blvd, Suite 100  
CITY Cary, NC  
ZIP 27513

APPEARING FOR: Cypress Creek Renewables

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 04/18/17 DOCKET #: E-100, Sub 148  
NAME AND TITLE OF ATTORNEY Robert F. Page  
FIRM NAME Crisp & Page, PLLC  
ADDRESS 4010 Barrett Dr., Suite 205  
CITY Raleigh ZIP 27609

APPEARING FOR: Carolina Utility Customers Association, Inc.

APPLICANT _____	COMPLAINANT _____	INTERVENER <u>✓</u>
PROTESTANT _____	RESPONDENT _____	DEFENDANT _____

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE April 18, 2017  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Gray Shyers  
TITLE \_\_\_\_\_  
FIRM NAME Smith Moore Leatherwood  
ADDRESS 434 Fayetteville Street, Suite 2800  
CITY Raleigh, NC 2  
ZIP 27601

APPEARING FOR: NTE Solar, LLC

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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NORTH CAROLINA UTILITIES COMMISSION  
APPEARANCE SLIP

DATE 4/18/2017  
DOCKET #: E-100, Sub 148  
NAME OF ATTORNEY Jennifer Harrod  
TITLE Special Deputy Attorney General  
FIRM NAME Office of NC Attorney General  
ADDRESS 114 West Edenton St  
CITY Raleigh NC  
ZIP 27602-0629

APPEARING FOR: NC Attorney General, Josh Stein

APPLICANT \_\_\_\_\_ COMPLAINANT \_\_\_\_\_ INTERVENOR ☒  
PROTESTANT \_\_\_\_\_ RESPONDENT \_\_\_\_\_ DEFENDANT \_\_\_\_\_

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**NORTH CAROLINA UTILITIES COMMISSION**  
**PUBLIC STAFF - APPEARANCE SLIP**

DATE 04/18/17 DOCKET #: E-100, Sub 148

PUBLIC STAFF MEMBER Tim R. Dodge, Heather Fennell, Lucy Edmondson, Robert Josey

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **EMAILED** TO THE PUBLIC STAFF  
- PLEASE INDICATE YOUR DIVISION AS WELL AS YOUR EMAIL ADDRESS  
BELOW:

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WATER \_\_\_\_\_

COMMUNICATIONS \_\_\_\_\_

ELECTRIC \_\_\_\_\_

GAS \_\_\_\_\_

TRANSPORTATION \_\_\_\_\_

ECONOMICS \_\_\_\_\_

**LEGAL** tim.dodge@psncuc.nc.gov,  
heather.fennell@psncuc.nc.gov,  
lucy.edmondson@psncuc.nc.gov,  
robert.josey@psncuc.nc.gov

CONSUMER SERVICES \_\_\_\_\_

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**All Public Staff personnel working on case.**

  
\_\_\_\_\_  
Signature of Public Staff Member

**DEC/DEP\_CCR\_Q7**

I/A  
vol 6 vol 1.7

- (7) On page 5, Line 17-18, Witness McConnell refers to "QF markets."
- a. Please identify all such "markets" or states by name that Witness McConnell is referencing in making this statement.
  - b. For each market or state so identified in response to (5).a., please identify the number of QF projects that Cypress Creek or its subsidiaries or affiliates has either (i) placed in service since January 1, 2015 or (ii) now has under development.

**RESPONSE TO DEC/DEP\_CCR\_Q7:**

- a. "QF markets" in this context refers not to specific states, but to states or markets where most solar PV projects sell their output to incumbent utilities under PURPA, rather than in wholesale markets.
- b. CCR objects to this question on the grounds that it is unduly burdensome and requests information that is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence in this case to the extent that it seeks information on projects that are not standard-offer QF projects located within North Carolina. Notwithstanding and subject to these objections, CCR responds that it has a total of 99 North Carolina standard-offer QFs that are under development and 102 North Carolina standard-offer QFs that have been placed into service since January 1, 2015.

Response Date: April 11, 2017

Response By: Patrick McConnell

I/A  
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**DEC/DEP\_CCR\_Q2**

- (2) Recognizing that PURPA exempts QFs from federal or state regulatory oversight of their books and cost of service and exempts QFs and their upstream parent companies from cost-based rate regulation, would Cypress Creek agree to authorize the Public Staff and the North Carolina Utilities Commission Staff to audit Cypress Creek's books and records in making a determination regarding whether Cypress Creek's QF projects have a reasonable opportunity to attract capital from potential investors?

**RESPONSE TO DEC/DEP\_CCR\_Q2:**

CCR objects to this question to the extent that it seeks a commitment from CCR to prospectively waive its legal rights under PURPA.

Notwithstanding this objection, CCR responds that it would consider any request by the Commission Staff or Public Staff to provide financial information on a voluntary basis. However, CCR is not aware of any such request having been made by the Commission or the Public Staff.

Response Date: April 11, 2017

Response By: Patrick McConnell

**DEC/DEP\_CCR\_Q5**

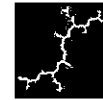
- (5) On page 5, Line 1-2, Witness McConnell explains that “to date CCR has used over 25 different capital providers . . .” to provide debt and equity capital for the development of its solar PV projects. Please (i) identify these capital providers by name, (ii) identify whether they have provided debt capital, equity capital or another type of capital or financial support; and (iii) provide a reasonable estimate of the gross total capital provided by each of the identified capital providers to Cypress Creek.

**RESPONSE TO DEC/DEP\_CCR\_Q5:**

CCR objects to this information to the extent that it requests information that is subject to non-disclosure agreements with the capital providers and that CCR is prohibited from disclosing such information under those agreements, except as required by law.

Response Date: April 11, 2017

Response By: Patrick McConnell

**Thomas J. Vitolo, Ph.D., Senior Associate**

Synapse Energy Economics | 485 Massachusetts Avenue, Suite 2 | Cambridge, MA 02139 | 617-453-7036  
tvitolo@synapse-energy.com

**PROFESSIONAL EXPERIENCE**

**Synapse Energy Economics Inc., Cambridge, MA. *Senior Associate*, 2015 – present, *Associate*, 2011 – 2015.**

Conducts research, authors reports, and prepares expert testimony. Consults on issues related to renewable resources, distributed energy resources, PURPA and avoided costs, municipal utility planning, renewable energy and carbon markets, integrated resource planning, coal asset valuation, compliance, and cost-benefit analysis.

**Jointown Group Co., Ltd., Wuhan, China. *Systems Engineer Intern*, Summer 2007.**

Developed and implemented a modified (s,S) inventory management scheme for over 20,000 warehoused pharmaceutical products, resulting in more orders filled, lower carrying costs, and a reduction in the frequency of product expiration.

**MIT Lincoln Laboratory, Division 6, Group 65, Lexington, MA. *Research Assistant*, 2003 – 2006.**

Designed algorithm and implemented software to create autonomous wireless point-to-point topologies for aerial, land-based, and nautical vehicles as part of an Optical & RF Combined Link Experiment (ORCLE) funded by Defense Advanced Research Projects Agency (DARPA).

**EDUCATION**

**Boston University, Boston, MA**

Doctor of Philosophy in Systems Engineering, 2011. Developed algorithms to discover degree constrained minimum spanning trees in sparsely connected graphs.

**Dublin City University, Dublin, Ireland**

Master of Science in Financial and Industrial Mathematics, 2001. Researched partial differential equations modeling fluid flow over an erodible bed.

**North Carolina State University, Raleigh, North Carolina**

Bachelor of Science in Applied Mathematics, 2000. *Summa Cum Laude*.

Bachelor of Science in Computer Science, 1999. *Summa Cum Laude*.

Bachelor of Science in Economics, 1998. *Summa Cum Laude*.



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## TESTIMONY

**Maryland House of Delegates Economic Matters Committee (SB 771):** Oral testimony regarding the rate impacts of Senate Bill 771 and Senate Bill 1131 on low use and low-income customers and energy efficiency programs in the SMECO and Choptank cooperative service territories. On behalf of the Maryland Public Service Commission. February 21, 2017.

