Progress Energy

September 1, 2011

Jocelyn G. Boyd, Esquire
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive, Suite 100
Columbia, SC 29210

RE: Progress Energy Carolinas, Inc.'s 2011 Integrated Resource Plan
Docket No. _____

Dear Mrs. Boyd:

Progress Energy Carolinas, Inc. ("PEC") submits for filing its 2011 Integrated Resource Plan pursuant to S.C. Code Ann. § 58-37-40. Appendix D, Exhibit I to the Resource Plan contains confidential data regarding responses to PEC's requests for proposals for purchased power resources. Public disclosure of this information will harm PEC's ability to negotiate and procure cost effective purchases and discourage potential bidders from participating in requests for proposals. If this information is publicly disclosed, new bidders will know the rates they will have to bid to be the low cost bidder and their competitors' bids and strategies.

Thus, pursuant to Commission Order No. 2005-226, dated May 6, 2005, in Docket No. 2005-83-A, and Commission Regulation 103-804(S)(1) & (2) PEC is filing both a Public Version and a Confidential Version of Appendix D, Exhibit I of its Resource Plan. PEC respectfully requests that the Commission find that the Confidential Version of Appendix D, Exhibit 1 contains protected information and issue a protective order barring the disclosure of Appendix D, Exhibit I under the Freedom of Information Act, S.C. Code Ann. §§ 30-4-10 *et seq.*, S.C. Code Ann. Regs. 103-804(S)(1), or any other provision of law, except in its public form. Pursuant to S.C. Code Regs. 103-804(S)(2), the determination of whether a document may be exempt from disclosure is within the Commission's discretion. PEC respectfully requests, in the event that anyone seeks disclosure of the unredacted Confidential Version, that the Commission notify PEC of such request and provide PEC with an opportunity to obtain an order from this Commission or a court of competent jurisdiction protecting the Confidential Version of Appendix D, Exhibit 1 from disclosure.

Progress Energy Service Company, LLC
PO Box 1551
Raleigh, NC 27602

PEC is electronically filing its 2011 Integrated Resource Plan with the Public Version of Appendix D, Exhibit 1. PEC is also filing a "hard copy" of its 2011 Integrated Resource Plan with a single copy of the Confidential Version of Appendix D, Exhibit 1 in a sealed envelope marked "CONFIDENTIAL." Each confidential page of the Confidential Version is also marked "CONFIDENTIAL."

By copy of this letter, we are providing counsel for the South Carolina Office of Regulatory Staff ("ORS") with all public documents PEC is filing with the Commission at this time. In addition, PEC will make the original, unredacted copy of the Confidential Version of Appendix D, Exhibit 1 available for ORS's review upon signing of a confidentiality agreement.

Sincerely,

Len S. Anthony
General Counsel
Progress Energy Carolinas, Inc.

LSA:mhm

c: Trish Jerman (SC Energy Office)
John Flitter (ORS)

STAREG631

Progress Energy Carolinas

Integrated Resource Plan

September 1, 2011

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Overview

This document is Progress Energy Carolinas, Inc.'s ("the Company" or "PEC") 2011 update to the Biennial Integrated Resource Plan (IRP). It reflects current forecasts and management approved changes to resources. In general the majority of the nearer term supply-side and demand-side additions have both management approval and North Carolina Utilities Commission (NCUC) and/or Public Service Commission of South Carolina (PSCSC) approval, as appropriate, while the longer term portion of the plan represents forecasts of undesignated resources that are still subject to both internal approval and regulatory review.

As stated in previous resource plans there are several external challenges that persist from a resource planning perspective. These challenges include market based uncertainties such as significant fuel price volatility, tremendous economic uncertainty, and customer behavior and usage changes. In addition to market uncertainty, several existing and potential regulatory actions also present challenges to the planning process. These include potential federal environmental legislation dealing with regulation of carbon emissions, proposals for Federal renewable portfolio standards, the Environmental Protection Agency's ("EPA") new Cross State Air Pollution Rule (CSAPR), the expected EPA Maximum Achievable Control Technology (MACT) rule, the expected EPA 316b rule and the potential consideration of coal ash as hazardous waste by EPA.

Many of these factors paired with lower natural gas prices, led to the Company's decision to retire three coal units at both its Lee and Sutton facilities and construct new state-of-the-art efficient natural gas combined cycle units in their place. Beyond these two facilities, PEC also committed to retire its five remaining North Carolina unscrubbed coal units at the Weatherspoon and Cape Fear sites as part of the Company's Coal Retirement Plan approved by the North Carolina Utilities Commission. The Company is currently evaluating options with respect to its one remaining unscrubbed coal plant, its South Carolina Robinson Unit 1. It should be noted that the projected retirement dates for some of these facilities are still subject to movement pending the outcome of many of the previously mentioned legislative initiatives as well as continued movement in underlying fuel prices. As a cumulative result of the new gas-fired combined cycles being constructed at the Lee and Sutton sites and the associated retirement of eleven coal units at the Lee, Sutton, Weatherspoon and Cape Fear sites, the Company will have replaced approximately 1,500 MWs of unscrubbed coal generation with 1,500 MWs of state-of-the-art gas-fired generation. Benefits of this portfolio modernization include both environmental benefits, in the form of significant reductions in the output of SO_2, NOx, mercury and CO_2, as well as fuel diversification benefits resulting from the addition of the new gas-fired generation.

Beyond gas-fired generation additions, ongoing efforts represented in the 2011 IRP include significant commitments to alternative sources of energy and capacity. Demand side management ("DSM") and energy efficiency ("EE") measures provide substantial energy and demand contributions to the resource plan. DSM and EE account for approximately 16% of the expected energy growth and 29% of the expected demand growth over the 2012 through 2026 study period.

With respect to baseload carbon-free generation, new nuclear generation continues to be an important component of PEC's resource plan. The 2011 IRP continues to contemplate the potential for regional partnerships rather than full ownership of a nuclear facility. For long range planning purposes it was assumed that 25 percent shares of undesignated nuclear would be

available in the market place. This generation could come from partnerships in self-build nuclear facilities or from a partnership in another utility's regional nuclear project. Under this regional assumption, nuclear projects would be jointly undertaken by utilities in the region with participating utilities and load serving organizations taking ownership stakes in each others' projects. At this point in time, no specific plans for such partnerships have been entered into and the 25 percent nuclear blocks simply represent undesignated baseload generation for planning purposes. The exact timing and amount of ownership in a regional partnership will depend on the specific project which may result in adjustments of both timing and volume of new nuclear generation placed into the resource plan. Under the current assumptions for future carbon legislation, carbon dioxide limits would continue to ramp down significantly beyond the study period. Such an outcome would likely require additional nuclear generation after 2026 to meet declining CO_2 targets.

The Company continually evaluates possible changes to its resource plan. These changes include, but are not limited to, further investments in energy efficiency, construction or purchase of additional renewable resources, and investment in regional nuclear generation that could potentially change the timing and ownership stake of Company constructed nuclear units. If one or more of these changes are made, the current proposed resource additions will change as well. Obviously, the further out in time a resource addition is scheduled to occur, the greater its uncertainty. As economic, legislative and market conditions continue to unfold, the Company will adjust its IRP accordingly.

In summary, this IRP includes a balanced mix of additional DSM and EE, renewable energy, purchased power, combustion-turbine generation, combined cycle generation, and nuclear generation. This approach helps ensure electricity remains available, reliable and affordable, and is produced in an environmentally sound manner. This diversified approach also helps to insulate customers from price volatility with any one particular fuel source.

Included in this document is a discussion of the IRP process including the load and energy forecast, screening of supply-side technologies, renewables, DSM and EE plans as well as the methodology and development of the IRP.

Load and Energy Forecast

Methodology

PEC's forecasting processes have utilized econometric and statistical methods since the mid-1970s. During this time, enhancements have been made to the methodology as data and software have become more available and accessible. Enhancements have also been undertaken over time to meet the changing data needs of internal and external customers.

The System Peak Load Forecast is developed from the System Energy Forecast using a load factor approach. This load forecast method couples the two forecasts directly, assuring consistency of assumptions and data. Class peak loads are developed from the class energy using individual class load factors. Peak loads for the residential, commercial, and industrial classes are then adjusted for projected load management impacts. The individual loads for the retail classes, wholesale customers, North Carolina Eastern Municipal Power Agency (NCEMPA), and Company use are then totaled and adjusted for losses between generation and the customer meter to determine System Peak Load.

Wholesale sales and demands include a portion that will be provided by the Southeastern Power Administration (SEPA). NCEMPA sales and demands include power which will be provided under the joint ownership agreement with them.

Summaries of the summer and winter Peak Load and Energy Forecast are provided in Tables 1 and 2 found later in this section. PEC's peak load forecasts assume the use of all load management capability at the time of system peak.

Assumptions

The filed forecast represents a retail demand growth rate of approximately 1.6% across the forecast period before subtracting for DSM, which is almost equal to the customer growth rate of 1.7%. The retail demand growth rate drops to 1.1% after adjusting for DSM.

The forecast of system energy usage and peak load does not explicitly incorporate periodic expansions and contractions of business cycles, which are likely to occur from time to time during any long-range forecast period. While long-run economic trends exhibit considerable stability, short-run economic activity is subject to substantial variation such as we have seen with the current severe economic downturn. The exact nature, timing and magnitude of such short-term variations are unknown. The forecast, while it is a trended projection, nonetheless reflects the general long-run outcome of business cycles because actual historical data, which contain expansions and contractions, are used to develop the general relationships between economic activity and energy use. Weather normalized temperatures are assumed for the energy and system peak forecasts.

Customer Data

The following table contains ten years of historical and 16 years of forecasted customer data.

	Average Annual Customers			
	Residential	Commercial	Industrial	Total
2001	1,066,612	188,658	4,655	1,259,924
2002	1,091,229	193,301	4,511	1,289,040
2003	1,112,149	197,271	4,403	1,313,822
2004	1,133,669	202,981	4,310	1,340,960
2005	1,158,896	208,578	4,218	1,371,691
2006	1,184,071	213,354	4,138	1,401,563
2007	1,208,293	216,989	4,080	1,429,362
2008	1,229,119	218,279	4,241	1,451,639
2009	1,240,626	217,447	4,625*	1,462,698
2010	1,249,815	218,296	4,556	1,472,667
2011	1,255,815	220,189	4,556	1,480,559
2012	1,268,315	222,230	4,556	1,495,100
2013	1,282,815	224,200	4,556	1,511,570
2014	1,301,315	226,678	4,556	1,532,549
2015	1,328,055	229,681	4,556	1,562,292
2016	1,354,428	234,923	4,556	1,593,906
2017	1,380,853	239,962	4,556	1,625,370
2018	1,407,129	245,133	4,556	1,656,818
2019	1,433,211	250,303	4,556	1,688,070
2020	1,459,171	255,635	4,556	1,719,362
2021	1,484,980	260,316	4,556	1,749,852
2022	1,510,677	265,167	4,556	1,780,400
2023	1,536,240	270,040	4,556	1,810,835
2024	1,561,708	275,212	4,556	1,841,476
2025	1,587,068	279,901	4,556	1,871,525
2026	1,612,345	284,920	4,556	1,901,821

* PEC undertook a review of its Standard Industrial Classification and revenue classifications for all accounts in December 2008 to ensure the assignments were appropriate. A significant number of small usage commercial accounts were re-classified as industrial accounts during this effort; therefore, the number of industrial accounts increased significantly, while the overall industrial demand and energy sales were only slightly impacted.

The next table reflects ten years of historical energy sales to the retail classes.

Retail Sales MWh – Actual

	Residential	Commercial	Industrial	Military & Street Light
2001	14,372,145	11,972,153	13,332,380	1,422,728
2002	15,238,554	12,467,562	13,088,615	1,437,060
2003	15,282,872	12,556,905	12,748,754	1,407,807
2004	16,003,184	13,018,688	13,036,419	1,431,447
2005	16,663,782	13,314,324	12,741,342	1,409,801
2006	16,258,675	13,358,042	12,415,862	1,418,750
2007	17,199,511	14,033,008	11,882,660	1,437,590
2008	16,999,685	13,939,902	11,215,507	1,466,531
2009	17,117,480	13,639,299	10,374,623	1,496,904
2010	19,108,178	14,184,282	10,676,800	1,574,405

This final customer data table contains forecasted system energy sales for 16 years.

System Sales MWh – Projected

	Residential	Commercial	Industrial	Military & Street Light	Retail Losses + Co. Use	Wholesale	Firm (Duke Area)	EE & DR Reductions System	PEC System Including PEC Firm Reduced By EE & DSM
2011	17,771,409	13,894,904	10,932,137	1,652,160	2,274,334	17,419,287	92,922	328,927	63,708,226
2012	17,936,129	14,083,669	11,041,458	1,691,172	2,300,074	17,586,101	91,023	504,777	64,224,849
2013	18,095,125	14,349,939	11,151,873	1,725,133	2,330,865	18,705,002	148,980	657,600	65,849,317
2014	18,295,200	14,703,831	11,263,391	1,770,964	2,367,341	18,936,096	149,464	824,738	66,661,549
2015	18,537,571	14,989,010	11,307,461	1,798,417	2,398,087	19,145,657	160,885	954,687	67,382,401
2016	18,960,597	15,318,768	11,329,945	1,806,485	2,438,171	19,350,196	157,028	1,107,365	68,253,825
2017	19,367,307	15,640,463	11,352,576	1,814,595	2,477,007	19,542,158	171,207	1,248,274	69,117,039
2018	19,784,705	15,953,272	11,375,056	1,822,747	2,515,871	19,700,134	171,209	1,401,072	69,921,922
2019	20,201,966	16,256,384	11,397,398	1,830,941	2,554,394	19,953,676	167,175	1,571,814	70,790,120
2020	20,632,319	16,565,255	11,419,819	1,839,097	2,593,891	20,217,094	156,000	1,715,313	71,708,162
2021	21,010,115	16,863,096	11,442,212	1,847,294	2,630,136	20,464,033	156,026	1,842,266	72,570,646
2022	21,401,639	17,162,103	11,464,744	1,855,532	2,667,128	20,701,065	184,116	2,030,086	73,406,241
2023	21,794,887	17,465,227	11,487,275	1,863,811	2,704,296	20,865,600	205,075	2,219,725	74,166,446
2024	22,212,360	17,779,436	11,509,714	1,872,132	2,743,436	21,138,128	217,081	2,400,995	75,071,292
2025	22,590,793	18,094,760	11,532,381	1,880,495	2,780,636	21,393,379	0	2,574,280	75,698,164
2026	22,995,856	18,421,291	11,555,060	1,888,901	2,819,789	21,666,771	0	2,739,957	76,607,711

Screening of Generation Alternatives

Methodology

PEC periodically assesses various generating technologies to ensure that projections for new resource additions capture new and emerging technologies over the planning horizon. This analysis involves a preliminary screening of the generation resource alternatives based on commercial availability, technical feasibility, and cost.