**Maryland Senate Finance Committee (SB 771):** Oral testimony regarding the rate impacts of Senate Bill 771 and Senate Bill 1131 on low use and low-income customers and energy efficiency programs in the SMECO and Choptank cooperative service territories. On behalf of the Maryland Public Service Commission. February 21, 2017.

**The Commonwealth of Massachusetts Department of Public Utilities (Docket No. 16-99):** Public comments regarding the Town of Brookline's request for approval of a municipal aggregation plan pursuant to G.L. c. 164, § 134. On behalf of the Brookline Climate Action Committee Community Choice Aggregation Subcommittee. September 14, 2016.

**Public Service Commission of South Carolina (Docket No. 2016-3-E):** Annual Review of Base Rates for Fuel Costs of Duke Energy Carolinas, LLC. Direct and surrebuttal testimony on behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. August 19 and September 1, 2016.

**Public Service Commission of South Carolina (Docket No. 2016-2-E):** Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company. Direct and surrebuttal testimony on behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. March 24 and April 6, 2016.

**Public Service Commission of South Carolina (Docket No. 2016-1-E):** Annual Review of Base Rates for Fuel Costs of Duke Energy Progress, LLC. Direct testimony on behalf of South Carolina Coastal Conservation League and Southern Alliance for Clean Energy. May 19, 2016.

**Vermont Public Service Board (Docket No. 8586):** Direct testimony on the need and economic benefit of the proposed Coolidge Solar 20 MW solar electric generation facility. On behalf of Ranger Solar, LLC. December 14, 2015 and September 14, 2016.

**California Public Utilities Commission (Docket No. R.13-12-010):** Reply testimony on Phase 1a modeling scenarios in the Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans. On behalf of the California Office of Ratepayer Advocate. December 18, 2014.

**Public Service Commission of South Carolina (Docket No. 2014-246-E):** Direct testimony regarding a methodology for calculating the costs and benefits of solar net energy metering. On behalf of the Carolina Coastal Conservation League and the Southern Alliance for Clean Energy. December 11, 2014.

**Missouri Public Service Commission (Case No. EO-2011-0271):** Rebuttal testimony regarding Union Electric Company D/B/A Ameren Missouri. On behalf of the Missouri Office of Public Counsel. October 28, 2011.

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## PUBLICATIONS

Whited, M., E. Malone, T. Vitolo. 2016. *Rate Impacts on Customers of Maryland's Electric Cooperatives: Impacts on SMECO and Choptank Customers*. Synapse Energy Economics for Maryland Public Service Commission.

Woolf, T., M. Whited, P. Knight, T. Vitolo, K. Takahashi. 2016. *Show Me the Numbers: A Framework for Balanced Distributed Solar Policies*. Synapse Energy Economics for Consumers Union.

Wilson, R., S. Fields, P. Knight, E. McGee, W. Ong, N. Santen, T. Vitolo, E. A. Stanton. 2016. *Are the Atlantic Coast Pipeline and the Mountain Valley Pipeline Necessary? An examination of the need for additional pipeline capacity in Virginia and Carolinas*. Synapse Energy Economics for Southern Environmental Law Center and Appalachian Mountain Advocates.

Vitolo, T. 2016. "Senate bill on climate change is the stronger of the two." *Cambridge Chronicle*, July 30.

Jackson, S., P. Luckow, E.A. Stanton, A. Horowitz, P. Peterson, T. Comings, J. Daniel, and T. Vitolo. 2016. *Reimagining Brayton Point: A Guide to Assessing Reuse Options for the Somerset Community*. Prepared by Synapse Energy Economics for Coalition for Clean Air South Coast, Clean Water Action, and Toxics Action Center.

Vitolo, T., A. Horowitz, P. Luckow, and N.R. Santen. 2015. *Meeting Maryland's RPS*. Synapse Energy Economics for the Maryland Climate Coalition.

Vitolo, T., M. Chang, T. Comings, A. Allison. 2015. *Economic Benefits of the Proposed Coolidge Solar I Solar Project*. Synapse Energy Economics for Coolidge Solar I, LLC.

Vitolo, T. 2015. *Memorandum Reviewing Distributed Generation Policy Proposed by Belmont Citizens*. Synapse Energy Economics for Belmont Clean Energy.

Luckow, P., T. Vitolo, J. Daniel. 2015. *A Solved Problem: Existing Measures Provide Low-Cost Wind and Solar Integration*. Synapse Energy Economics.

Fields, S., P. Luckow, T. Vitolo. 2015. *Clean Energy Future Technical Review*. Synapse Energy Economics.

Vitolo, T., P. Luckow, S. Fields, P. Knight, B. Biewald, E. A. Stanton. 2015. *Lower Electric Costs in a Low-Emission Future*. Synapse Energy Economics.

Takahashi, K., J. Fisher, T. Vitolo, N. R. Santen. 2015. *Review of TVA's Draft 2015 Integrated Resource Plan*. Synapse Energy Economics for Sierra Club.

Vitolo, T., J. Fisher, J. Daniel. 2015. *Dallman Units 31/32: Retrofit or Retire?* Synapse Energy Economics for the Sierra Club.

Woolf, T., M. Whited, E. Malone, T. Vitolo, R. Hornby. 2014. *Benefit-Cost Analysis for Distributed Energy Resources: A Framework for Accounting for All Relevant Costs and Benefits*. Synapse Energy Economics for the Advanced Energy Economy Institute.

---

Stanton, E. A., J. Daniel, T. Vitolo, P. Knight, D. White, G. Keith. 2014. *Net Metering in Mississippi: Costs, Benefits, and Policy Considerations*. Synapse Energy Economics for the Public Service Commission of Mississippi.

Fagan, R., T. Vitolo, P. Luckow. 2014. *Indian Point Energy Center: Effects of the Implementation of Closed-Cycle Cooling on New York Emissions and Reliability*. Synapse Energy Economics for Riverkeeper.

Vitolo, T., J. Fisher, K. Takahashi. 2014. *TVA's Use of Dispatchability Metrics in Its Scorecard*. Synapse Energy Economics for Sierra Club.

Comings, T., J. Daniel, P. Knight, T. Vitolo. 2014. *Air Emission and Economic Impacts of Retiring the Shawnee Fossil Plant*. Synapse Energy Economics for the Kentucky Environmental Foundation.

Vitolo, T., J. Daniel. 2013. *Improving the Analysis of the Martin Drake Power Plant: How HDR's Study of Alternatives Related to Martin Drake's Future Can Be Improved*. Synapse Energy Economics for Sierra Club.

Vitolo, T., P. Luckow, J. Daniel. 2013. *Comments Regarding the Missouri 2013 IRP Updates of KCP&L and GMO*. Synapse Energy Economics for Earthjustice.

Hornby, R., P. Chernick, D. White, J. Rosenkranz, R. Denhardt, E. A. Stanton, J. Gifford, B. Grace, M. Chang, P. Luckow, T. Vitolo, P. Knight, B. Griffiths, B. Biewald. 2013. *Avoided Energy Supply Costs in New England: 2013 Report*. Synapse Energy Economics for the Avoided-Energy-Supply-Component (AESC) Study Group.

Stanton, E. A., T. Comings, K. Takahashi, P. Knight, T. Vitolo, E. Hausman. 2013. *Economic Impacts of the NRDC Carbon Standard*. Synapse Energy Economics for the Natural Resources Defense Council (NRDC).

Vitolo, T., G. Keith, B. Biewald, T. Comings, E. Hausman, P. Knight. 2013. *Meeting Load with a Resource Mix Beyond Business as Usual: A regional examination of the hourly system operations and reliability implications for the United States electric power system with coal phased out and high penetrations of efficiency and renewable generating resources*. Synapse Energy Economics for Civil Society Institute.

Stanton, E. A., F. Ackerman, T. Comings, P. Knight, T. Vitolo, E. Hausman. 2013. *Will LNG Exports Benefit the United States Economy?* Synapse Energy Economics for Sierra Club.

Ackerman, F., T. Vitolo, E. A. Stanton, G. Keith. 2013. *Not-so-smart ALEC: Inside the attacks on renewable energy*. Synapse Energy Economics for Civil Society Institute.

Woolf, T., M. Whited, T. Vitolo, K. Takahashi, D. White. 2012. *Indian Point Replacement Analysis: A Clean Energy Roadmap: A Proposal for Replacing the Nuclear Plant with Clean, Sustainable Energy Resources*. Synapse Energy Economics for Natural Resources Defence Council (NRDC).

Hornby, R., D. White, T. Vitolo, T. Comings, K. Takahashi. 2012. *Potential Impacts of a Renewable and Energy Efficiency Portfolio Standard in Kentucky*. Synapse Energy Economics for Mountain Association for Community Economic Development and Kentucky Sustainable Energy Alliance.

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Keith, G., B. Biewald, E. Hausman., K. Takahashi, T. Vitolo, T. Comings, P. Knight. 2011. *Toward a Sustainable Future for the U.S. Power Sector: Beyond Business as Usual 2011*. Synapse Energy Economics for Civil Society Institute.

## PRESENTATIONS AND POSTER SESSIONS

Whited, M., and T. Vitolo. 2016. "SB 1131 Energy-Related Study." Maryland Public Service Commission Stakeholder Meeting, November 10, 2016.

Vitolo, T. 2016. "The Influence of Clean Power Plan Compliance Pathway Choice on Renewable Energy Construction." Presentation at the Renewable Energy Markets Conference, October 17, 2016.

Vitolo, T., J. Lazar. 2016. "The Value of Solar: Assessing the Benefits, the Costs, and What it May Mean for Net Energy Metering." Webinar for Regulatory Assistance Project, September 22, 2016.

Vitolo, T. 2016. "Some Value of Solar Remarks." Presentation for EUCI's "Net Energy Metering and Utility Solar Rates" seminar, July 21, 2016.

Vitolo, T., P. Luckow. 2016. "New Renewable Generation Capacity – Why Here and Not There?" Webinar by Synapse Energy Economics, June 22, 2016.

Vitolo, T., D. Lescohier, E. Frey, L. O. Pehlke. 2016. "Comparing Two Brookline Water Department Rate Proposals." Presentation to Brookline Board of Selectmen, Brookline, MA, June 21, 2016.

Vitolo, T. 2016. "Value of Solar: What & How, Who & Where, and Why." Presentation for the Solar Market Pathways Sustainable Communities Leadership Academy, Boston, MA, June 7, 2016.

Vitolo, T. 2016. "Local Action Big Results: Community Choice Aggregation." Presentation at Brookline Climate Week 2016, March 30, 2016.

Vitolo, T. 2016. "Getting a Local Energy Project Up and Running: Community Choice Aggregation." Presentation for Local Environmental Action Conference 2016, March 13, 2016.

Vitolo, T. 2016. "How That Thing in Your Pocket Will Cut Carbon Emissions in Half." Lecture for the Boston University City Planning and Urban Affairs Program, March 8, 2016.

Vitolo, T. 2015. Oral testimony regarding Belmont proposed distributed generation compensation policy. Presentation to Net Metering Working Group, Belmont, MA, July 16, 2015.

Vitolo, T. 2015. "Avoided Costs Associated with Distributed Generation and the Intersection of DG Valuation and Integrated Resource Planning." Presentation in Salt Lake City, UT, May 12, 2015.

Stanton, E. A., B. Biewald, D. Hurley, P. Peterson, T. Vitolo. 2015. "Clean Energy Advocates Bootcamp: Understanding Supply and Demand in New England." Presentation in Cambridge, MA, February 12, 2015.

Vitolo, T. 2015. Oral testimony regarding the Dallman 31/32 coal-fired power plant retrofit or retire decision. Presentation to Springfield Committee of the Whole, Springfield, Illinois, February 10, 2015.

---

Vitolo, T. 2015. "Community Solar in Context." Presentation at Brookline Climate Week 2015, February 4, 2015.

Vitolo, T. 2014. "Net Metering and Mississippi." Presentation at the 13<sup>th</sup> Annual Southern BioProducts and Renewable Energy Conference, November 13, 2014.

Vitolo, T. 2014. Comments in New York Association for Energy Economics panel regarding the operation and economics of Indian Point Nuclear Plant, November 4, 2014.

Vitolo, T. 2013. "How Big an Issue is Intermittency? Integrating Renewables into a Reliable, Low-Carbon Energy Grid," Presentation for Civil Society Institute webinar, April 17, 2013.

Vitolo, T. 2009. "RPS in the USA: The Present Impact and Future Possibilities of Renewable Portfolio Standards in America." Presentation at Boston University Energy Club Seminar Series.

Vitolo, T. 2007. "An ILP Approach to Spanning Tree Problems on Incomplete Graphs with Heterogeneous Degree Constraints." Presentation at INFORMS Annual Meeting.

Vitolo T., J. Hu., L. Servi, V. Mehta. 2005. "Topology Formulation Algorithms for Wireless Networks with Reconfigurable Directional Links." Proceedings of the IEEE Military Communications Conference, October 2005.

Vitolo, T. 2004. "Topology Design and Traffic Routing for Wireless Networks with Node-Based Topological Constraints." Presentation at Boston University CISE Seminar Series.

## ADDITIONAL EXPERIENCE

### TEACHING

- Guest Lecturer, Harvard Law School, 2017 – present
- Guest Lecturer, Boston University City Planning and Urban Affairs Program, 2015 – present
- Graduate Teaching Fellow, Boston University College of Engineering. *Introduction to Engineering Computation*, 2009
- Guest Lecturer, Boston University Department of Systems Engineering, *Case Studies in Inventory Management*, 2007-2008
- Guest Lecturer, Boston University Department of Systems Engineering, Solving Linear Programs with CPLEX, 2003-2008

### GOVERNMENT SERVICE

- *Constable*, Brookline, MA, 2010 – present
- *Town Meeting Member*, Brookline, MA, 2007 – present
- *Bicycle Advisory Committee Member*, Brookline, MA, 2007 – present.

---

## OTHER INFORMATION

### FELLOWSHIPS AND SCHOLARSHIPS

- National Science Foundation IGERT Fellowship, 2006 – 2008
- National Science Foundation GK-12 Fellowship, 2002 – 2003
- Mitchell Scholarship, 2000 – 2001
- Park Scholarship, 1996 – 2000

### ADDITIONAL SKILLS

- Computer Applications: Microsoft Office, LaTeX
- Programming: Fortran, C, C++, perl, MATLAB, CPLEX

### AFFILIATIONS

- Center for Computation Science, Boston University, 2006 – 2010
- Center for Information and Systems Engineering, Boston University, 2002 – 2010

*Resume dated February 2017.*

I/A  
vol. 7

## Info

**Author** P. Knight  
**Date Created** 3/22/2017

**Reviewed by** T. Vitolo  
**Date Reviewed** 3/22/2017

**Data Sources** Attachment NCSEA Set 1-08(f)(1)  
Attachment NCSEA Set 1-08(f)(2)

**Docket** E-100, sub 148  
North Carolina

# Substation Analysis

## Sources

Attachment NCSEA Set 1-08(f)(1)

Attachment NCSEA Set 1-08(f)(2)