First, the commercial availability of each technology is examined for use in utility-scale applications. For a particular technology to be considered commercially available, the technology must be able to be built and operated on an appropriate commercial scale in continuous service by or for an electric utility.

Second, technical feasibility for commercially available technologies is considered to determine if the technology meets PEC's particular generation requirements and whether it will integrate well into the PEC system. The evaluation of technical feasibility includes the size, fuel type, and construction requirements of the particular technology and the ability to match the technology to the service it will be required to perform on PEC's system (e.g., baseload, intermediate, or peaking).

Finally, for each alternative, an estimate of the levelized cost of energy production, or "busbar" cost, is developed. Busbar analysis allows for the long-term economic comparison of capital, fuel, and O&M costs over the typical life expectancy of a future unit at varying capacity factor levels. For the screening of alternatives, the data are generic in nature and thus not site specific. Cost and performance projections are based on EIA's 2011 Annual Energy Outlook report and on internal PEC resources. Busbar curves are useful for comparing costs of resource types at various capacity factors but cannot be utilized for determining a long term resource plan because future units must be optimized with an existing system containing various resource types.

The generic capital and operating costs reflect the impact of known and emerging environmental requirements to the extent that such requirements can be quantified at this time. As these requirements and their impacts are more clearly defined in the future, capital and operating costs are subject to change. Such changes could alter the relative cost of one technology versus another and therefore result in the selection of different generating technologies for the future.

Cost and Performance

Categories of capacity alternatives that are reviewed as potential resource options include Conventional, Demonstrated, and Emerging technologies. *Conventional* technologies are mature, commercially available options with significant acceptance and operating experience in the utility industry. *Demonstrated* technologies are those with limited commercial operating experience and/or are not in widespread use. *Emerging* technologies are still in the concept, pilot, or demonstration stage or have not been used in the electric utility industry. In the most recent assessment, the following generation technologies were screened:

<u>Conventional Technologies</u>
Combined Cycle (CC)
Combustion Turbine (CT)

Hydro
Onshore Wind
Pulverized Coal (PC)

Demonstrated Technologies
Biomass
Integrated (Coal) Gasification/Combined Cycle (IGCC)
Nuclear Advanced Light Water Reactor (ALWR)
Municipal Solid Waste-Landfill Gas (MSW-LFG)
Solar Photovoltaic (PV)

Emerging Technologies
Fuel Cell (FC)
Offshore Wind

Of the technologies evaluated, not all are proven, mature, or commercially available. This is important to keep in mind when reviewing the data, as some options shown as low cost may *not* be commercially available or technically feasible as an option to meet resource plan needs and requirements at this time. In addition, the less mature a technology, the more uncertain and less accurate its cost estimate.

For example, fuel cells, which are currently still in the pilot or demonstration stage, can be assembled building-block style to produce varying quantities of electric generation. However, as currently designed, a sufficient number of fuel cells cannot be practically assembled to create a source of generation comparable to other existing bulk generation technologies, such as combined cycle (CC). Further development of this technology is needed before it becomes viable as a resource option.

Integrated Gasification-Combined Cycle (IGCC) appears to offer the potential to be competitive with other baseload generation technologies and has fewer environmental concerns. This technology, though, has only been demonstrated at a handful of installations and is just now becoming commercially available. With the possible need for new baseload generation in the future, PEC will continue to monitor the progress of this technology.

Hydro generation has been a valuable and significant part of the generating fleet for the Carolinas. The potential for additional hydro generation on a commercially viable scale is limited and the cost and feasibility is highly site specific. Given these constraints, hydro is not included in the more detailed evaluations but may be considered when site opportunities are evidenced and the potential is identified. PEC will continue to evaluate hydro opportunities on a case-by-case basis and will include it as a resource option if appropriate.

Wind projects have high fixed costs but low operating costs. Therefore, at high enough capacity factors they could become economically competitive with the conventional technologies identified. However, geographic and atmospheric characteristics affect the ability of wind projects to achieve those capacity factors. Wind projects must be constructed in areas with high average wind speed. In general, wind resources in the Carolinas are concentrated in two regions. The first is along the Atlantic coast and barrier islands. The second area is the higher ridge crests in the western portions of the states. Because wind is not dispatchable, it may not be suited to provide consistent capacity at the time of the system peak. Offshore wind power, an emerging technology, may provide greater potential for the Carolinas in the future. The Carolinas benefit

from offshore wind and shallow water that is less than 30 meters deep within 50 nautical miles of shore. Once the technology is developed and the regulatory process is established, this untapped energy source may contribute capacity and energy production for the PEC system. PEC is partnering with the University of NC at Chapel Hill on a new study to fully map and model NC's viable offshore wind resources. The three-year research study will measure wind speeds in areas for which there is currently no data, create a refined wind resource map, and develop an atmospheric modeling system to enable improved wind forecasting capabilities. This study is expected to be the most comprehensive analysis to date on NC's capability to support offshore wind energy generation and will help utility, state and local decision makers determine how best to pursue offshore wind power while still providing cost-effective and reliable electricity to customers.

Solar photovoltaic (PV) projects are technically constrained from achieving high capacity factors. In the southeast, they are expected to operate at a capacity factor of approximately 20%, making them unsuitable for intermediate or baseload duty cycles. PV projects, like wind, are not dispatchable and therefore less suited to provide consistent peaking capacity. Aside from their technical limitations, PV projects are not currently economically competitive generation technologies. With the passage of North Carolina Senate Bill 3 and the premiums provided by the NC GreenPower program, solar photovoltaic installations are increasing in number and scale. PEC has aggressively pursued solar contracts to meet requirements of North Carolina Senate Bill 3. Through these solar contracts, PEC is well positioned to meet the North Carolina Senate Bill 3 solar requirements. In South Carolina, the premiums provided by Palmetto Clean Energy (PaCE) also encourage the installation of small customer-owned solar photovoltaic systems.

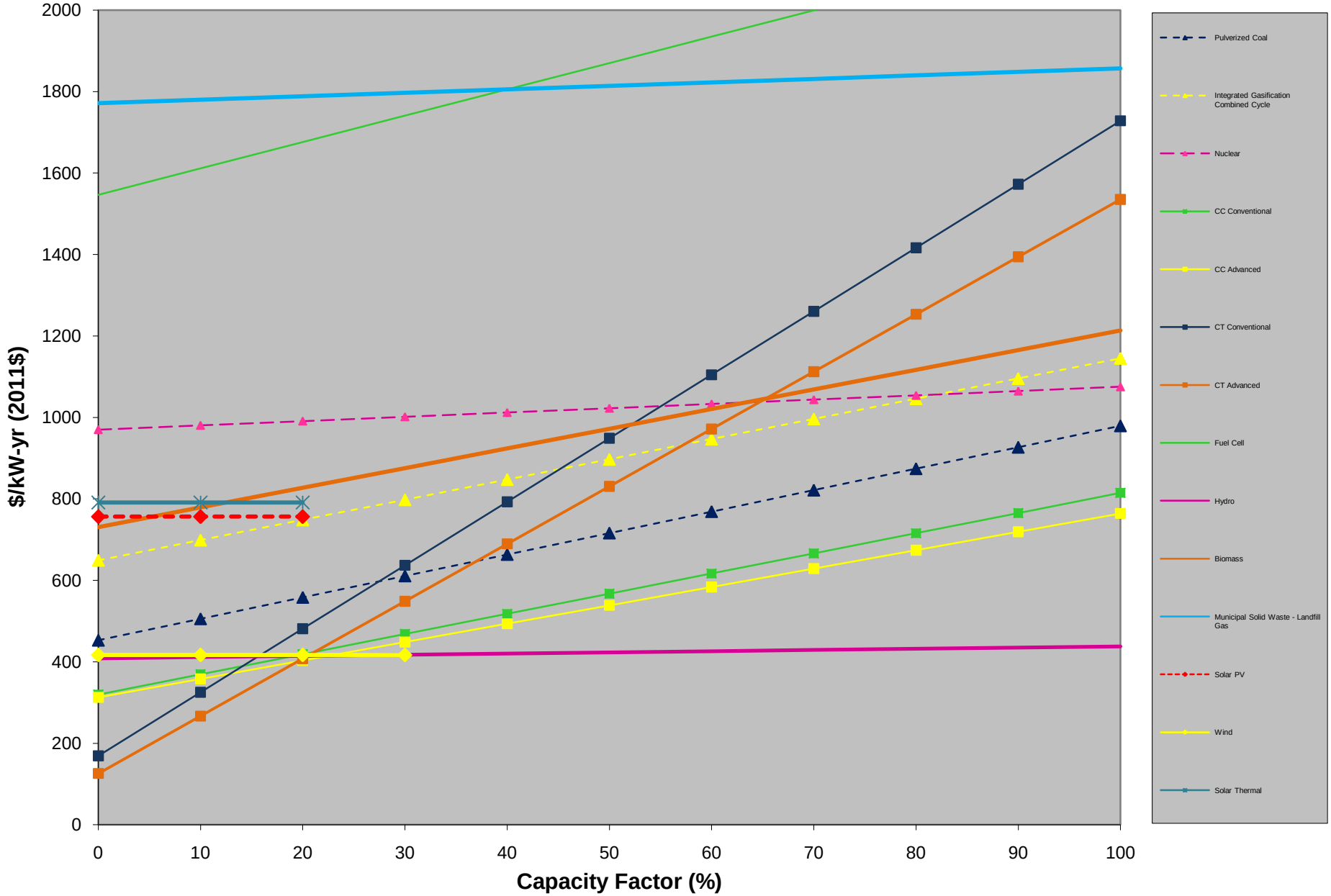
The capacity value of wind and solar resources depends heavily on the correlation between the system load profile, wind speed, and solar insolation. A Utility Wind Integration Group report noted that the capacity value of wind is typically less than 40% of nameplate capacity. Although wind and solar projects are currently not viable options for meeting *reserve* requirements due to their relatively high cost and uncertain operating characteristics, they will play an increasing role in PEC's *energy* portfolio through PEC's renewable compliance program, which is detailed below and in Appendix D. Geothermal has not been evaluated as it is not reasonably available in the Carolinas. External economic and non-economic forces, such as tax incentives, environmental regulations, federal or state policy directives, technological breakthroughs, and consumer preferences through "green rates," also drive these types of technologies. As part of PEC's regular planning cycle, changes to these external conditions are considered, as well as any technological changes, and will be continually evaluated for suitability as part of the overall resource plan.

PEC's IRP includes purchased power from renewables such as solar, biomass, and municipal solid waste-landfill gas (MSW-LFG) facilities. While these purchase contracts are targeted at adding renewable energy to PEC's portfolio, a limited number of these renewable resources also provide capacity to the resource plan. The IRP Tables 1 and 2 detail the current and undesignated renewable capacity. PEC is actively engaged in a variety of projects to develop new alternative sources of energy, including solar, storage, biomass, and landfill gas technologies. Renewables will consistently be evaluated for their ability to meet renewable energy requirements and resource planning needs on a case-by-case basis and included as a resource as appropriate. Further detail regarding renewables is given in the Renewable Energy Requirements section below and in Appendix D.

While this IRP and the REPS Compliance Plan incorporate resources for meeting the requirements of North Carolina Senate Bill 3, PEC has not incorporated additional resources that may be needed in the future for meeting the requirements of potential federal legislation. The type and timing of additional renewable resources will depend heavily on federal legislation being passed and implementing rules being established.

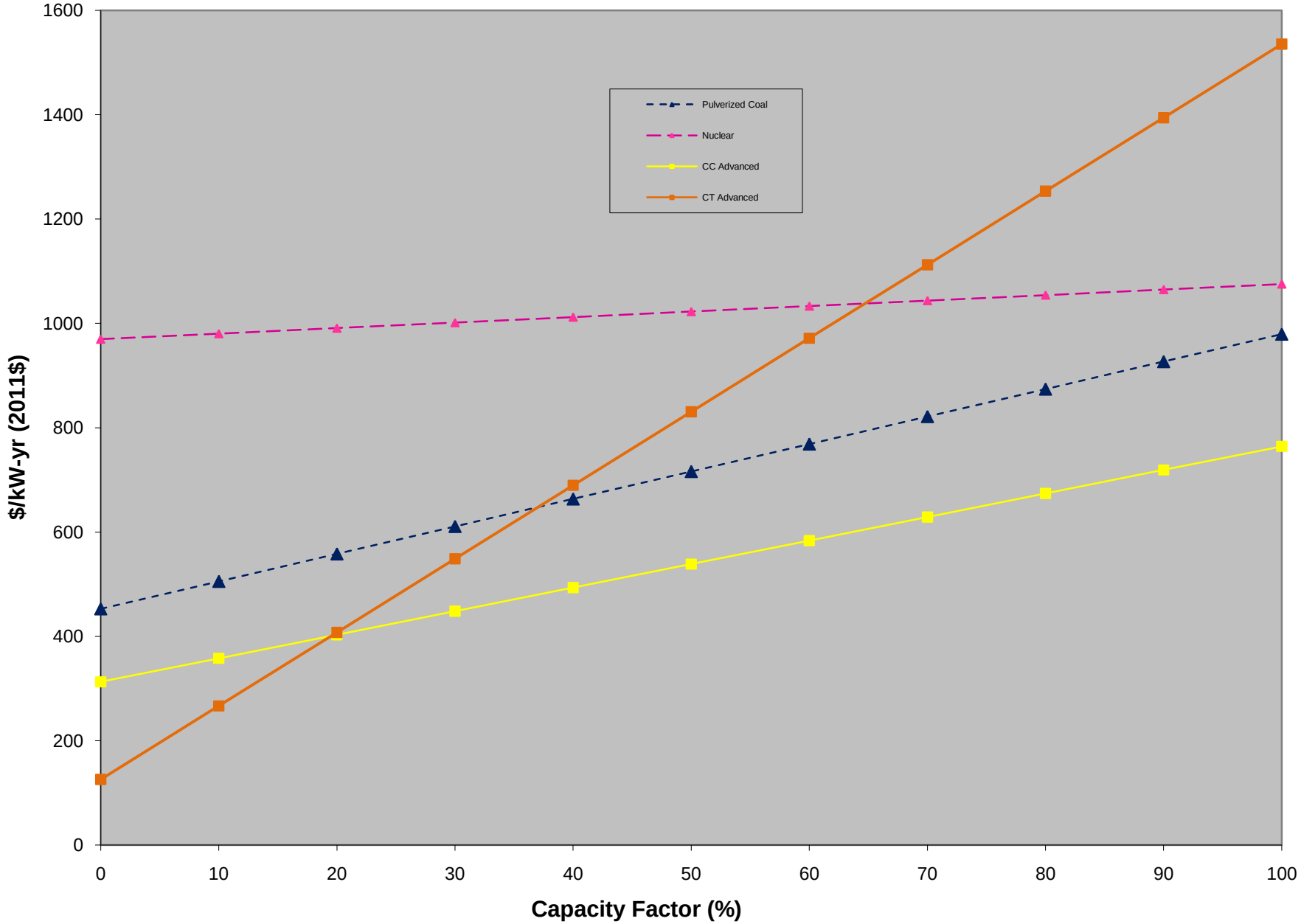
Figures 1-1 and 1-3 provide an economic comparison of all technologies examined based on generic capital, operating, and fuel cost projections without and with carbon costs. Figures 1-2 and 1-4 show the most economical and viable utility scale technologies without and with carbon costs. For the most economic utility scale supply-side technologies in Figure 1-4, more detailed economic and site specific information is developed for inclusion in the resource plan evaluation process. These technologies include simple-cycle combustion turbine, combined cycle, pulverized coal, and nuclear.