## Designation:

75%-100%

50%-75%

0%-50%

Positive

Neutral

Negative

## Substation

Parmelee TX #1

### With Entire Dataset

Number of Data Points 17904

Number of NonZero Points 17542

Number of Negative Points 3855

Percent Negative 22%

Percent Positive 78%

Designation Positive

### With New Start Date

Number of Data Points 12143

Number of NonZero Points 12140

Number of Negative Points 3855

Percent Negative 32%

Percent Positive 68%

Designation Neutral

P

5767

### Attachment NCSEA Set 1-08(f)(2)

Designation Negative



	A	B	C	D
2	<b>Attachment NCSEA Set 1-08(f)(1)</b>			
3	<i>All data is in MW</i>			
4				
5		DATE	TIME	Parmele TX #1
6152		1/7/2016	0:30:00	0.737
6153		1/7/2016	1:00:00	0.737
6154		1/7/2016	1:30:00	0.737
6155		1/7/2016	2:00:00	0.737
6156		1/7/2016	2:30:00	0.737
6157		1/7/2016	3:00:00	0.737
6158		1/7/2016	3:30:00	0.737
6159		1/7/2016	4:00:00	0.737
6160		1/7/2016	4:30:00	0.737
6161		1/7/2016	5:00:00	0.737
6162		1/7/2016	5:30:00	0.737
6163		1/7/2016	6:00:00	0.737
6164		1/7/2016	6:30:00	0.737
6165		1/7/2016	7:00:00	0.737
6166		1/7/2016	7:30:00	0.737
6167		1/7/2016	8:00:00	0.737
6168		1/7/2016	8:30:00	0.737
6169		1/7/2016	9:00:00	0.623
6170		1/7/2016	9:30:00	0.406
6171		1/7/2016	10:00:00	0.431
6172		1/7/2016	10:30:00	0.432
6173		1/7/2016	11:00:00	0.18
6174		1/7/2016	11:30:00	0.114
6175		1/7/2016	12:00:00	-0.163
6176		1/7/2016	12:30:00	-0.488
6177		1/7/2016	13:00:00	-0.254
6178		1/7/2016	13:30:00	-0.089
6179		1/7/2016	14:00:00	-0.306
6180		1/7/2016	14:30:00	-0.136
6181		1/7/2016	15:00:00	0.089
6182		1/7/2016	15:30:00	0.299

	A	B	C	D
2	<b>Attachment NCSEA Set 1-08(f)(1)</b>			
3	<i>All data is in MW</i>			
4				
5		DATE	TIME	Parmelete TX #1
15126		7/12/2016	0:30:00	0.762
15127		7/12/2016	1:00:00	0.762
15128		7/12/2016	1:30:00	0.762
15129		7/12/2016	2:00:00	0.762
15130		7/12/2016	2:30:00	0.762
15131		7/12/2016	3:00:00	0.762
15132		7/12/2016	3:30:00	0.762
15133		7/12/2016	4:00:00	0.762
15134		7/12/2016	4:30:00	0.762
15135		7/12/2016	5:00:00	0.762
15136		7/12/2016	5:30:00	0.762
15137		7/12/2016	6:00:00	0.762
15138		7/12/2016	6:30:00	0.762
15139		7/12/2016	7:00:00	0.74
15140		7/12/2016	7:30:00	0.457
15141		7/12/2016	8:00:00	0.23
15142		7/12/2016	8:30:00	-0.12
15143		7/12/2016	9:00:00	-0.797
15144		7/12/2016	9:30:00	-1.383
15145		7/12/2016	10:00:00	-1.754
15146		7/12/2016	10:30:00	-1.8
15147		7/12/2016	11:00:00	-2.226
15148		7/12/2016	11:30:00	-1.735
15149		7/12/2016	12:00:00	-1.902
15150		7/12/2016	12:30:00	-1.445
15151		7/12/2016	13:00:00	-1.968
15152		7/12/2016	13:30:00	-1.017
15153		7/12/2016	14:00:00	-1.903
15154		7/12/2016	14:30:00	-1.675
15155		7/12/2016	15:00:00	-1.558
15156		7/12/2016	15:30:00	-1.838
15157		7/12/2016	16:00:00	-1.14
15158		7/12/2016	16:30:00	-1.363
15159		7/12/2016	17:00:00	-0.642
15160		7/12/2016	17:30:00	0.124
15161		7/12/2016	18:00:00	-0.197
15162		7/12/2016	18:30:00	0.284
15163		7/12/2016	19:00:00	0.578
15164		7/12/2016	19:30:00	1
15165		7/12/2016	20:00:00	1.118
15166		7/12/2016	20:30:00	1.118
15167		7/12/2016	21:00:00	1.118
15168		7/12/2016	21:30:00	1.118

4

Dominion Resources Services, Inc.  
Law Department  
P.O. Box 26532, Richmond, VA 23261



DNCP Vitolo Cross  
Exhibit No. 2

**Dominion®**

I/A  
Vol. 7

Horace P. Payne, Jr.  
Senior Counsel  
Direct (804) 819-2682  
Fax: (804) 819-2183  
horace.p.payne@dom.com

February 1, 2017

**VIA ELECTRONIC FILING**

Chief Clerk  
North Carolina Utilities Commission  
Dobbs Building  
430 North Salisbury Street  
Raleigh, North Carolina 27603

Re: Docket No. E-100, Sub 101 A

Dear Chief Clerk:

In accordance with the North Carolina Utilities Commission's directives on page 25 of its May 15, 2015 *Order Approving Revised Interconnection Standard*, issued in Docket No. E-100, Sub 101, Virginia Electric and Power Company, d/b/a Dominion North Carolina Power ("DNCP" or "the Company"), encloses its February 1, 2017 quarterly Queue Status and Queue Performance reports for filing in the above-captioned docket.

The Queue Status report is being filed in spreadsheet form and provides a snapshot of the Company's North Carolina interconnection queue <sup>1,2</sup> as of January 30, 2017, by queue number, including the following information: 1) fuel type; 2) date queue number was assigned; 3) capacity (MW); 4) the substation and transformer to which the project is proposed to be interconnected; 5) the circuit to which the project is proposed to be interconnected; and 6) status of the request in the interconnection process. In addition to identifying whether an Interconnection Agreement ("IA") has been executed or the project has been interconnected/cancelled, the project status descriptions identified in this Queue Status report reflect interdependency status designations of Project A, Project B, or Subordinate in accordance with Section 1.8 of the Procedures. Information presented in the Queue Status report is being provided to the Commission for purposes of improving transparency into DNCP's North Carolina interconnection queue; however, interested persons should not rely upon the Queue Status report as indicative of whether additional generating facilities may be interconnected to an identified substation or circuit without impact since there are many variables studied as part of

<sup>1</sup> The Queue Status report addresses DNCP's North Carolina state-jurisdictional interconnection queue. The report does not include transmission and distribution voltage interconnection requests submitted to the PJM interconnection queue, which are administered by PJM independently from DNCP's North Carolina state-jurisdictional interconnection queue.

<sup>2</sup> The Queue Status report excludes net metering requests as net metering interconnections are intended to offset a portion or all of a retail customer's load and are not primarily for power export.

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Feb 01 2017

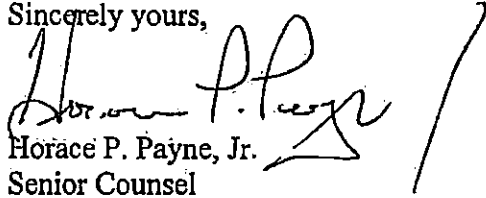
Chief Clerk  
February 1, 2017  
Page 2

the interconnection study process. Interested persons should obtain a Section 1.3 Pre-Application Request and/or file a Section 1.4 Interconnection Request.

The Queue Performance report includes historical information as of January 30, 2017 and is designed to present the Commission a baseline against which the Company's progress in managing its North Carolina interconnection queue can be assessed under the revised North Carolina Interconnection Procedures. The Queue Performance report presents a historical view of the following: 1) days between queue number assignment and an IA being sent to the Interconnection Customer; 2) days between IA execution with charges satisfied and when utility facilities are made available for operation; and 3) days between queue number assignment and when utility facilities are made available for operation.

Please do not hesitate to contact me if you have any questions. Thank you for your assistance in this matter.

Sincerely yours,

  
Horace P. Payne, Jr.  
Senior Counsel

Enclosures

cc: Tim Dodge, Esq., Public Staff – North Carolina Utilities Commission  
Parties of Record

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Feb 01 2017

**Dominion North Carolina Power Queue Status Report (Excluding Net Metering)**

**Data as of:**

**January 30, 2017**

**E-100 Sub 101A**

Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC11009	Solar	1/1/2011	5.0	Plymouth Tx 2	62 340 (Plymouth)	Connected
NC13001	Solar	1/28/2013	1.8	Seaboard Tx 1	61 817 (Seaboard)	IA Executed
NC13002	Solar	2/11/2013	5.0	Hornertown Tx 1	61 824 (Hornertown)	Connected
NC13003	Solar	2/13/2013	5.0	Everetts Tx 3	62 325 (Everetts)	Connected
NC13004	Solar	2/13/2013	5.0	Kelford Tx 1	67 380 (Kelford)	Connected
NC13005	Solar	2/13/2013	5.0	Cashie Tx 1	67 360 (Cashie)	Connected
NC13006	Solar	3/13/2013	5.0	Lilley Tx 1	62 805 (Lilley)	Connected
NC13007	Solar	3/13/2013	5.0	Bethel-Carolina Tx 1	62 755 (Bethel-Carolina)	Connected
NC13008	Solar	3/27/2013	15.0	Hornertown Tx 5	61 320 (Hornertown)	Connected
NC13009	Solar	3/27/2013	20.0	Scotland Neck Tx 2	61 723 (Scotland Neck)	Connected
NC13011	Solar	5/7/2013	5.0	Earleys Tx 1	67 302 (Earleys)	Connected
NC13012	Solar	5/7/2013	19.9	Sligo Tx 1	71 475 (Sligo)	Connected
NC13013	Solar	5/10/2013	14.0	Chowan Tx 1	71 445 (Chowan)	Cancelled
NC13014	Solar	5/28/2013	5.0	ParmeLe Tx 1	62 740 (Parmele)	Cancelled
NC13015	Solar	5/28/2013	5.0	Battleboro Tx 2	61 316 (Battleboro)	Connected
NC13016	Solar	5/28/2013	5.0	Winfall Tx 4	71 420 (Winfall)	Cancelled
NC13017	Solar	5/28/2013	5.0	ParmeLe Tx 1	62 735 (Parmele)	Cancelled
NC13018	Solar	5/31/2013	19.9	Whitakers Tx 1	61 336 (Whitakers)	Connected
NC13019	Solar	5/31/2013	16.5	Hornertown Tx 5	61 320 (Hornertown)	IA Executed
NC13020	Solar	5/31/2013	5.0	Plymouth Tx 1	62 335 (Plymouth)	Cancelled
NC13021	Solar	6/19/2013	1.4	Carolina Tx 2	61 810 (Carolina)	Connected
NC13022	Solar	6/24/2013	12.0	Riders Creek Tx 1	62 342 (Riders Creek)	Cancelled
NC13023	Solar	7/18/2013	5.0	Bethel-Carolina Tx 1	62 755 (Bethel-Carolina)	Connected
NC13024	Solar	7/18/2013	5.0	Everetts Tx 3	62 310 (Everetts)	Connected
NC13025	Solar	7/20/2013	5.0	Winfall Tx 4	71 420 (Winfall)	Connected
NC13026	Solar	7/20/2013	5.0	Winfall Tx 5	71 430 (Winfall)	Connected
NC13027	Solar	7/20/2013	5.0	Winfall Tx 4	71 420 (Winfall)	Cancelled
NC13028	Solar	7/23/2013	19.9	Everetts Tx 3	62 325 (Everetts)	Connected
NC13031	Solar	8/15/2013	14.0	Creswell Tx 1	62 370 (Creswell)	Connected

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**Dominion North Carolina Power Queue Status Report (Excluding Net Metering)**

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Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC13032	Solar	8/20/2013	5.0	Sunbury Tx 1	71 425(Sunbury)	Connected
NC13032A	Solar	8/20/2013	5.0	Sunbury Tx 1	71 425(Sunbury)	Connected
NC13033	Solar	8/20/2013	5.0	Everetts Tx 3	62 325 (Everetts)	Connected
NC13034	Solar	8/26/2013	5.0	Battleboro Tx 2	61 316(Battleboro)	Connected
NC13035	Solar	8/28/2013	5.0	Tarboro Tx 1	62 710 ( Tarboro)	Connected
NC13037	Solar	8/30/2013	5.0	Tarboro Tx 1	62 710 (Tarboro)	Connected
NC13038	Solar	8/30/2013	5.0	Parmeale Tx 1	62 740 (Parmeale)	Connected
NC13039	Solar	9/11/2013	5.0	Tar River Tx 1	62 715 (Tar River)	Connected
NC13040	Solar	9/20/2013	5.0	Earleys Tx 2	67 303 (Earleys)	Cancelled
NC13041	Solar	10/1/2013	5.0	Tar River Tx 1	62 715 (Tar River)	Cancelled
NC13042	Solar	10/1/2013	5.0	Everetts Tx 1	62 320 (Everetts)	Connected
NC13043	Solar	10/2/2013	5.0	Northampton Tx 1	61 381 (Northampton)	Connected
NC13044	Solar	10/2/2013	5.0	Tunis Tx 1	67 326 (Tunis)	Connected
NC13045	Solar	10/2/2013	5.0	Woodland Tx 1	67 304 (Woodland)	Connected
NC13046	Solar	10/8/2013	5.0	Bethel-Carolina Tx 1	62 755 (Bethel-Carolina)	Cancelled
NC13048	Solar	10/21/2013	5.0	Tunis Tx 1	67 326 (Tunis)	Connected
NC13049	Solar	10/21/2013	2.0	Earleys Tx 1	67 302 (Earleys)	Cancelled
NC13050	Solar	10/21/2013	5.0	Murphy Tx 1	67 310 (Murphy)	Connected
NC13051	Solar	10/21/2013	5.0	Earleys Tx 1	67 302 (Earleys)	Connected
NC13052	Solar	10/21/2013	13.5	Murphy Tx 2	67 309 (Murphy)	Connected
NC13053	Solar	10/29/2013	10.0	Parmeale Tx 1	62 740 (Parmeale)	IA Executed
NC13054	Solar	10/29/2013	16.0	Murphy Tx 1	67 310 (Murphy)	IA Executed
NC13055	Solar	10/29/2013	3.4	Parmeale Tx 1	62 740 (Parmeale)	IA Executed
NC13056	Solar	10/29/2013	20.0	Murphy Tx 2	67 309 (Murphy)	IA Executed
NC13057	Solar	11/15/2013	5.0	Ahoskie Tx 1	67 329 (Ahoskie)	Connected
NC13058	Solar	11/15/2013	20.0	Aydlett Tx 2	71 482 (Aydlett)	IA Executed
NC13059	Solar	11/15/2013	5.0	Woodland Tx 1	67 304 (Woodland)	IA Executed
NC13060	Solar	11/15/2013	3.4	Whitakers Tx 1	61 330 (Whitakers)	Connected
NC13060A	Solar	11/15/2013	5.0	Carolina Tx 2	61 815 (Carolina)	Connected