Figure 1 - 1
Levelized Busbar Cost for All Technologies Without Carbon



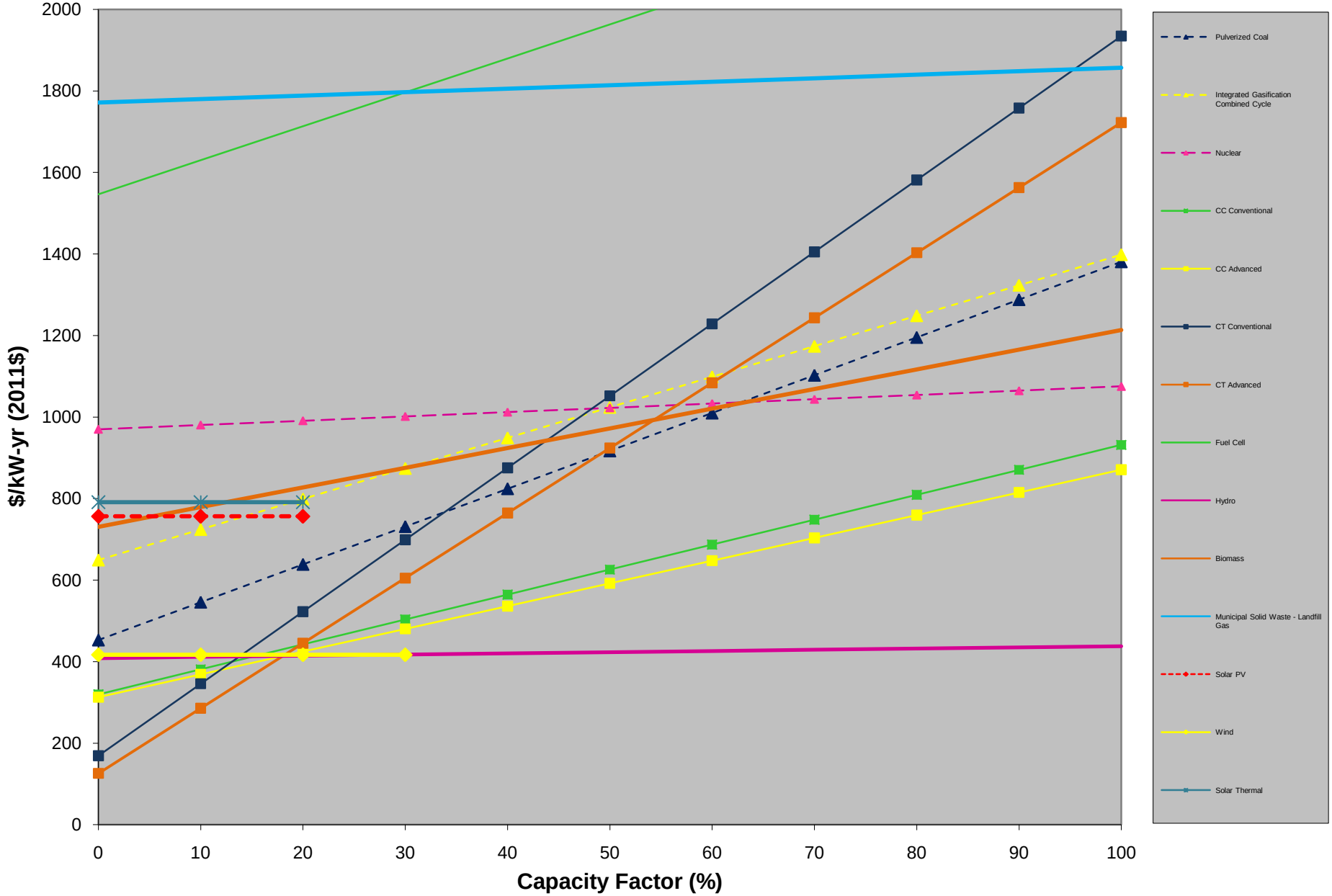
NOTE: The graph above is based on generic capital, O&M, and delivered fuel costs data but without transmission or other site specific criteria.

Figure 1 - 2
Levelized Busbar Cost for Utility Scale Technologies Without Carbon



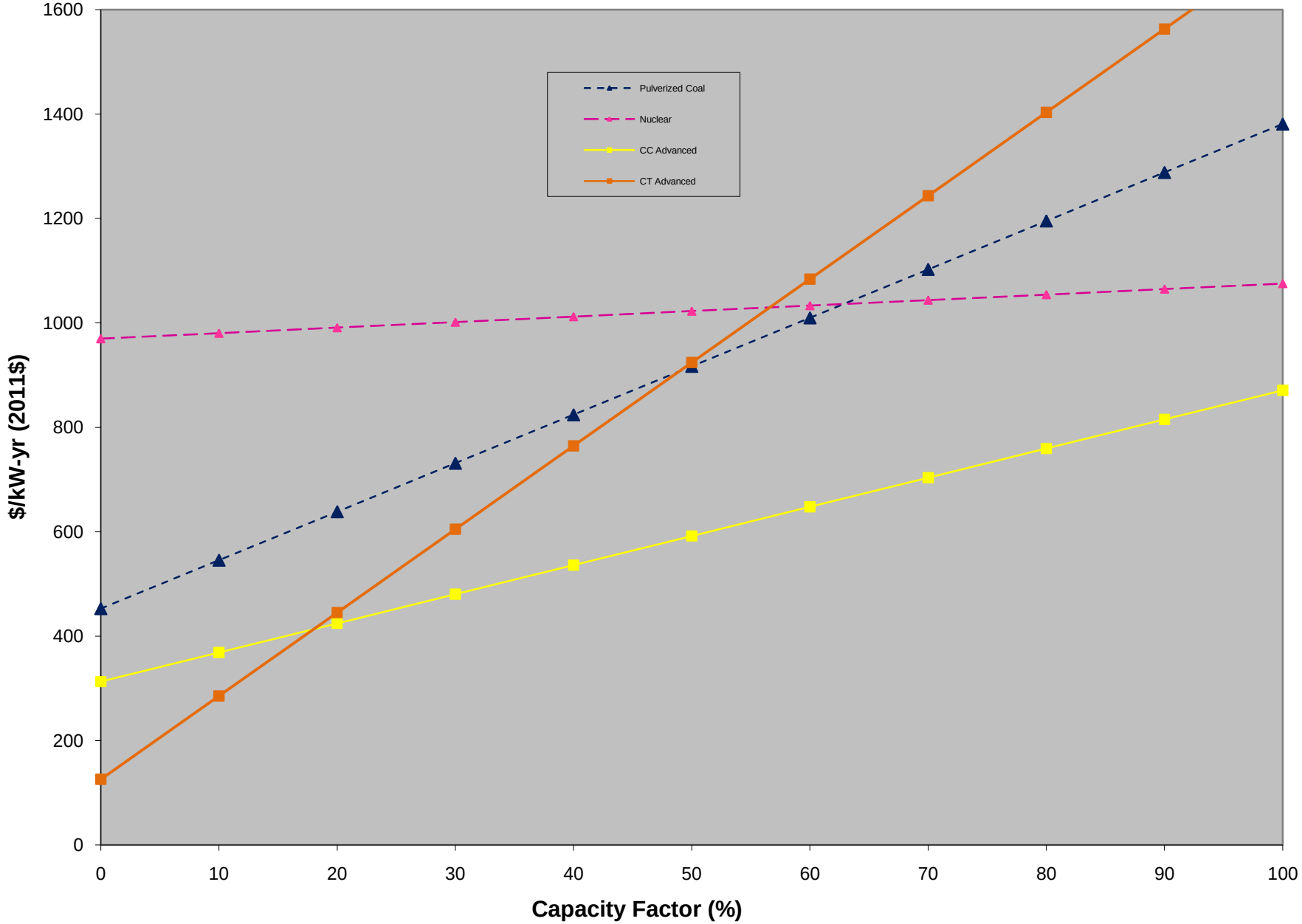
NOTE: The graph above is based on generic capital, O&M, and delivered fuel costs data but without transmission or other site specific criteria.

Figure 1 - 3
Levelized Busbar Cost for All Technologies with Carbon



NOTE: The graph above is based on generic capital, O&M, and delivered fuel costs data but without transmission or other site specific criteria.

Figure 1 - 4
Levelized Busbar Cost for Utility Scale Technologies with Carbon



NOTE: The graph above is based on generic capital, O&M, and delivered fuel costs data but without transmission or other site specific criteria.

Renewable Energy Requirements

In 2007, NC Senate Bill 3 (SB 3) was signed into law, establishing a renewable energy and energy efficiency portfolio standard (REPS). In accordance with the bill, the state's electric companies must gradually increase their use of renewable energy. The utilities, in general, must purchase or generate 3 percent of their energy (based on the prior year's total retail sales) from renewable resources by 2012. The public utilities – PEC, Duke Energy Carolinas, and Dominion North Carolina Power – must increase their use of renewable energy to 12.5 percent in 2021 according to the schedule below.

REPS Requirement

Calendar Year	% Requirement
2012	3% of 2011 NC retail sales
2015	6% of 2014 NC retail sales
2018	10% of 2017 NC retail sales
2021 and thereafter	12.5% of 2020 NC retail sales

The utilities are allowed to meet a portion of the renewable requirement through energy efficiency. Through 2020, up to 25% of the REPS requirement may be met with energy efficiency; after 2020, up to 40% of the REPS requirement may be met with energy efficiency. The standard may also be met through the purchase of renewable energy certificates (RECs).

A portion of the renewable standard must be met with solar power and with power generated by swine and poultry waste. The solar, swine, and poultry waste requirements for the state of NC are:

Requirement for Solar Energy Resources

Calendar Year	% of NC Retail Sales
2010	0.02%
2012	0.07%
2015	0.14%
2018	0.20%

Requirement for Swine Waste Resources

Calendar Year	% of NC Retail Sales
2012	0.07%
2015	0.14%
2018	0.20%

Requirement for Poultry Waste Resources

Calendar Year	Energy Required
2012	170,000 MWh
2013	700,000 MWh
2014 and thereafter	900,000 MWh

Exactly how all the requirements of the REPS will be achieved, and through which technologies, is not fully known at this time. In order to prepare for compliance with the new REPS

requirements, PEC has issued multiple RFP's for various renewable power supply technologies since November 2, 2007. In addition, PEC currently maintains an open RFP for non-solar projects that are 10 MW or less. Through the RFP process, PEC has executed numerous contracts to ensure compliance with the requirements of SB 3. To select the projects that provide the most cost-effective means for meeting SB 3 requirements, renewable bids received are evaluated against each other, the market, how each project fits within the near-term and long-term REPS compliance plan, and how each project impacts the annual cost cap limitations. The REPS compliance plan is detailed in Appendix D. IRP Tables 1 and 2 reflect both committed renewables and undesignated renewables, given the exact makeup of the compliance is unknown at this time.

Demand Side Management and Energy Efficiency Program Plan

PEC is committed to making sure electricity remains available, reliable and affordable and that it is produced in an environmentally sound manner. Therefore, the Company advocates a balanced solution to meeting future energy needs in the Carolinas. That balance includes a strong commitment to DSM and EE, as well as investments in renewable energy technologies and state-of-the-art power plants and delivery systems.

Over the past several years PEC has been actively developing and implementing new DSM and EE programs throughout its North Carolina and South Carolina service areas to help customers reduce their electricity demands. PEC's DSM and EE plan is designed to be flexible, with programs being evaluated on an ongoing basis so program refinements and budget adjustments can be made in a timely fashion to maximize benefits and cost effectiveness. Initiatives are aimed at helping all customer classes and market segments use energy more wisely.

PEC will also be evaluating the potential for new technologies and new delivery options on an ongoing basis to ensure delivery of comprehensive programs in the most cost effective way. PEC will continue to seek Commission approval to implement DSM and EE programs that are cost effective and consistent with PEC's forecasted resource needs over the planning horizon. In order to determine cost effectiveness, PEC primarily relies upon the Total Resource Cost Test to evaluate energy efficiency programs, and uses the Rate Impact Measure test to evaluate DSM programs. PEC currently has approval from the North Carolina Utilities Commission and Public Service Commission of South Carolina to offer ten DSM and EE programs and one Pilot program (for Solar Water Heating).

PEC also offers several educational initiatives aimed at increasing consumer awareness around energy efficiency, including the Customized Home Energy Report, which was launched in 2009. This tool allows residential customers to conduct a self-audit by simply answering a series of questions about their home. Once the assessment is completed, the customer receives a custom four-page summary that provides a billing history, tips towards saving energy that are specific to the customer, and a list of DSM/EE programs that the customer may be able to use to help them save energy. A brief description of all the customer informational and educational programs offered by PEC is provided in Appendix E.

All of these investments are essential to building customer awareness about energy efficiency and, ultimately, reducing energy resource needs by driving large-scale, long-term participation in efficiency programs. Significant and sustained customer participation is critical to the success of PEC's DSM/EE programs. To support this effort, PEC has focused on planning and

implementing programs that work well with customer lifestyles, expectations and business needs.

Finally, PEC is setting a conservation example by converting its own buildings and plants, as well as distribution and transmission systems, to new technologies that increase operational efficiency. For further detail on PEC's DSM and EE programs, see Appendix E.

Reserve Criteria

The reliability of energy service is a primary input in the development of the resource plan. Utilities require a margin of generating capacity reserve to be available to the system in order to provide reliable service. Periodic scheduled outages are required to perform maintenance, inspections of generating plant equipment, and to refuel nuclear plants. Unanticipated mechanical failures may occur at any given time, which may require shutdown of equipment to repair failed components. Adequate reserve capacity must be available to accommodate these unplanned outages and to compensate for higher than projected peak demand due to forecast uncertainty and weather extremes. In addition, some capacity must also be available as operating reserve to maintain the balance between supply and demand on a real-time basis.

The amount of generating reserve needed to maintain a reliable power supply is a function of the unique characteristics of a utility system including load shape, unit sizes, capacity mix, fuel supply, maintenance scheduling, unit availabilities, and the strength of the transmission interconnections with other utilities. There is no one standard measure of reserve capacity that is appropriate for all systems since these characteristics are particular to each individual utility.