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Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC13061	Solar	11/15/2013	12.0	Carolina Tx 2	61 810 (Carolina)	Cancelled
NC13062	Solar	11/18/2013	5.0	Seaboard Tx 1	61 818 (Seaboard)	Connected
NC13063	Solar	11/18/2013	5.0	Everetts Tx 3	62 325 (Everetts)	Cancelled
NC13064	Solar	11/18/2013	5.0	Chowan Tx 1	71 445 (Chowan)	Connected
NC13065	Solar	11/18/2013	5.0	Earleys Tx 1	67 302 (Earleys)	Project A
NC13066	Solar	11/18/2013	5.0	Chowan Tx 1	71 445 (Chowan)	Cancelled
NC13067	Solar	11/25/2013	5.0	Kelford Tx 1	67 380 (Kelford)	Connected
NC13068	Solar	12/2/2013	5.0	Murphy Tx 2	67 309 (Murphy)	IA Executed
NC13069	Solar	12/2/2013	5.0	Tunis Tx 1	67 327 (Tunis)	Connected
NC13070	Solar	12/2/2013	5.0	Carolina Tx 2	61 810 (Carolina)	IA Executed
NC13071	Solar	12/11/2013	5.0	Tunis Tx 1	67 328 (Tunis)	Connected
NC13072	Solar	12/13/2013	5.0	Poplar Chapel Tx 1	62 334 (Poplar Chapel)	Cancelled
NC13073	Solar	12/18/2013	5.0	Northampton Tx 1	61 381 (Northampton)	Connected
NC13074	Solar	12/18/2013	5.0	Earleys Tx 2	67 303 (Earleys)	Connected
NC13075	Solar	12/18/2013	0.1	Kitty Hawk Tx 8	68 407 (Kitty Hawk)	Connected
NC13076	Solar	12/18/2013	5.0	Whitakers Tx 1	61 330 (Whitakers)	Cancelled
NC13077	Solar	12/18/2013	5.0	Earleys Tx 1	67 302 (Earleys)	Cancelled
NC14001	Solar	1/3/2014	5.0	Hornertown Tx 1	61 828 (Hornertown)	Cancelled
NC14002	Solar	1/3/2014	5.0	Hornertown Tx 5	61 320 (Hornertown)	Cancelled
NC14003	Solar	1/3/2014	5.0	Bethel-Carolina Tx 1	62 755 (Bethel-Carolina)	Cancelled
NC14004	Solar	1/6/2014	5.0	Hornertown Tx 5	61 320 (Hornertown)	IA Executed
NC14005	Solar	1/10/2014	5.0	Creswell Tx 1	62 370 (Creswell)	Cancelled
NC14006	Solar		2.0	Everetts Tx 3	62 310 (Everetts)	Cancelled
NC14008	Solar	1/14/2014	3.0	Bethel-Carolina Tx 1	62 755 (Bethel-Carolina)	Cancelled
NC14009	Solar	1/31/2014	3.0	Seaboard Tx 1	61 818 (Seaboard)	Cancelled
NC14010	Solar	1/31/2014	5.0	Northampton Tx 1	61 381 (Northampton)	Connected
NC14011	Solar	2/11/2014	5.0	Chowan Tx 1	71 445 (Chowan)	Cancelled
NC14012	Solar	2/12/2014	5.0	Ahoskie Tx 1	67 329 (Ahoskie)	IA Executed
NC14014	Solar	3/10/2014	5.0	Whitakers Tx 1	61 330 (Whitakers)	Cancelled

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Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC14018	Solar	4/3/2014	5.0	Everetts Tx 1	62 330 (Everetts)	Connected
NC14019	Solar	4/4/2014	5.0	Everetts Tx 1	62 320 (Everetts)	Connected
NC14020	Solar	4/8/2014	4.5	Carolina Tx 2	61 810 (Carolina)	Cancelled
NC14023	Solar	4/23/2014	5.0	Cashie Tx 1 & Tx 2	67 - To Windsor DP (Cashie Tx 2)	Connected
NC14024	Solar	4/24/2014	5.0	Sunbury Tx 1	71 425 (Sunbury)	Project A
NC14025	Solar	4/28/2014	5.0	Winfall Tx 5	71 430 (Winfall)	IA Executed
NC14026	Solar	4/28/2014	5.0	Northampton Tx 1	61 381 (Northampton)	IA Executed
NC14027	Solar	4/28/2014	3.0	Northampton Tx 1	61 381 (Northampton)	Subordinate
NC14028	Solar	4/30/2014	5.0	Winfall Tx 5	71 430 (Winfall)	Project A
NC14029	Solar	4/30/2014	5.0	Winfall Tx 5	71 430 (Winfall)	Cancelled
NC14030	Solar	5/1/2014	5.0	Winfall Tx 5	71 430 (Winfall)	Project B
NC14031	Solar	5/1/2014	5.0	Winfall Tx 5	71 430 (Winfall)	Cancelled
NC14032	Solar	5/13/2014	5.0	Battleboro Tx 1	61 315 (Battleboro)	Connected
NC14033	Solar	5/21/2014	5.0	Seaboard Tx 1	61 818 (Seaboard)	Cancelled
NC14034	Solar	5/22/2014	5.0	Northampton Tx 1	61 381 (Northampton)	Project A
NC14035	Solar	5/22/2014	5.0	Carolina Tx 2	61 810 (Carolina)	Cancelled
NC14039	Solar	6/3/2014	5.0	Seaboard Tx 1	61 817 (Seaboard)	Cancelled
NC14042	Solar	6/10/2014	2.0	Seaboard Tx 1	61 818 (Seaboard)	Cancelled
NC14043	Solar	6/12/2014	5.0	Woodland Tx 1	67 307 (Woodland)	Connected
NC14044	Solar	6/16/2014	5.0	Poplar Chapel Tx 1	62 334 (Poplar Chapel)	Cancelled
NC14046	Solar	7/2/2014	5.0	Poplar Chapel Tx 1	62 334 (Poplar Chapel)	IA Executed
NC14047	Solar	7/2/2014	5.0	Pasquotank Tx 1 & Okisko Tx 1	71 555 (Okisko Sub)	Cancelled
NC14048	Solar	7/2/2014	5.0	Hornertown Tx 1	61 828 (Hornertown)	Cancelled
NC14049	Solar	7/2/2014	3.1	Pasquotank Tx 1	71 434 (Pasquotank)	Connected
NC14050	Solar	7/3/2014	10.0	Creswell Tx 1	62 370 (Creswell)	Project A
NC14051	Solar	7/3/2014	5.0	Cashie Tx 1 & Tx 2	67 - To Windsor DP (Cashie Tx 2)	Cancelled
NC14052	Solar	7/7/2014	5.0	Murphy Tx 2	67 309 (Murphy)	Cancelled
NC14053	Solar	7/14/2014	20.0	Lake Gaston Tx 1	61 331 (Lake Gaston)	Cancelled
NC14054	Solar	7/17/2014	5.0	Tunis Tx 1	67 327 (Tunis)	Cancelled

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Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC14055	Solar	7/21/2014	2.0	Northampton Tx 1	61 381C (Northampton)	Cancelled
NC14056	Solar	7/21/2014	2.0	Northampton Tx 1	61 381 (Northampton)	Cancelled
NC14057	Solar	7/21/2014	5.0	Tunis Tx 1	67 327 (Tunis)	Cancelled
NC14058	Solar	7/21/2014	5.0	Woodland Tx 1	67 304 (Woodland)	Cancelled
NC14059	Solar	7/23/2014	5.0	Earleys Tx 2	67 303 (Earleys)	Cancelled
NC14060	Solar	7/23/2014	3.0	Scotland Neck Tx 2	61 730 (Scotland Neck)	Project A
NC14061	Solar	7/24/2014	5.0	Sligo TX 1	71 470 (Sligo)	IA Executed
NC14062	Solar	7/25/2014	0.9	Elizabeth City Tx 2	71 412 (Elizabeth City)	Cancelled
NC14063	Solar	7/29/2014	5.0	Sligo TX 1	71 470 (Sligo)	Project A
NC14065	Solar	7/31/2014	5.0	Poplar Chapel Tx 1	62 334 (Poplar Chapel)	Project A
NC14066	Solar	8/5/2014	5.0	Winfall Tx 5	71 430 (Winfall)	Cancelled
NC14067	Solar	8/5/2014	5.0	Ahoskie Tx 1	67 329 (Ahoskie )	Cancelled
NC14068	Solar	8/5/2014	5.0	Ahoskie Tx 1	67 329 (Ahoskie )	Cancelled
NC14069	Solar	8/5/2014	5.0	Earleys Tx 1	67 302 (Earleys)	Cancelled
NC14070	Solar	8/5/2014	5.0	Tunis Tx 1	67 327 (Tunis)	Cancelled
NC14071	Solar	8/13/2014	5.0	Pasquotank Tx 1	71 434 (Pasquotank)	Cancelled
NC14073	Solar	9/4/2014	5.0	Pasquotank Tx 1	71 472 (Pasquotank)	Cancelled
NC14074	Solar	9/9/2014	2.0	Seaboard Tx 1	61 818 (Seaboard)	Cancelled
NC14075	Solar	9/15/2014	2.0	Hornertown Tx 5	61 320 (Hornertown)	Cancelled
NC14077	Solar	9/22/2014	5.0	Everetts Tx 3	62 310 (Everetts)	Project A
NC14078	Solar	9/24/2014	10.0	Cashie Tx 1	62 360 (Cashie)	Project A
NC14080	Solar	9/25/2014	5.0	Tar River Tx 1	62 715 (Tar River)	Cancelled
NC14083	Solar	10/2/2014	5.0	Sligo Tx 1	71 467 (Sligo)	Project B
NC14084	Solar	10/2/2014	5.0	Sligo Tx 1	71 470A (Sligo)	Cancelled
NC14085	Solar	10/3/2014	5.0	Elizabeth City Tx 2	71 410S (Elizabeth City)	IA Executed
NC14088	Solar	10/31/2014	5.0	Hornertown Tx 5	61 320 (Hornertown)	Cancelled
NC14089	Solar	10/31/2014	2.0	Hornertown Tx 5	61 320 (Hornertown)	Project A
NC14090	Solar	11/4/2014	0.1	Plymouth Tx 2	62 340 (Plymouth)	Project A
NC14095	Solar	12/4/2014	20.0	Seaboard Tx 1	61 818 (Seaboard)	Cancelled