Methodology

PEC employs both deterministic and probabilistic reliability criteria in its resource planning process. The Company establishes a reserve criterion for planning purposes based on probabilistic assessments of generation reliability, industry practice, historical operating experience, and judgment.

PEC conducts multi-area probabilistic analyses to assess generation system reliability in order to capture the random nature of system behavior and to incorporate the capacity assistance available through interconnections with other utilities. Decision analysis techniques are also incorporated in the analysis to capture the uncertainty in system demand. Generation reliability depends on the strength of the interconnections, the generation reserves available from neighboring systems, and the diversity in loads throughout the interconnected area. Thus, the interconnected system analysis shows the overall level of generation reliability and reflects the expected risk of capacity deficient conditions for supplying load.

A Loss-of-Load Expectation (LOLE) of one day in 10 years continues to be a widely accepted criterion for establishing system reliability. PEC uses a target reliability of one day in ten years LOLE for generation reliability assessments. LOLE can be viewed as the expected number of days that load will exceed available capacity. Thus, LOLE indicates the expected number of days that a capacity deficient condition would occur, resulting in the inability to supply some portion of customer demand. Results of the probabilistic assessments are correlated to appropriate deterministic measures of reliability, such as capacity margin or reserve margin, for use as targets in developing the resource plan.

PEC's reliability assessments have demonstrated that a minimum capacity margin target of approximately 11-13% satisfies the one day in ten years LOLE criterion and provides an adequate level of reliability to its customers. PEC considers an 11% capacity margin to be a minimum and may be acceptable in the near term when there is greater certainty in forecasts. PEC uses a minimum capacity margin target of 12-13% in the longer term to provide an extra margin of reserves to compensate for possible load forecasting uncertainty, uncertainty in DSM and EE forecasts, or delays in bringing new capacity additions on-line, and uses this criterion to determine the need for generation additions. It should be noted that resource additions cannot be brought on-line in the exact amount needed to match load growth. Thus, reserve levels are inherently lumpy as a result of adding new blocks of capacity to the system.

Adequacy of Projected Reserves

The Company's resource plan reflects capacity margins in the range of approximately 12% to 21%, corresponding to reserve margins of approximately 14% to 27%. Reserves projected in PEC's IRP meet the minimum capacity margin target and thus satisfy the one day in ten years LOLE criterion. Reserves projected in PEC's IRP are appropriate for providing an adequate and reliable power supply. It should be noted that actual reserves as measured by megawatts of installed capacity continue to increase as the load and the size of the system increase.

PEC's minimum capacity margin target is exceeded by 3% or more in 2012 through 2016 due to reductions in the peak demand forecast resulting from the recent economic downturn and the addition of the Richmond CC in June 2011. The table below shows the summer peak demand projections from the 2010 IRP and the 2011 IRP. As an example, the projected 2012 summer peak demand (after DSM) in the 2011 IRP decreased 347 MW compared to the value projected in the Company's 2010 IRP. The addition of the Wayne CC in January 2013 and the Sutton CC in December 2013 closely off-set coal unit retirements in the 2012 through 2014 timeframe. The IRP also includes 126 MW of fast start combustion turbine capacity in December 2015 which is needed for reliability purposes in PEC's Western Region for providing operating reserves. This resource also contributes to capacity margins exceeding the minimum target by 3% or more in 2016.

Summer Peak Demand (After DSM)

	2010 IRP (MW)	2011 IRP (MW)	Delta (MW)
2012	11,884	11,537	347
2013	12,857	12,491	366
2014	13,084	12,624	460
2015	13,253	12,753	500
2016	13,415	12,903	512

The addition of smaller and highly reliable CT capacity increments to the Company's resource mix improve the reliability and flexibility of the PEC fleet in responding to increased load requirements. Since the mid-1990's, PEC has added approximately 4,300 MW of new combustion turbine and combined cycle capacity to system resources, either through new construction or long term purchased power contracts. The most recent addition was the 652 MW combined cycle unit which was placed in-service in June 2011 at the Company's Richmond County facility. Shorter construction lead times for building new combustion turbine and

combined cycle power plants, as contrasted to coal-fired plants, allow greater flexibility to respond to changes in capacity needs and thus reduce exposure to load uncertainty. The Company has announced plans to retire some of its older coal-fired generation and replace the capacity with state-of-the-art combined cycle facilities. The Company is building the 920 MW Wayne CC with an in-service date of January 2013 and the 625 MW Sutton CC with an in-service date of December 2013. Each of the new combined cycle facilities will be equipped with bypass dampers to ensure that the plants can be operated in simple cycle or combined cycle mode to enhance reliability and operational flexibility. All of these factors help to ensure the Company's ability to provide an adequate and reliable power supply.

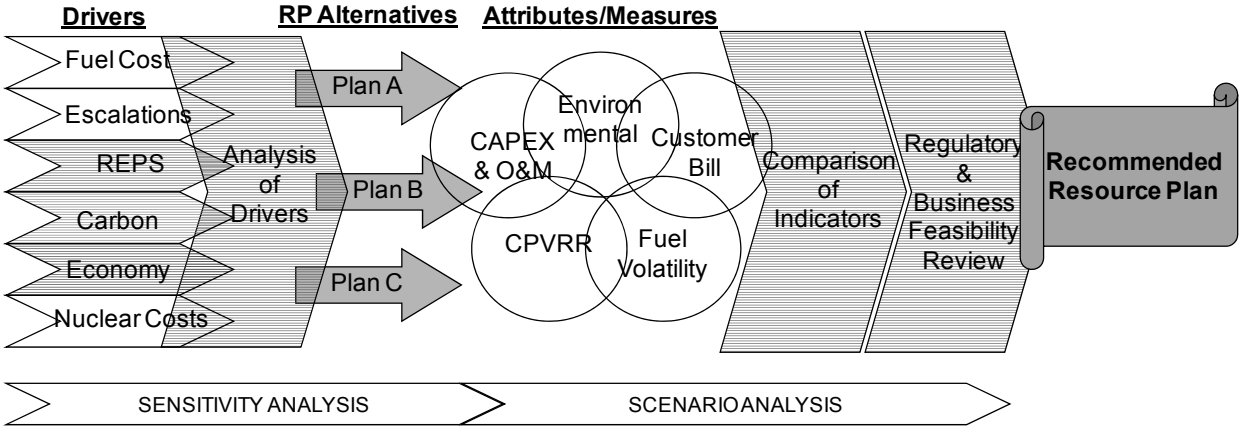
Based on PEC's forecasted load and resources in the current resource plan, LOLE is expected to be within the reliability target of one day in ten years. The resources in the current plan, including reserves, are expected to continue to provide a reliable power supply.

Resource Plan Evaluation and Development

The objective of the resource planning process is to create a robust plan. While the type of analysis illustrated in Figures 1-1 through 1-4 above provide a valuable tool for a comparative screening of technologies; i.e., a comparison of technologies of like operating characteristics, peaking vs. peaking, baseload vs. baseload, etc., it does not address the specific needs of any particular resource plan. Additionally, site-specific requirements, such as transmission, pipeline costs, and fuel availability, must be considered when conducting resource optimization analyses. A robust plan is one that provides the greatest potential benefits given the uncertainties, constraints, and volatility of key drivers that are currently affecting the plan or have a significant probability of influencing the plan in the future. In order to complete this objective, the resource planning process is comprised of a two-phase process that takes into consideration numerous factors, both current and future, related to issues such as customer rates, fuel costs, renewables, environmental requirements and unknowns, demand-side management, energy efficiency, potential technology shifts, load and energy changes, and capital costs of new supply side resources. The resource planning process incorporates the impact of all demand-side management programs on system peak load and total energy consumption, and optimizes supply-side options into an integrated plan that will provide reliable and cost-effective electric service to PEC's customers.

The two-phase resource planning process is comprised of a sensitivity analysis phase and a scenario analysis phase. Below is a brief overview of the resource planning process. Appendix A of the Company's 2010 IRP discusses the process to develop the robust resource plan in detail. The resource planning process can be seen in a simplistic format in Figure 2 below.

Figure 2 Integrated Resource Planning Process Flowchart



The sensitivity analysis is based on the expertise of individuals throughout PEC's organization that provide input and knowledge relative to the key drivers that are, or may be, influencing the plan. These key drivers are then utilized to stress the models to determine which of the drivers significantly change the plan.

The scenario analysis contemplates and develops future states that bound the potential outcomes of the key drivers such as load, energy, escalations, nuclear capital costs, fuel costs, and carbon costs. The alternative plans that are developed based on the sensitivity analysis are then tested in each scenario. By testing each of these alternative plans in each of the scenarios, how each of the plans fares in each scenario and in aggregate to all scenarios can be determined. The ranking of each plan in each scenario is performed using key attributes in the categories of customer cost and environmental compliance. In short, the scenario analysis develops bounding future potential states and subjects the alternative plans to the future states such that they can be ranked relative to each other based on key attributes in the customer cost and environmental categories.

As mentioned previously, a robust plan minimizes the adverse impacts of unforeseen changes, and produces acceptable results for a wide range of events. This is why different scenarios of load, energy, fuel, construction cost escalation, environmental obligations, and other factors are taken into consideration when testing the plans to determine robustness.

Assessment of Purchased Power Alternatives

Because the goal of the IRP process is to meet customer needs for a reliable supply of electricity at the lowest reasonable cost, the plan that has been identified as the preferred plan then serves as a benchmark against which purchased power opportunities are measured. Before proceeding with a self-build option, it must be determined whether there are any purchased power alternatives available that would maintain the system reliability level in a more cost-effective manner.

PEC constantly studies, tracks and evaluates the costs of new generation and the market price for purchased power. For self build options PEC utilizes a competitive bidding process for equipment, engineering and construction services when seeking to build new generation. PEC requests proposals from a range of qualified and creditworthy contractors with proven experience in utility scale generation projects. For power purchases, depending on the circumstances PEC will then utilize a formal or informal RFP to evaluate the feasibility of purchasing equivalent

generation resources from the wholesale market. PEC evaluates the cost, reliability, flexibility, environmental impacts, risk factors, and various operational considerations in determining the optimal resource addition for a given situation. As a general policy, PEC solicits the wholesale market before making resource decisions. PEC incorporates by reference its more detailed discussion of its purchased power methodology filed in Docket No. E-100, Sub 118 on August 31, 2009.

IRP Tables and Plan Discussion

PEC's 2011 Annual IRP as presented in Tables 1 and 2 includes additional DSM and EE as well as significant additional renewables (see renewables and DSM appendices for further detail). PEC is actively pursuing expansion of its demand-side management, energy efficiency and renewables programs to comply with Senate Bill 3 and meet its least cost planning obligation. In the coming years, PEC will continue to invest in renewables, DSM, EE and state-of-the-art power plants and will evaluate the best available options for building new baseload, including advanced design nuclear and clean coal technologies. If PEC proceeds with a new nuclear plant, it would not be online prior to 2026. At this time, though, no definitive decision has been made to construct new nuclear plants.

In the near term, the current resource plan utilizes gas-fired generators for intermediate needs and peaking needs when possible, and oil-fired units for peaking needs when necessary. Gas-fired units are the most environmentally benign, economical, large-scale capacity additions available for meeting peaking and intermediate loads. New designs of these technologies are more efficient (as measured by heat rate) than previous designs, resulting in a smaller impact on the environment. PEC is also seeking license renewals for some of its existing hydro plants.

The 2011 resource plan includes the following planned capacity additions:

Name	Capacity (MW)	Type	In-Service date
Wayne County CC	920	CC	01/13
Sutton CC	625	CC	12/13
Undesignated	126	CT	12/15
Undesignated	176	CT	06/19
Undesignated	276	Reg. Nuclear	06/20
Undesignated	276	Reg. Nuclear	06/21
Undesignated	352	CT	06/21
Undesignated	606	CC	06/22
Undesignated	176	CT	06/22
Undesignated	176	CT	06/23
Undesignated	176	CT	06/24
Undesignated	606	CC	06/26

On August 18, 2009, PEC filed an application for a CPCN for the Wayne County CC and on October 22, 2009, the NCUC granted PEC's a certificate to construct the Wayne County CC . The Wayne County CC is currently on schedule to meet its January 2013 commercial operation date. On December 18, 2009, PEC filed an application for a CPCN for construction of a combined cycle unit at the Company's Sutton Plant site. The NCUC granted PEC a certificate for construction of the Sutton CC on June 9, 2010. The Sutton CC is currently on schedule to meet its December 2013 commercial operation date.

Regarding the undesignated capacity additions mentioned above, PEC will adhere to its purchase power assessment procedure outlined above. Because these potential additions are so far into the future, and therefore somewhat uncertain, PEC's assessment of purchase power options has not

yet been conducted. However, this assessment will be conducted, and the results included in PEC's application for a CPCN, should the decision be made to proceed with these additions.

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Table 1 2011 Annual IRP (Summer)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
GENERATION CHANGES															
Sited Additions		920	625												
Undesignated Additions (1)					126			176	276	628	782	176	176		606
Planned Project Uprates	50	20	9	14		10									
Retirements	(170)	(707)	(590)												
INSTALLED GENERATION															
Nuclear	3,540	3,540	3,549	3,563	3,563	3,573	3,573	3,573	3,573	3,573	3,573	3,573	3,573	3,573	3,573
Fossil	4,994	4,287	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697	3,697
Combined Cycle	1,122	2,062	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687	2,687
Combustion Turbine	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195	3,195
Hydro	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
Undesignated (1)					126	126	126	302	578	1,206	1,988	2,164	2,340	2,340	2,946
TOTAL INSTALLED	**13,076**	**13,309**	**13,353**	**13,367**	**13,493**	**13,503**	**13,503**	**13,679**	**13,955**	**14,583**	**15,365**	**15,541**	**15,717**	**15,717**	**16,323**
PURCHASES & OTHER RESOURCES															
SEPA	95	109	109	109	109	109	109	109	109	109	109	109	109	109	109
NUG QF - Cogen	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
NUG QF - Renewable *	261	262	262	237	241	241	193	193	189	176	39	39	39	39	39
Butler Warner	220	220	220	220	220	220									
Anson CT Tolling Purchase		336	336	336	336	336	336	336	336	336	336	336	336	336	336
Broad River CT	812	812	812	812	812	812	812	812	812	331					
Southern CC Purchase - LT	145	145	145	145	145	145	145	145							
TOTAL SUPPLY RESOURCES	**14,629**	**15,214**	**15,258**	**15,247**	**15,376**	**15,386**	**15,118**	**15,294**	**15,421**	**15,555**	**15,869**	**16,045**	**16,221**	**16,221**	**16,827**
PEAK DEMAND															
Retail	9,149	9,298	9,475	9,633	9,808	9,977	10,146	10,313	10,485	10,642	10,802	10,964	11,134	11,295	11,464
Wholesale	3,090	3,944	4,001	4,055	4,105	4,155	4,226	4,238	4,295	4,351	4,403	4,447	4,502	4,560	4,618
Firm (Duke Area)	100	150	150	150	150	150	150	150	150	150	150	150	150	0	0
OBLIGATION BEFORE DSM	12,340	13,392	13,627	13,838	14,063	14,282	14,522	14,701	14,930	15,143	15,356	15,561	15,786	15,855	16,082
DSM & EE	803	901	1,003	1,085	1,160	1,228	1,292	1,354	1,415	1,470	1,523	1,578	1,634	1,686	1,737
OBLIGATION AFTER DSM	11,537	12,491	12,624	12,753	12,903	13,054	13,230	13,347	13,515	13,674	13,833	13,983	14,152	14,169	14,345
RESERVES (2)	3,092	2,722	2,633	2,494	2,473	2,332	1,888	1,947	1,906	1,881	2,036	2,063	2,069	2,052	2,482
Capacity Margin (3)	21%	18%	17%	16%	16%	15%	12%	13%	12%	12%	13%	13%	13%	13%	15%
Reserve Margin (4)	27%	22%	21%	20%	19%	18%	14%	15%	14%	14%	15%	15%	15%	14%	17%
ANNUAL SYSTEM ENERGY (GWh)	**64,225**	**65,849**	**66,662**	**67,382**	**68,254**	**69,117**	**69,922**	**70,790**	**71,708**	**72,571**	**73,406**	**74,166**	**75,071**	**75,698**	**76,608**

Notes:

* Renewables are assumed to be provided by sources that are dispatchable and/or high capacity factor sources and therefore are counted towards capacity margin. The MWs shown include potential sources that have not yet been identified but are expected to be obtained to meet PEC's Renewable Portfolio Standard requirements.