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Queue No	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC15006	Solar	2/13/2015	12.0	Chowan Tx 1	71 445 (Chowan)	Cancelled
NC15007	Solar	2/13/2015	20.0	Winfall Tx 5	71 430 (Winfall)	Cancelled
NC15008	Solar	2/13/2015	16.0	Winfall Tx 4	71 420 (Winfall)	Cancelled
NC15016	Solar	3/27/2015	5.0	Everetts TX 3	Everetts 320/325 TBD	Cancelled
NC15021	Solar	4/23/2015	5.0	Hornertown Tx 5	61 320 (Hornertown)	Cancelled
NC15110	Solar	10/26/2015	5.0	Plymouth Tx 2	62 340 (Plymouth)	Project B
NC15112	Solar	4/21/2016	2.0	Kelford Tx 1	67 380 (Kelford)	Project A
NC15129	Solar	12/16/2015	16.2	Winfall Tx 4	71 420 (Winfall)	Project A
NC16009	Solar	2/23/2016	5.0	Chowan Tx 1	71 445 (Chowan)	Project A
NC16018	Solar	3/24/2016	3.3	Plymouth TX #2	62 340 (Plymouth)	Subordinate
NC16019	Solar	3/24/2016	5.0	Hickory TX #2	23 325 (Hickory)	Project A
NC16025	Solar	4/4/2016	21.0	Sligo TX 1	71 470 (Sligo)	Cancelled
NC16028	Solar	4/13/2016	5.0	Ahoskie Tx 1	67 329 (Ahoskie)	Cancelled
NC16035	Solar	5/18/2016	20.0	Elizabeth City Tx 2	71 410 (E. City)	Project B
NC16036	Solar	5/19/2016	5.0	S. Hertford Tx 1	71 460 (S. Hertford)	Project A
NC16037	Solar	5/19/2016	4.5	Poplar Chapel Tx 1	62 334 (P. Chapel)	Project B
NC16038	Solar	5/19/2016	4.5	Chowan Tx 1	71 445 (Chowan)	Project B
NC16046	Solar	6/21/2016	5.0	Chowan Tx 1	71 445 (Chowan)	Subordinate
NC16047	Solar	6/27/2016	5.0	S. Hertford Tx 1	71 460 (S. Hertford)	Subordinate
NC16048	Solar	6/27/2016	1.9	Murphy Tx 2	71 309 (Murphy)	Project A
NC16053	Solar	7/5/2016	4.0	Carolina Tx 2	61 815 (Carolina)	Project A
NC16054	Solar	7/5/2016	4.5	Tunis Tx 1	67 326 (Tunis)	Project A
NC16055	Solar	7/5/2016	4.5	Seaboard Tx 1	61 818 (Seaboard)	Project A
NC16056	Solar	7/5/2016	4.0	Carolina Tx 2	61 815 (Carolina)	Project B
NC16060	Solar	7/13/2016	20.0	Hornertown	61 320 (Hornertown)	IA Executed
NC16061	Solar	7/13/2016	16.0	Hornertown	61 320 (Hornertown)	IA Executed
NC16063	Solar	7/26/2016	5.0	Ahoskie Tx 1	67 329 (Ahoskie)	Project A
NC16064	Solar	7/28/2016	4.0	Battleboro Tx 3	61 316 (Battleboro)	Project A
NC16069	Solar	8/15/2016	5.0	Murphy Tx 1	67 310 (Murphy)	Project A

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**Dominion North Carolina Power Queue Status Report (Excluding Net Metering)**

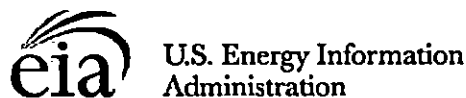
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**E-100 Sub 101A**

Queue No.	Fuel Type	Date Queue No Assigned	Capacity (MW)	Substation and Transformer	Circuit	Status Description
NC16070	Solar	8/15/2016	4.0	Murphy Tx 1	67 310(Murphy)	Subordinate
NC16073	Solar	8/17/2016	5.0	S. Hertford Tx 1	71 460(S. Hertford)	Subordinate
NC16074	Solar	8/17/2016	5.0	S. Hertford Tx 1	71 460(S. Hertford)	Subordinate
NC16080	Solar	9/16/2016	15.0	Aydlett Tx 2	71 482(Aydlett)	Project A
NC16089	Solar	10/24/2016	20.0	Carolina Tx 2	61 810(Carolina)	Project A
NC16090	Solar	10/25/2016	5.0	Tar River Tx 1	62 715(Tar River)	Project A
NC16102	Solar	11/2/2016	4.0	Tunis Tx 1	67 326(Tunis)	Project B
NC16107	Solar	11/2/2016	5.0	Hornertown	61 319(Hornertown)	Project B
NC16108	Solar	11/2/2016	5.0	Hornertown	61 319(Hornertown)	Subordinate
NC16109	Solar	11/9/2016	0.0	Cashie Tx 1 & Tx 2	67 - To Windsor DP (Cashie Tx 2)	Project A
NC16115	Solar	11/21/2016	5.0	S. Hertford Tx 1	71 460(S. Hertford)	Subordinate

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## ELECTRICITY

OVERVIEW DATA ANALYSIS &amp; PROJECTIONS

GLOSSARY FAQs

## Form EIA-860 detailed data with previous form data (EIA-860A/860B)

Release Date: October 6, 2016 Final 2015 data  
Next Release Date: October 2017

The survey Form EIA-860 collects generator-level specific information about existing and planned generators and associated environmental equipment at electric power plants with 1 megawatt or greater of combined nameplate capacity. Summary level data can be found in the Electric Power Annual.