Footnotes:

(1) Undesignated capacity may be replaced by purchases, uprates, DSM; or a combination thereof. Joint ownership opportunities will be evaluated with baseload additions.

(2) Reserves = Total Supply Resources - Firm Obligations.

(3) Capacity Margin = Reserves / Total Supply Resources * 100.

(4) Reserve Margin = Reserves / System Firm Load after DSM * 100.

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Table 2 2011 Annual IRP (Winter)

	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
GENERATION CHANGES															
Sited Additions		1,049	717												
Undesignated Additions (1)					147				201	281	683	875	201	201	
Planned Project Uprates		80	9		18		10								
Retirements	(201)	(417)	(939)												
INSTALLED GENERATION															
Nuclear	3,616	3,666	3,675	3,675	3,693	3,693	3,703	3,703	3,703	3,703	3,703	3,703	3,703	3,703	3,703
Fossil	5,103	4,686	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747	3,747
Combined Cycle	1,240	2,319	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036	3,036
Combustion Turbine	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691	3,691
Hydro	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227
Undesignated (1)					147	147	147	147	348	629	1,312	2,187	2,388	2,589	2,589
TOTAL INSTALLED	**13,877**	**14,589**	**14,376**	**14,376**	**14,541**	**14,541**	**14,551**	**14,551**	**14,752**	**15,033**	**15,716**	**16,591**	**16,792**	**16,993**	**16,993**
PURCHASES & OTHER RESOURCES															
SEPA	95	109	109	109	109	109	109	109	109	109	109	109	109	109	109
NUG QF - Cogen	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
NUG QF - Renewable *	258	262	262	237	237	241	193	193	189	189	39	39	39	39	39
Butler Warner		260	260	260	260	260									
Anson CT Tolling Purchase		365	365	365	365	365	365	365	365	365	365	365	365	365	365
Broad River CT	880	880	880	880	880	880	880	880	880	880	383				
Southern CC Purchase - LT	145	145	145	145	145	145	145	145							
TOTAL SUPPLY RESOURCES	**15,275**	**16,630**	**16,417**	**16,392**	**16,557**	**16,561**	**16,263**	**16,263**	**16,315**	**16,596**	**16,632**	**17,124**	**17,325**	**17,526**	**17,526**
OBLIGATION BEFORE DSM	11,655	12,684	12,906	13,106	13,318	13,526	13,753	13,922	14,139	14,341	14,542	14,736	14,949	15,006	15,222
DSM & EE	755	794	840	882	912	944	978	1,014	1,052	1,087	1,121	1,161	1,200	1,236	1,272
OBLIGATION AFTER DSM	10,900	11,890	12,066	12,224	12,406	12,582	12,775	12,908	13,087	13,254	13,421	13,575	13,749	13,770	13,950
RESERVES (2)	4,375	4,740	4,351	4,168	4,151	3,979	3,488	3,355	3,228	3,342	3,211	3,549	3,576	3,756	3,577
Capacity Margin (3)	29%	29%	27%	25%	25%	24%	21%	21%	20%	20%	19%	21%	21%	21%	20%
Reserve Margin (4)	40%	40%	36%	34%	33%	32%	27%	26%	25%	25%	24%	26%	26%	27%	26%

Notes:

* Renewables are assumed to be provided by sources that are dispatchable and/or high capacity factor sources and therefore are counted towards capacity margin. The MWs shown include potential sources that have not yet been identified but are expected to be obtained to meet PEC's Renewable Portfolio Standard requirements.

Footnotes:

(1) Undesignated capacity may be replaced by purchases, uprates, DSM; or a combination thereof. Joint ownership opportunities will be evaluated with baseload additions.

(2) Reserves = Total Supply Resources - Firm Obligations.

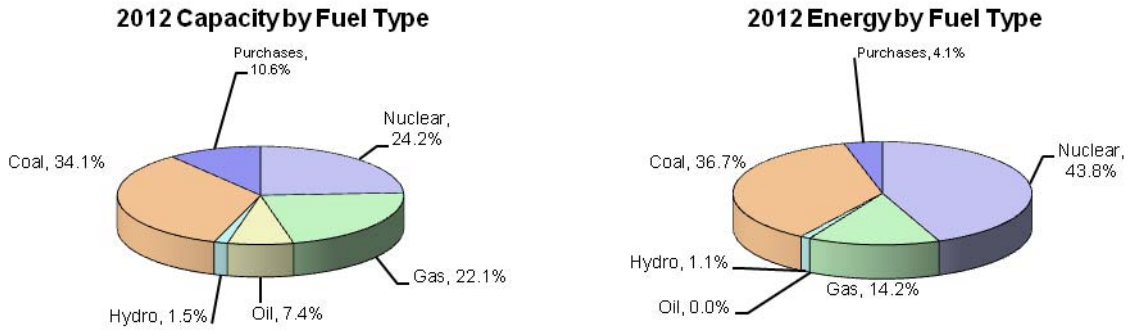
(3) Capacity Margin = Reserves / Total Supply Resources * 100.

(4) Reserve Margin = Reserves / System Firm Load after DSM * 100.

Capacity and Energy

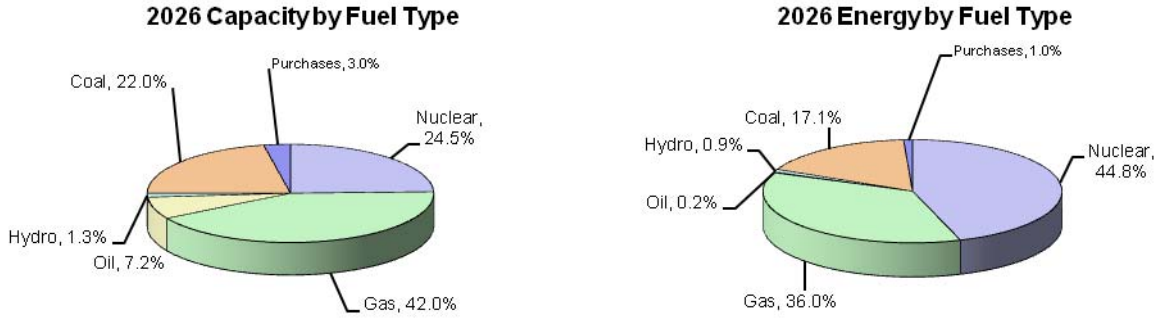
Figure 3 below shows PEC's capacity (MW) and energy (MWh) by fuel type projected for 2012. Nuclear and coal generation currently make-up approximately 58% of total capacity resources, yet account for about 81% of total energy requirements. Gas and oil generation accounts for about 30% of total supply capacity, yet about 14% of total energy (gas- 14.2%, oil- almost zero); the balance is from hydro and purchased power.

Figure 3



The Company's resource plan includes additions fueled by natural gas and oil, as well as possible new baseload generation. The Company's capacity and energy by fuel type projected for 2026 are shown in Figure 4. Gas and oil resources are projected to be 49% of total supply capacity, while serving about 36% (gas- 36.0%, oil- 0.2%) of the total energy requirements. In 2026, nuclear and coal are projected to be approximately 46% of total capacity resources and serve about 62% of total system energy requirements. By 2026, the percentage share of system capacity is approximately the same between gas/oil resources versus nuclear/coal resources; however, nuclear and coal resources will continue to satisfy most of the system energy requirements.

Figure 4



Load Duration Curves

Figures 5 through 8 below are load duration curves for 2012 and 2026. The load duration curves detail the need relative to hours of the year, which is shown as a percentage. Figure 5 shows a curve with and without the existing DSM. It does not show existing EE as it is embedded in the forecast at this point. For clarity Figures 7 & 8 show the reduction of peak load due to DSM which reduces the need for additional peaking generation for the highest 15% of the annual hours. By comparing the 2012 and 2026 curves it is also possible to see the growth that is expected.