Detailed data are compressed (zip) and contain the following files:

- **LayoutYyyyy** – Provides a directory of all (published) data elements collected on the Form EIA-860 together with the related description, specific file location(s), and, where appropriate, an explanation of codes.
- **1\_\_UtilityYyyyy** – Contains utility-level data for the plants and generators surveyed in the reporting year.
- **2\_\_PlantYyyyy** – Contains plant-level data for the generators surveyed in all available years.
- **3\_1\_GeneratorYyyyy** – Contains generator-level data for the surveyed generators, split into three tabs:
  - The "Operable" tab includes those generators which are currently operating, out of service or on standby;
  - The "Proposed" tab includes those generators which are planned and not yet in operation; and
  - The "Retired and Canceled" tab includes those generators which were cancelled prior to completion and operation and retired generators at existing plants.
- **3\_2\_WindYyyyy** – Contains additional details for surveyed generators that use wind as an energy source, split into two tabs:
  - The "Operable" tab includes those generators which are currently operating, out of service or on standby; and
  - The "Retired and Canceled" tab includes those generators which were cancelled prior to completion and operation and retired generators at existing plants.
- **3\_3\_SolarYyyyy** – Contains additional details for surveyed generators that use solar as an energy source, split into two tabs:
  - The "Operable" tab includes those generators which are currently operating, out of service or on standby;
  - The "Retired and Canceled" tab includes those generators which were cancelled prior to completion and operation and retired generators at existing plants.
- **3\_4\_MultiFuelYyyyy** – Contains data on fuel-switching and the use of multiple fuels by surveyed generators, split into three tabs:
  - The "Operable" tab includes those generators which are currently operating, out of service or on standby; and
  - The "Proposed" tab includes those generators which are planned and not yet in operation; and
  - The "Retired and Canceled" tab includes those generators which were cancelled prior to completion and operation and retired generators at existing plants.
- **4\_\_OwnerYyyyy** – Contains owner and/or operator data for generators with shared ownership and generators that are wholly-owned by an entity other than the operator (generators not appearing in the file are wholly-owned by their operator).
- **6\_1\_EnviroAssocYyyyy** – Contains boiler association data for the environmental equipment data collected on the Form EIA-860.
  - The "Boiler Generator" identifies which boilers are associated with each generator;
  - The "Boiler Cooling" tab shows which cooling systems are associated with each boiler;
  - The "Boiler Particulate Matter" tab shows which flue gas particulate (FGP) collectors are associated with each boiler;
  - The "Boiler SO<sub>2</sub>" tab shows which flue gas desulfurization (FGD) systems are associated with each boiler;
  - The "Boiler NO<sub>x</sub>" tab shows which nitrogen oxide control equipment is associated with each boiler;
  - The "Boiler Mercury" tab shows which mercury control equipment is associated with each boiler;
  - The "Boiler Stack Flue" tab shows which stacks and flues are associated with each boiler; and
  - The "Emissions Control Equipment" tab shows the operational status, in-service date, and installation costs of all the environmental equipment.
- **6\_2\_EnviroEquipYyyyy** – Contains environmental equipment data for the surveyed generators.
  - The "Emission Standards & Strategies" tab shows boiler data as collected on Schedule 6, Part B of the Form EIA-860;
  - The "Boiler Info & Design Parameters" tab shows boiler data as collected on Schedule 6, Part C;
  - The "Cooling" tab shows cooling system data as collected on Schedule 6, Part D;
  - The "FGP" tab shows FGP data as collected on Schedule 6, Part E;
  - The "FGD" tab shows FGD data as collected on Schedule 6, Part F; and
  - The "StackFlue" tab shows stack and flue data as collected on Schedule 6, Part G.

Year	format
2015	ZIP
2014	ZIP
2013	ZIP
2012	ZIP
2011	ZIP
2010	ZIP
2009	ZIP
2008	ZIP
2007	ZIP
2006	ZIP
2005	ZIP
2004	ZIP
2003	ZIP
2002	ZIP
2001	ZIP

Superseded Forms (for data prior to 2001)  
EIA-860 A (utility) and B (nonutility)

Year	Utility	Non-utility
2000*	ZIP	ZIP
1999*	ZIP	ZIP
1998*	ZIP	ZIP
1997	ZIP	
1996	ZIP	
1995	ZIP	
1994	ZIP	
1993	ZIP	
1992	ZIP	
1991	ZIP	
1990	ZIP	
* Revised February 9, 2007		

State	County	Generator ID	Status	Technology	Prime Mover	Sector Name	Sector	Nameplate Capacity (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Operating Month	Operating Year
CA	Fresno	CR1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	4	2010
AZ	Yuma	PV2	OP	Solar Photovoltaic	PV	Electric Utility	1	5.0	5.0	5.0	2	2012
NM	Valencia	LLSEC	OP	Solar Photovoltaic	PV	Electric Utility	1	5.0	5.0	5.0	6	2011
NM	Luna	DSEC	OP	Solar Photovoltaic	PV	Electric Utility	1	5.0	5.0	5.0	8	2011
NM	San Miguel	LVSEC	OP	Solar Photovoltaic	PV	Electric Utility	1	5.0	5.0	5.0	11	2011
NM	Otero	AGSEC	OP	Solar Photovoltaic	PV	Electric Utility	1	5.0	4.9	4.9	10	2011
NM	Dona Ana	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	8	2011
CA	Sacramento	KAM1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	1	2012
CA	Sacramento	KAM2	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	2	2012
CA	Sacramento	KAM3	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	2	2012
CA	Sacramento	BRU1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	1	2012
CA	Sacramento	BRU2	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	2	2012
CA	Sacramento	BRU3	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	2	2012
CA	Sacramento	MCK1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
CA	Sacramento	MCK2	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
CA	Sacramento	MCK3	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
CA	Sacramento	MCK4	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
CA	Sacramento	MCK5	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
CA	Sacramento	MCK6	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
TX	Bexar	2	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	7	2012
PA	Lancaster	KSTN	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2012
HI	Honolulu	KAS2	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2012
NC	Robeson	SROB	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	4.9	4.9	6	2012
NC	Hoke	RAEF	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	4.9	4.9	12	2012
MA	Worcester	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	5	2014
MA	Worcester	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	5	2014
MA	Bristol	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	3	2015
NC	Columbus	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2012
NC	Davie	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
NC	Catawba	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2012
NC	Robeson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	10	2012
NC	Robeson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	7	2012
NC	Robeson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	10	2012
NC	Lincoln	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2013
NC	Lenoir	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	7	2013
NC	Lenoir	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2013
NC	Union	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	10	2013
NC	Durham	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2014
NC	Rockingham	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NC	Wayne	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2013
NC	Craven	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	4	2014
NC	Person	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	4	2014
NC	Orange	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2013
NC	Wilson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	7	2013
NC	Caswell	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NC	Wayne	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2013
NC	Wayne	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	5	2013
NC	Rockingham	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	3	2013
NC	Richmond	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2013
NC	Catawba	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	3	2013
NC	Warren	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	7	2013
NC	Robeson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2013
CA	San Bernardino	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2015
CA	San Bernardino	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	6	2015
NC	Washington	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	3.0	9	2012
CA	Kern	RIQ	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
CT	Tolland	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NJ	Gloucester	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	3	2011
HI	Honolulu	KREP	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	1	2014
NC	Montgomery	BISCO	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2014
NC	Johnston	SELMA	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2014
NC	Robeson	TURKY	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2014
NC	Gates	GATES	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2015
NC	Franklin	CIRRU	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Beaufort	CHOCO	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Rutherford	PV1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2015
NC	Alamance	PV1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	10	2015
NC	Catawba	PV1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2015
NC	Catawba	PV1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2015
CA	Los Angeles	LDPRB	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2014
NC	Beaufort	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NC	Lenoir	ASC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Nash	BSC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Pitt	FSC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Pitt	LSC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2015
NC	Pitt	RHSC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Wilson	USC1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Catawba	PV1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	10	2015
AZ	Pima	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2012
NC	Pitt	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2014
NC	Beaufort	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	2	2014
NC	Beaufort	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NC	Bertie	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	8	2015
NC	Scotland	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2014
NC	Columbus	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2013
NC	Nash	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2013
NC	Nash	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	8	2014
NC	Robeson	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	11	2013
NC	Harnett	1	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	9	2014



State	County	Generator ID	Status	Technology	Prime Mover	Sector Name	Sector	Nameplate Capacity (MW)	Summer Capacity (MW)	Winter Capacity (MW)	Operating Month	Operating Year
NC	Duplin	GED	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	4.9	4.9	11	2015
NC	Lee	ELM	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	4.9	4.9	12	2015
NC	Edgecombe	CON15	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	6.0	5.0	5.0	12	2015
NC	Gates	SRS15	OP	Solar Photovoltaic	PV	IPP Non-CHP	2	5.0	5.0	5.0	12	2015

**5 MW Projects Per State  
(2010 – 2015)**

<b>State</b>	<b># of 5 MW Projects</b>
AZ	3
CA	21
CT	1
HI	2
MA	6
NM	5
NC	135
NJ	5
NV	1
NY	1
OR	1
PA	1
TX	1