Figure 5

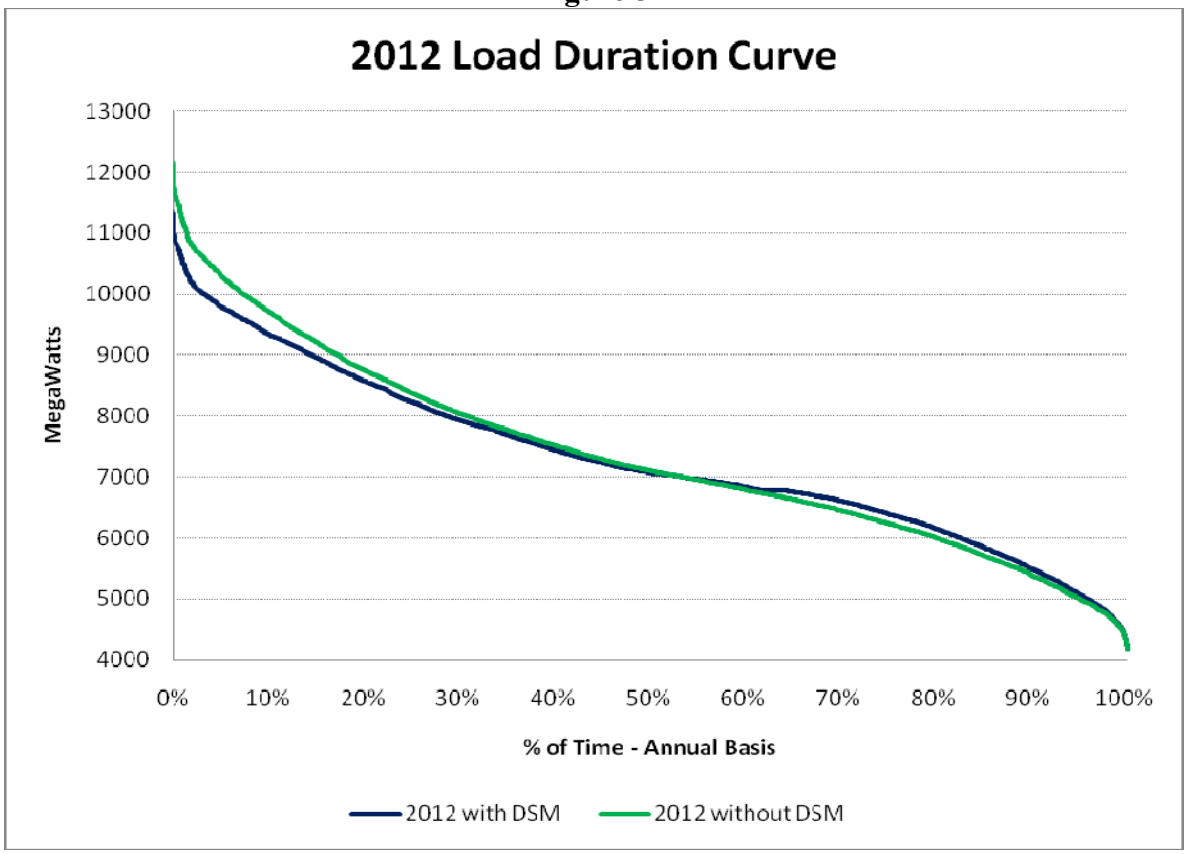


Figure 6

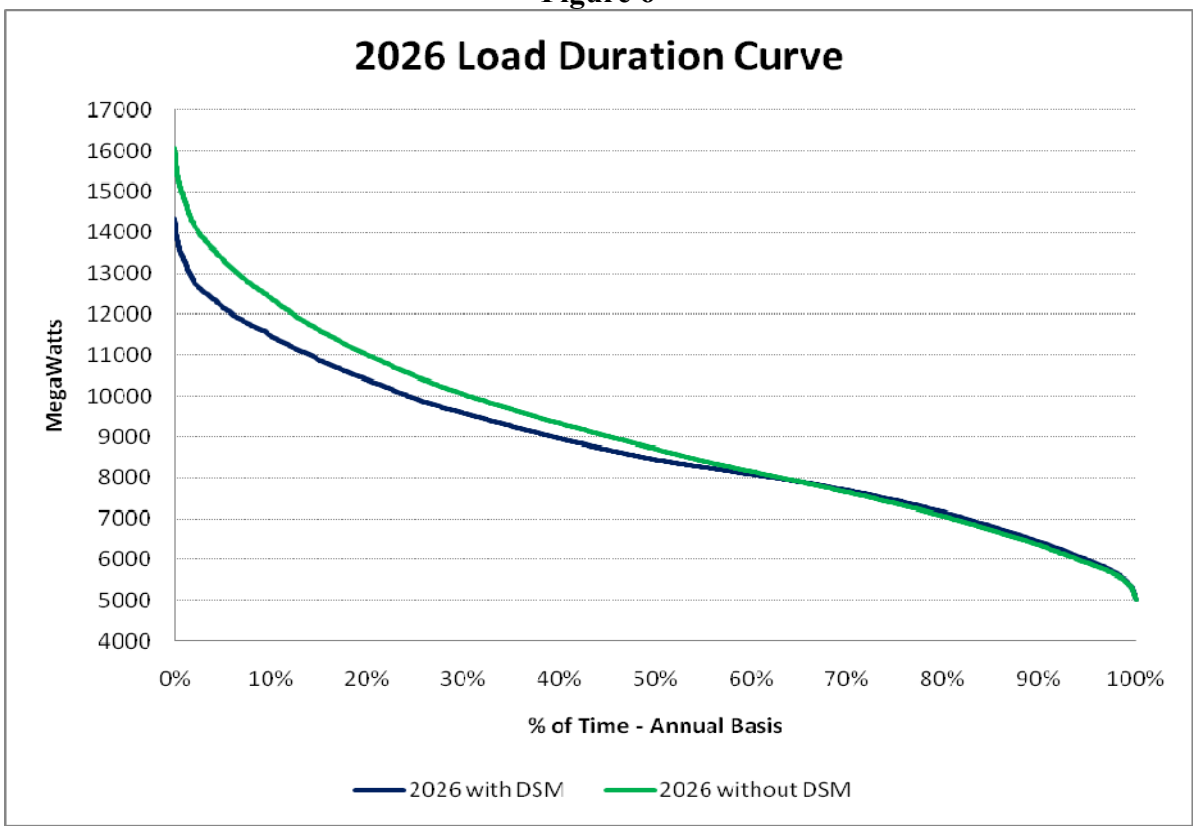


Figure 7

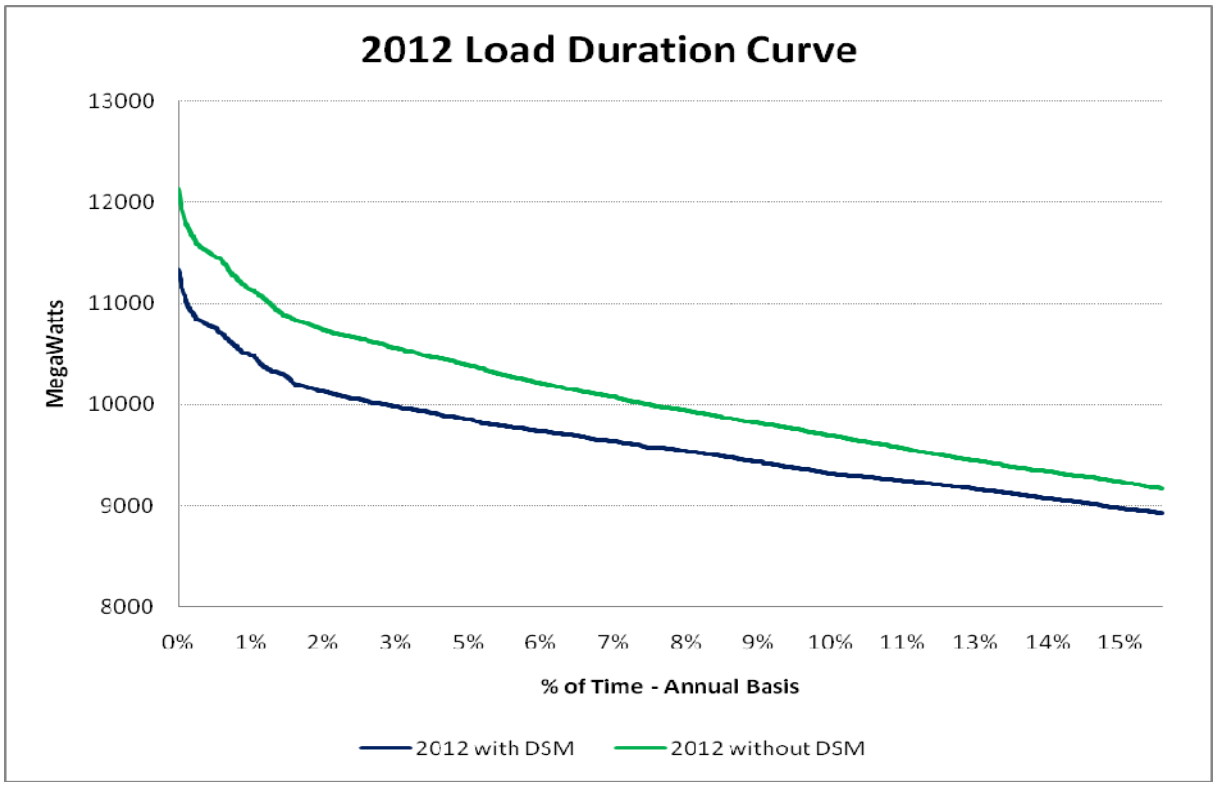
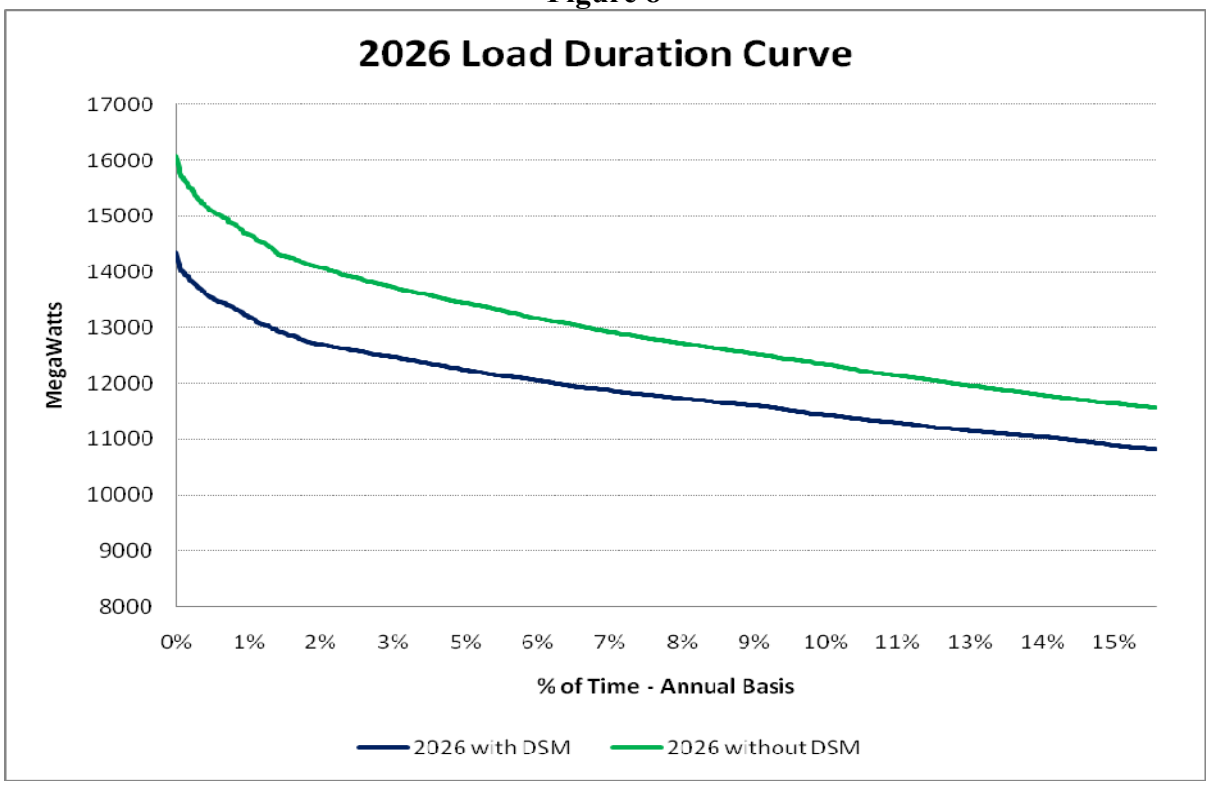


Figure 8



Summary

PEC is an advocate of the balanced approach for satisfying future power supply needs, which includes a strong commitment to DSM and EE, investments in renewables and emerging technologies, and state-of-the-art power plants and delivery systems. This approach ensures electricity remains available, reliable, and affordable and is produced in an environmentally sound manner. PEC's balanced approach is also essential in order to mitigate rate impacts resulting from volatility in individual fuel and CO_2 prices. The plan presented and developed through the resource planning process and presented in this IRP document is not only balanced but robust. It provides the greatest potential benefits given the uncertainties, constraints, and volatility of key drivers that are currently affecting the plan or have a significant ability to influence the plan in the future.

PEC's balanced plan is shown to be one that includes DSM and EE, renewables, purchased power, combustion turbine generation, combined cycle generation, and nuclear generation. Though uncertainties will continue to change and evolve, this process and its results provide the necessary guidance to proceed. This is why PEC evaluates and explores the potential impacts of global climate policies, environmental regulation, technology shifts, and more in its process; and PEC continues to invest in and explore emerging technologies, renewables, DSM and EE, and state-of-the-art generating plants. Only through this integrated effort will PEC be able to provide electricity in a reliable, affordable, and environmentally sound manner.

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Progress Energy Carolinas

Integrated Resource Plan

Appendix B
PEC Owned Generation

September 1, 2011

PEC has a diverse fleet of generating facilities to meet customer demands and maintain system reliability. Below are tables detailing PEC's existing, planned, and planned undesignated generation capacity as well as planned unit uprates and retirements.

Existing Generating Units and Ratings *(1, 4)*

All Generating Unit Ratings are as of December 31, 2010 unless otherwise noted.

Coal

	Unit	Winter (MW)	Summer (MW)	Location	Fuel Type	Resource Type
Asheville	1	196	191	Arden, NC	Coal	Base
Asheville	2	187	185	Arden, NC	Coal	Base
Cape Fear	5	148	144	Moncure, NC	Coal	Intermediate
Cape Fear	6	175	172	Moncure, NC	Coal	Intermediate
Lee	1	80	74	Goldsboro, NC	Coal	Peaking
Lee	2	80	77	Goldsboro, NC	Coal	Peaking
Lee	3	257	240	Goldsboro, NC	Coal	Intermediate
Mayo *(2)*	1	735	727	Roxboro, NC	Coal	Base
Robinson	1	179	177	Hartsville, SC	Coal	Base
Roxboro	1	374	364	Semora, NC	Coal	Base
Roxboro	2	667	662	Semora, NC	Coal	Base
Roxboro	3	698	693	Semora, NC	Coal	Base
Roxboro *(2)*	4	711	698	Semora, NC	Coal	Base
Sutton	1	98	97	Wilmington, NC	Coal	Intermediate
Sutton	2	107	104	Wilmington, NC	Coal	Intermediate
Sutton	3	411	389	Wilmington, NC	Coal	Intermediate
Weatherspoon	1	49	48	Lumberton, NC	Coal	Peaking
Weatherspoon	2	49	48	Lumberton, NC	Coal	Peaking
Weatherspoon	3	79	74	Lumberton, NC	Coal	Peaking
Total Coal		5,280	5,164			

Combustion Turbines

	Unit	Winter (MW)	Summer (MW)	Location	Fuel Type	Resource Type
Asheville	3	178	164	Arden, NC	Natural Gas/Oil	Peaking
Asheville	4	185	160	Arden, NC	Natural Gas/Oil	Peaking
Blewett	1	17	13	Lilesville, NC	Oil	Peaking
Blewett	2	17	13	Lilesville, NC	Oil	Peaking
Blewett	3	18	13	Lilesville, NC	Oil	Peaking
Blewett	4	18	13	Lilesville, NC	Oil	Peaking
Cape Fear	1A	14	11	Moncure, NC	Oil	Peaking

Cape Fear	1B	13	11	Moncure, NC	Oil	Peaking
Cape Fear	2A	14	11	Moncure, NC	Oil	Peaking
Cape Fear	2B	13	11	Moncure, NC	Oil	Peaking
Darlington	1	65	52	Hartsville, SC	Natural Gas/Oil	Peaking
Darlington	2	67	52	Hartsville, SC	Oil	Peaking
Darlington	3	51	52	Hartsville, SC	Natural Gas/Oil	Peaking
Darlington	4	66	52	Hartsville, SC	Oil	Peaking
Darlington	5	66	52	Hartsville, SC	Natural Gas/Oil	Peaking
Darlington	6	67	51	Hartsville, SC	Oil	Peaking
Darlington	7	67	52	Hartsville, SC	Natural Gas/Oil	Peaking
Darlington	8	66	49	Hartsville, SC	Oil	Peaking
Darlington	9	59	52	Hartsville, SC	Oil	Peaking
Darlington	10	67	52	Hartsville, SC	Oil	Peaking
Darlington	11	67	52	Hartsville, SC	Oil	Peaking
Darlington	12	120	118	Hartsville, SC	Natural Gas/Oil	Peaking
Darlington	13	128	116	Hartsville, SC	Natural Gas/Oil	Peaking
Lee	1	15	12	Goldsboro, NC	Oil	Peaking
Lee	2	27	21	Goldsboro, NC	Oil	Peaking
Lee	3	27	21	Goldsboro, NC	Oil	Peaking
Lee	4	27	21	Goldsboro, NC	Oil	Peaking
Morehead	1	15	12	Morehead City, NC	Oil	Peaking
Richmond	1	178	162	Hamlet, NC	Natural Gas/Oil	Peaking
Richmond	2	183	167	Hamlet, NC	Natural Gas/Oil	Peaking
Richmond	3	185	169	Hamlet, NC	Natural Gas/Oil	Peaking
Richmond	4	186	163	Hamlet, NC	Natural Gas/Oil	Peaking
Richmond	6	187	159	Hamlet, NC	Natural Gas/Oil	Peaking
Robinson	1	15	11	Hartsville, SC	Natural Gas/Oil	Peaking
Sutton	1	12	11	Wilmington, NC	Oil/Natural Gas	Peaking
Sutton	2A	31	24	Wilmington, NC	Oil/Natural Gas	Peaking
Sutton	2B	31	26	Wilmington, NC	Oil/Natural Gas	Peaking
Wayne	1	192	177	Goldsboro, NC	Oil/Natural Gas	Peaking
Wayne	2	192	174	Goldsboro, NC	Oil/Natural Gas	Peaking
Wayne	3	193	173	Goldsboro, NC	Oil/Natural Gas	Peaking
Wayne	4	191	170	Goldsboro, NC	Oil/Natural Gas	Peaking
Wayne	5	197	169	Goldsboro, NC	Oil/Natural Gas	Peaking
Weatherspoon	1	41	33	Lumberton, NC	Natural Gas/Oil	Peaking
Weatherspoon	2	41	32	Lumberton, NC	Natural Gas/Oil	Peaking
Weatherspoon	3	41	34	Lumberton, NC	Natural Gas/Oil	Peaking
Weatherspoon	4	41	32	Lumberton, NC	Natural Gas/Oil	Peaking
Total CT		3,691	3,195			

Combined Cycle

	Unit	Winter (MW)	Summer (MW)	Location	Fuel Type	Resource Type
Richmond	CT7	180	151	Hamlet, NC	Natural Gas/Oil	Base
Richmond	CT8	180	151	Hamlet, NC	Natural Gas/Oil	Base
Richmond	ST4	172	168	Hamlet, NC	Natural Gas/Oil	Base
Richmond (3)	CT9	228	200	Hamlet, NC	Natural Gas/Oil	Base
Richmond (3)	CT10	228	200	Hamlet, NC	Natural Gas/Oil	Base
Richmond (3)	ST5	252	252	Hamlet, NC	Natural Gas/Oil	Base
Total CC		1240	1122			

Hydro

	Unit	Winter (MW)	Summer (MW)	Location	Fuel Type	Resource Type
Blewett	1	4	3	Lilesville, NC	Water	Intermediate
Blewett	2	4	3	Lilesville, NC	Water	Intermediate
Blewett	3	4	4	Lilesville, NC	Water	Intermediate
Blewett	4	5	4	Lilesville, NC	Water	Intermediate
Blewett	5	5	4	Lilesville, NC	Water	Intermediate
Blewett	6	5	4	Lilesville, NC	Water	Intermediate
Marshall	1	2	2	Marshall, NC	Water	Intermediate
Marshall	2	2	2	Marshall, NC	Water	Intermediate
Tillery	1	21	21	Mt. Gilead, NC	Water	Intermediate
Tillery	2	18	18	Mt. Gilead, NC	Water	Intermediate
Tillery	3	21	21	Mt. Gilead, NC	Water	Intermediate
Tillery	4	24	27	Mt. Gilead, NC	Water	Intermediate
Walters	1	36	36	Waterville, NC	Water	Intermediate
Walters	2	40	40	Waterville, NC	Water	Intermediate
Walters	3	36	36	Waterville, NC	Water	Intermediate
Total Hydro		227	225			

Nuclear

	Unit	Winter (MW)	Summer (MW)	Location	Fuel Type	Resource Type
Brunswick *(2)*	1	965	938	Southport, NC	Uranium	Base
Brunswick *(2)*	2	953	920	Southport, NC	Uranium	Base
Harris *(2,5)*	1	940	908	New Hill, NC	Uranium	Base
Robinson	2	758	724	Hartsville, SC	Uranium	Base
Total Nuclear		3,616	3,490			
TOTAL PEC SYSTEM		**14,054**	**13,196**			

Footnotes:

(1) Ratings reflect compliance with NERC reliability standards and are gross of co-ownership interest as of 12/31/10.
(2) Jointly-owned by NCEMPA: Roxboro 4 - 12.94%; Mayo 1 - 16.17%; Brunswick 1 - 18.33%; Brunswick 2 - 18.33%; and Harris 1 - 16.17%.
(3) Unit commercially available 06/1/2011 – winter capacity rating and steam-injection power augmentation capability estimated; steam-injection system commissioning scheduled for October 2011.
(4) Resource type based on NERC capacity factor classifications which may alternate over the forecast period.
(5) Rating reflects a 4.0 MW winter and 8.0 MW summer November 2010 unit uprate.

Planned Designated Generation

Plant Name	Location	Summer Capacity (MW)	Plant Type	Fuel Type	Expected In-Service Date
Wayne County	Goldsboro, NC	920	CC	Natural Gas/Oil	01/13
Sutton Plant	Wilmington, NC	625	CC	Natural Gas/Oil	12/13

Note:

In 2006, PEC announced that it selected a site at the Shearon Harris Nuclear Plant (Harris) to evaluate for possible future nuclear expansion. PEC selected the Westinghouse Electric AP1000 reactor design as the technology upon which to base its application submission. On February 19, 2008, PEC filed a COL application with the NRC for two additional reactors at Harris, which the NRC docketed on April 17, 2008. No petitions to intervene have been admitted in the Harris COL application. If we receive COL approval from the NRC in 2014 and applicable state agency approvals, and if the decisions to build are made, a new plant would not be online prior to 2026.

Units Planned to Be Retired

Unit & Plant Name	Location	Capacity (MW) Winter / Summer	Plant Type	Expected Retirement Date
Lee 1	Goldsboro, NC	80 MW / 74 MW	Coal	09/12
Lee 2	Goldsboro, NC	80 MW / 77 MW	Coal	09/12
Lee 3	Goldsboro, NC	257 MW / 240 MW	Coal	09/12
Sutton 1	Wilmington, NC	98 MW / 97 MW	Coal	12/13
Sutton 2	Wilmington, NC	107 MW / 104 MW	Coal	12/13
Sutton 3	Wilmington, NC	411 MW / 389 MW	Coal	12/13
Cape Fear 5	Moncure, NC	148 MW / 144 MW	Coal	06/13
Cape Fear 6	Moncure, NC	175 MW / 172 MW	Coal	06/13
Weatherspoon 1	Lumberton, NC	49 MW / 48 MW	Coal	10/11
Weatherspoon 2	Lumberton, NC	49 MW / 48 MW	Coal	10/11
Weatherspoon 3	Lumberton, NC	79 MW / 74 MW	Coal	10/11
Cape Fear 1 ST	Moncure, NC	12 MW / 11 MW	Oil	03/11
Cape Fear 2 ST	Moncure, NC	12 MW / 7 MW	Oil	03/11
Total		1,557 MW / 1,485 MW		

Planned Uprates

Unit	Date	Winter MW	Summer MW
Brunswick 2	2017	10	10
Robinson 2	2012	20	20
Robinson 2	2013	5	5
Richmond CT7 (1)	2012	15	10
Richmond CT8 (1)	2012	15	10
Harris 1	2012	14	14
Harris 1	2012	16	16
Harris 1	2013	4	4
Harris 1	2015	18	14

Note:

(1) Uprate under consideration – planned firing temperature increase and hardware changes.

Operating License Renewal

The plan also includes renewal of operating licenses for two of the Company's hydroelectric plants as well as its four existing nuclear units, as shown below.

Unit & Plant Name	Location	Original Operating License Expiration	Date of Approval	Extended Operating License Expiration
Blewett #1-6 (1)	Lilesville, NC	04/30/08	*Pending*	2058 (2)
Tillery #1-4 (1)	Mr. Gilead, NC	04/30/08	*Pending*	2058 (2)
Robinson #2	Hartsville, SC	07/31/10	04/19/04	07/31/30
Brunswick #2	Southport , NC	12/27/14	06/26/06	12/27/34
Brunswick #1	Southport, NC	09/08/16	06/26/06	09/08/36
Harris #1	New Hill, NC	10/24/26	12/12/08	10/24/46

Notes:

(1) The license renewal application for the Blewett and Tillery Plants was filed with the FERC on 04/26/06; the Company is awaiting issuance of the new license from FERC. Pending receipt of a new license, these plants are currently operating under a renewable one-year license extension which has been in effect since May 2008. Although Progress Energy has requested a 50-year license, FERC may not grant this term.

(2) Estimated - New license expiration date will be determined by FERC license issuance date and term of granted license.

Progress Energy Carolinas

Integrated Resource Plan

Appendix C
Wholesale, Customer Owned Generation, and RFP's

September 1, 2011

This appendix contains firm wholesale purchased power contracts, wholesale sales, customer owned generation capacity, and requests for proposals.

Firm Wholesale Purchased Power Contracts

Purchased Power Contract	Primary Fuel Type	Summer Capacity (MW)	Capacity Designation	Location	Term	Volume of Purchases (MWh) Jul 10-Jun 11
Broad River CTs # 1-3	Gas	482	Peaking	Gaffney, SC	5/31/2021	580,317
Broad River CTs # 4-5	Gas	330	Peaking	Gaffney, SC	2/28/2022	294,064
Southern Company	Gas	150	Intermediate	Wansley, GA	1/1/2011-12/31/2011	450,767
Southern Company	Gas	145	Intermediate	Rowan County, NC	1/1/2010-12/31/2019	892,787
Stone Container	Fossil/waste wood	20	Base	Florence, SC	12/31/2011	58,027

Note: The capacities shown are delivered to the PEC system and may differ from the contracted amount. Renewables purchases are listed in Appendix D.

In addition to the purchases shown above, PEC receives approximately 95 MW from SEPA for their customers located in PEC's control area. The SEPA energy for calendar year 2010 was 202,263 MWh.

Wholesale Sales

Customer Name	Current Active Contracts:	Firm or Interruptible	Estimated Peak Demand MW	Contract Commencement date	Contract Termination Date
Town of Black Creek, NC	Full Requirements Power Supply	Native Load Firm	3.2	2/1/2008	12/31/2017
City of Camden, SC	Full Requirements Power Supply	Native Load Firm	50	1/1/2009	12/31/2013
Fayetteville Public Works Commission	Partial Requirements Power Supply	Native Load Firm	301	7/1/2003	6/31/2012
Fayetteville Public Works Commission	Full Requirements Power Supply	Native Load Firm	531	7/1/2012	6/30/2032
French Broad EMC	Full Requirements Power Supply	Native Load Firm	90	1/1/2004	12/31/2012
Haywood EMC	Partial Requirements Power Supply	Native Load Firm	34	1/1/2009	12/31/2021
Town of Lucama, NC	Full Requirements Power Supply	Native Load Firm	5.3	2/1/2008	12/31/2017
North Carolina Electric Membership Corporation	NCEMC SOR D	Native Load Firm	420	1/1/2005	12/31/2019
	NCEMC SOR A	Native Load Firm	225	1/1/2005	12/31/2015
	NCEMC SOR A Ext.	Native Load Firm	225	1/1/2016	12/31/2022
	NCEMC SOR E	Native Load Firm	225	1/1/2005	12/31/2012
	NCEMC SOR E Ext.	Native Load Firm	275 (2013), 325 (2014-2020), 150 (2021)	1/1/2013	12/31/2021
	NCEMC Intermediate	Native Load Firm	100	4/1/2007	12/31/2012
	NCEMC PPA	Subordinate to Native Load Firm	200 (2008-2012); 150 (2013-2024)	1/1/2005	12/31/2024
	NCEMC PSCA	Native Load Firm	900	1/1/2013	12/31/2032
	NCEMC Load Following	Subordinate to Native Load Firm	50	1/1/2010	12/31/2011
North Carolina Eastern Municipal Power Agency	Partial Requirements Power Supply	Native Load Firm	763	1/1/2010	12/31/2017
Piedmont EMC	Partial Requirements Power Supply	Native Load Firm	29	9/1/2006	12/31/2021
Town of Sharpsburg, NC	Full Requirements Power Supply	Native Load Firm	5.6	2/1/2008	12/31/2017
Town of Stantonsburg, NC	Full Requirements Power Supply	Native Load Firm	5.9	2/1/2008	12/31/2017
Town of Waynesville, NC	Full Requirements Power Supply Extension	Native Load Firm	17	1/1/2010	12/31/2015
Town of Winterville, NC	Full Requirements Power Supply	Native Load Firm	12	3/1/2008	12/31/2017

Note: Contracts, unless information indicates otherwise, are assumed to extend in the forecast.

Customer-Owned Generation Capacity - Accounts Served Under Standby, Curtailable or Net Metering Riders

Status as of July 2011

Facility Name	Location	Primary Fuel Type	Capacity	Designation	Inclusion in PEC Resources	Inclusion in PEC Resources
Customer 1	Eastern NC	Natural Gas	46,000 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 2	Western NC	Process By-product & Coal	51,000 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 3	Eastern NC	Process By-product	60,000 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 4	Western NC	Hydro	2,500 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 5	Eastern NC	Diesel Fuel	2,250 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 6	Eastern NC	Process By-product	50,000 kW	Intermediate	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 7	Eastern NC	Solar PV	385 kW	Intermediate	(3)	Standby Service/Net Metering; therefore, load forecast reflects generation output.
Customer 8	Eastern NC	Process By-products	27,000 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 9	Eastern NC	Diesel Fuel	750 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 10	Eastern NC	Diesel Fuel	3,000 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 11	Western NC	Diesel Fuel	750 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 12	Western NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 13	Eastern NC	Diesel Fuel	600 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 14	Eastern NC	Diesel Fuel	5,000 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 15	Western NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 16	Eastern NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 17	Eastern NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 18	Eastern NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 19	Eastern NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 20	Eastern NC	Diesel Fuel	350 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.

Customer 21	Eastern NC	Diesel Fuel	600 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 22	Eastern NC	Diesel Fuel	600 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 23	Eastern NC	Diesel Fuel	1,800 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 24	Eastern NC	Diesel Fuel	2,700 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 25	Eastern NC	Diesel Fuel	5,000 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 26	Eastern NC	Diesel Fuel	300 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 27	Eastern NC	Diesel Fuel	300 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 28	Eastern NC	Diesel Fuel	600 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 29	Western NC	Diesel Fuel	500 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 30	Eastern NC	Diesel Fuel	2,472 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 31	Eastern NC	Diesel Fuel	6,000 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 32	Eastern NC	Diesel Fuel	250 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 33	Eastern NC	Diesel Fuel	6,500 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 34	Eastern NC	Diesel Fuel	4,000 kW	Peaking	(2)	Included as a curtailable resource up to customer's summer peak load.
Customer 35	Eastern NC	Solar PV	10 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 36	Western NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 37	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 38	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 39	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 40	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 41	Eastern NC	Solar PV	7 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 42	Eastern NC	Solar PV	10 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 43	Eastern NC	Solar PV	21 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 44	Eastern NC	Solar PV	48 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 45	Eastern NC	Solar PV	55 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 46	Eastern NC	Solar PV	62 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 47	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 48	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 49	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 50	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 51	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.

Customer 52	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 53	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 54	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 55	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 56	Western NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 57	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 58	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 59	Eastern NC	Solar PV	6 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 60	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 61	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 62	Eastern NC	Solar PV	8 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 63	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 64	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 65	Western NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 66	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 67	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 68	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 69	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 70	Eastern NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 71	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 72	Western NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 73	Western NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 74	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 75	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 76	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 77	Western NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 78	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 79	Western NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 80	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 81	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 82	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.

Customer 83	Western NC	Solar PV	6 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 84	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 85	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 86	Eastern NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 87	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 88	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 89	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 90	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 91	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 92	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 93	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 94	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 95	Western NC	Solar PV	7 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 96	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 97	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 98	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 99	Eastern NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 100	Eastern NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 101	Western NC	Solar PV	16 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 102	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 103	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 104	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 105	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 106	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 107	Eastern NC	Solar PV	0 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 108	Eastern NC	Solar PV	1 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 109	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 110	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 111	Eastern NC	Solar PV	7 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 112	Eastern NC	Solar PV	5 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 113	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.

Customer 114	Western NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 115	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 116	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 117	Western NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 118	Eastern NC	Solar PV	4 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 119	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 120	Eastern NC	Solar PV	3 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 121	Eastern NC	Solar PV	2 kW	Intermediate	(3)	Net Metering; therefore, load forecast reflects generation output.
Customer 122	South Carolina	Fossil Coal	28,000 kW	Baseload	(1)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 123	South Carolina	Process By-product & Coal	73,000 kW	Baseload	(2)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 124	South Carolina	Process By-product	27,000 kW	Baseload	(2)	Standby Service customer; therefore, load forecast reflects generation output.
Customer 125	South Carolina	Diesel Fuel	1,500 kW	Peaking	(3)	Included as a curtailable resource up to customer's summer peak load.
Customer 126	South Carolina	Diesel Fuel	1,500 kW	Peaking	(3)	Included as a curtailable resource up to customer's summer peak load.
Customer 127	South Carolina	Solar PV	8 kW	Intermediate	(1)	Net Metering; therefore, load forecast reflects generation output.
Customer 128	South Carolina	Solar PV	3 kW	Intermediate	(2)	Net Metering; therefore, load forecast reflects generation output.
TOTAL			413,402 kW			

NOTES:

(1) Standby Service customer; therefore, load forecast is reduced for generation output.

(2) Included as a curtailable resource.

(3) Net Metering customer; therefore, load forecast is reduced for generation output.

Individual Wholesale Customer Forecasts

	French Broad MW	Camden MW	Waynesville MW	Winterville MW	Tritowns MW	Haywood MW	NCEMPA MW	Piedmont EMC MW	FPWC MW	NCEMC MW	Wholesale MW	NCEMC Firm MW
2011	84	51	13	12	20	19	1296	20	307	1012	2833	250
2012	85	52	13	12	20	19	1305	21	452	1012	2990	200
2013	85	53	13	12	20	20	1314	22	458	1946	3944	150
2014	86	53	14	12	20	20	1324	23	465	1985	4001	150
2015	87	54	14	12	21	20	1330	23	471	2023	4055	150
2016	88	54	14	12	21	21	1334	24	477	2060	4105	150
2017	89	55	14	13	21	22	1337	25	483	2097	4155	150
2018	90	56	14	13	0	23	1341	25	489	2175	4226	150
2019	91	56	14	13	0	24	1347	26	496	2171	4238	150
2020	91	57	14	13	0	34	1352	27	501	2205	4295	150
2021	92	57	15	13	0	40	1358	28	507	2242	4351	150
2022	93	58	15	13	0	40	1364	28	512	2280	4403	150
2023	94	59	15	13	0	40	1371	28	518	2309	4447	150
2024	95	59	15	13	0	41	1377	29	524	2349	4502	150
2025	96	60	15	13	0	41	1385	29	529	2391	4560	0
2026	96	61	15	14	0	42	1392	30	535	2433	4618	0

Requests for Proposals

PEC did not issue any Requests for Proposals (RFPs) for purchased power since its last biennial report. PEC did, however, issue two RFPs in July 2011 for renewable generation to meet Senate Bill 3 compliance requirements, which are discussed in Appendix D.

Progress Energy Carolinas

Integrated Resource Plan

Appendix D
Alternative Supply Resources
NC REPS Compliance Plan

September 1, 2011

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Rule R8-67

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Energy efficiency savings from planned or implemented energy efficiency measures	2
The projected North Carolina retail sales for each year	3
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Progress Energy Carolinas, Inc.'s (PEC's) overall compliance plan is to meet the requirements of G.S. § 62-133.8 with the most cost effective and reliable renewable resources available.

A specific description of planned actions to comply with G.S. 62-133.8 (b), (c), (d), (e) and (f) for each year is as follows:

G.S. § 62-133.8(b): MEETING THE RENEWABLE ENERGY AND ENERGY EFFICIENCY PORTFOLIO STANDARDS FOR ELECTRIC PUBLIC UTILITIES

In an effort to promote the development of renewable energy and energy efficiency through the implementation of a Renewable Energy and Energy Efficiency Portfolio Standard (REPS), PEC is constantly evaluating options to meet the overall requirements. Under G.S. § 62-133.8 (b), opportunities to meet the REPS requirements can be categorized by PEC ownership of or purchases from renewable generation, use of renewable energy resources at generating facilities, purchases of renewable energy certificates (RECs), and implementation of energy efficiency measures.

With regard to utility ownership, PEC does not currently own or operate new renewable generating facilities, however, PEC does evaluate the ownership of new renewable energy facilities as more fully described elsewhere in this IRP. As with ownership of any new generation, future direct or partial ownership of new renewable energy generating facilities is based on cost-effectiveness and portfolio requirements.

PEC engages in ongoing research regarding the use of alternative fuels meeting the definition of renewable energy resources at its existing generation facilities. Introducing alternative fuels in traditional power plants must prove to be technically feasible, reliable, and cost effective prior to implementation. To the extent PEC determines the use of alternative fuels is appropriate and fits within the framework of Senate Bill 3, these measures would be included in future compliance plan filings.

Regarding the purchase of energy or RECs from renewable facilities, PEC has adopted a competitive bidding and evaluation process whereby market participants have an opportunity to propose projects on a continuous basis. PEC currently maintains an open RFP for non-solar projects less than 10 MWs in size. In addition, PEC issued both a solar specific RFP and wind specific RFP in June 2011. Through the renewable RFP process, since November 2007, PEC has executed a significant number of contracts for solar, hydro, biomass, landfill gas and out of state wind RECs, as shown on Exhibit 1.

PEC has purchased out-of-state wind and solar RECs as allowed by Senate Bill 3. These RECs are the most cost effective options available, and they will allow PEC to balance its compliance each year while also helping to mitigate vendor performance risk.

Lastly, PEC intends to comply with a portion of the Senate Bill 3 requirements by implementing energy efficiency ("EE") measures and programs. A discussion of existing and proposed programs is included in the demand-side management (DSM) and EE section in Appendix E of the IRP. The projected MWhs reduced by the incremental EE programs are included in the compliance plan tables shown in Exhibit 2. PEC's overall compliance plan table (Exhibit 7)

depicts EE MWhs only up to the 25% and 40% caps in any given year. EE MWhs that exceed the specified cap in any given year are banked for use in future compliance years.

G.S. § 62-133.8(c): RENEWABLE ENERGY AND ENERGY EFFICIENCY STANDARDS FOR ELECTRIC MEMBERSHIP CORPORATIONS AND MUNICIPALITIES

While this requirement does not apply specifically to PEC, a number of wholesale customers have agreements with PEC whereby PEC will obtain the RECs necessary for the wholesale customer's compliance. The compliance plan table in Exhibit 3 includes the load and associated REPS requirement for these wholesale customers. In addition, Exhibit 6 includes the anticipated premium cap for these wholesale customers.

PEC continues to refine development of the overall process to comply on behalf of these wholesale customers. The costs associated with renewable resources procured to comply with the combined retail loads of PEC and the wholesale customers are included in PEC's compliance plan and will be allocated across the total MWhs and recovered appropriately. The details of all purchases and the cost allocation to each party will be included in PEC's annual compliance report filing.

G.S. § 62-133.8(d): COMPLIANCE WITH REPS REQUIREMENT THROUGH USE OF SOLAR ENERGY RESOURCES

In order to achieve compliance with the initial solar set-aside requirements, PEC has executed a number of solar contracts, as listed on Exhibit 1. In addition to these contracts, PEC has maintained a commercial PV program since July 2009 that has a target of adding 5 MWs of grid-tied solar PV per year and a standard offer to purchase commercial solar hot water RECs to promote development of this technology. PEC also implemented a residential PV program on January 1, 2011 with a target of adding 1 MW per year of distributed solar generation. With the objective of meeting the ongoing solar set-aside requirements, PEC issued a solar RFP in June 2011 for grid-connected projects ranging in size from 1 to 3 MW. Exhibit 8 shows the anticipated production from both contracted PV and solar thermal projects that vary in technology, size, and geographic location. The "Undesignated Solar RECs" line item contemplates adding various solar resources necessary to achieve compliance through a combination of the current and/or future RFPs, as well as through the SunSense programs.

G.S. § 62-133.8(e): COMPLIANCE WITH REPS REQUIREMENT THROUGH USE OF SWINE RESOURCES

On February 12, 2010, in Docket E-100, Sub 113, the Commission issued an Order approving the issuance of a joint RFP as a means for the state's electric power suppliers to work together to collectively meet the swine waste resource set-aside. The state's electric power suppliers issued a joint RFP for swine waste generation on February 15, 2010. As a result of this RFP, PEC, along with the other collaborative members, has executed two

contracts for approximately 20,000 RECs per year once fully online. The collaborative remains in negotiation with additional suppliers, however, based on current assumptions, the collaborative group's selected portfolio of projects will not be able to deliver sufficient RECs in 2012 to meet the set-aside requirement. The "Undesignated Swine" generation data shown on Exhibit 8 is the number of additional RECs PEC would need to be compliant with its pro-rata share of the swine requirement. Due to limited opportunities to purchase additional swine RECs during this timeframe, it is doubtful that PEC will be compliant with the 2012 set-aside requirement.

G.S. § 62-133.8(f): COMPLIANCE WITH REPS REQUIREMENT THROUGH USE OF POULTRY WASTE RESOURCES

NC Senate Bill 3 provides for a statewide aggregate requirement for poultry waste generation. In the March 31, 2010 Order Docket No. E-100, Sub 113, the Commission held that the statewide aggregate set-aside requirement should be allocated among the state's electric power suppliers in the following manner: the statewide aggregate poultry waste set-aside MWh requirements as detailed in G.S. §62-133.8(f) multiplied by the ratio of an electric power supplier's previous year's North Carolina retail kWh sales divided by the total North Carolina retail kWh sales of all electric power suppliers in the previous year. Using this methodology, PEC projects its pro-rata requirement for 2012 is approximately 49,000 RECs. In April 2011, PEC signed a contract to purchase energy and RECs from a 36 MW poultry waste-to-energy facility. Once fully online, this project is expected to deliver over 200,000 poultry RECs annually. The "Undesignated Poultry" generation data shown on Exhibit 8 is the number of additional RECs PEC will need to procure to be compliant with its pro-rata share of the poultry requirement.

DESCRIPTION OF EXHIBITS

- **A list of executed contracts to purchase renewable energy certificates, including type of renewable energy resource, expected MWhs, and contract duration.**

PEC has executed a number of contracts with renewable energy facilities. The Contracts executed as of July 31, 2011 are shown in Exhibit 1.

- **A list of planned or implemented energy efficiency measures, including a brief description of the measure and projected impacts.**

A discussion of existing and planned energy efficiency programs is included in the DSM and EE section of the IRP and Appendix E. Exhibit 2 to this document summarizes the projected EE MWhs included for REPS compliance.

- **The projected North Carolina retail sales and year-end number of customer accounts by customer class for each year**

Exhibit 3 to this document summarizes the retail sales forecast and corresponding REPS energy requirement. Exhibit 4 summarizes the customer account forecasts and the corresponding REPS cost cap.

- **The current and projected avoided cost rates for each year**

Exhibit 5 summarizes the total avoided costs based upon PEC's avoided cost schedule CSP-25. The specific avoided cost assigned to each transaction depends on the deal term and the execution date of the contract.

- **The projected total and incremental costs anticipated to implement the compliance plan for each year**

Exhibit 6 displays the projected total and incremental costs for executed contracts. The costs are not included for undesignated contracts due to the uncertainty regarding the cost of these resources.

- **A comparison of projected costs to the annual cost caps for each year**
- **An estimate of the amount of the REPS rider and the impact on the cost of fuel and fuel-related costs rider necessary to fully recover the projected costs**

Exhibit 6 displays the cost caps and the projected costs for executed contracts. After subtracting the costs associated with these executed contracts from the REPS premium cap, the Exhibit shows the remaining funds expected to be available for undesignated contracts. These future premiums are subject to change due to several factors, including retail growth assumptions, underlying cost escalation in executed contracts, change in the energy generation forecast from these resources, amongst others.

- **Overall REPS Compliance Plan showing MWh compliance requirements and planned resources**

Exhibit 7 summarizes the annual compliance requirement, the committed purchases by resource type, and undesignated resources by resource type required to achieve compliance over the planning horizon. The undesignated resources on this Exhibit may include REC only purchases with no associated generation.

- **REPS set-aside requirements and planned resources**

Exhibit 8 summarizes the set-aside requirements for solar, swine waste, and poultry waste. The contracted purchases show the expected generation from projects under contract.

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 1, Page 1: Executed Contract Summary

Counterparty:	Counterparty	Resource Type:	Load:	Contract Duration (years):	Capacity MW	Expected Annual Energy MWh	Expected Annual RECs
[redacted]	Contract A	Solar PV	As Available Energy and REC	[redacted]			
	Contract B	Solar PV	As Available Energy and REC				
	Contract C	Solar PV	As Available Energy and REC				
	Contract D	Solar PV	As Available Energy and REC				
	Contract E	Solar PV	As Available Energy and REC				
	Contract F	Solar PV	As Available Energy and REC				
	Contract G	Landfill Gas	Baseload Energy and RECs				
	Contract H	Wood, TDF, Coal	On-Peak Energy and RECs				
	Contract I	Wood, TDF, Coal	On-Peak Energy and RECs				
	Contract J	Solar PV	As Available Energy and REC				
	Contract K	Solar PV	As Available Energy and REC				
	Contract L	Solar PV	As Available Energy and REC				
	Contract M	Solar PV	As Available Energy and REC				
	Contract N	Solar PV	As Available Energy and REC				
	Contract O	Biomass	Baseload Energy and RECs				
	Contract P	Biomass (thermal RECs)	REC Only				
	Contract Q	Biomass	Baseload Energy and RECs				
	Contract R	Solar PV	As Available Energy and REC				
	Contract S	Solar PV	As Available Energy and REC				
	Contract T	Wind RECs	REC Only				
	Contract U	Solar PV	As Available Energy and REC				
	Contract V	Solar PV	As Available Energy and REC				
	Contract W	Solar PV	As Available Energy and REC				
	Contract X	Solar PV	As Available Energy and REC				
	Contract Y	Solar Thermal	REC Only				
	Contract Z	Solar PV	As Available Energy and REC				
	Contract AA	Solar PV	As Available Energy and REC				
	Contract AB	Solar PV	As Available Energy and REC				
	Contract AC	Biomass	REC Only				
	Contract AD	Landfill Gas	Baseload Energy and RECs				
	Contract AE	Wind RECs	REC Only				
	Contract AF	Solar PV	As Available Energy and REC				
	Contract AG	Hydro	REC Only				
	Contract AH	Solar PV	As Available Energy and REC				
	Contract AI	Solar PV	As Available Energy and REC				

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 1, Page 2: Executed Contract Summary

Counterparty:		Resource Type:	Load:	Contract Duration (years):	Capacity MW	Energy MWh	Expected Annual RECs:
[redacted]	Contract AJ	Solar Thermal	REC Only	[redacted]			
	Contract AK	Solar PV	As Available Energy and REC				
	Contract AL	Biomass	Baseload Energy and RECs				
	Contract AM	Solar PV	As Available Energy and REC				
	Contract AN	Biomass	Baseload Energy and RECs				
	Contract AO	Biomass	Baseload Energy and RECs				
	Contract AP	Solar PV	As Available Energy and REC				
	Contract AQ	Biomass	Baseload Energy and RECs				
	Contract AR	Solar PV	As Available Energy and REC				
	Contract AS	Solar Thermal	REC Only				
	Contract AT	Solar PV	As Available Energy and REC				
	Contract AU	Solar PV	As Available Energy and REC				
	Contract AV	Solar PV	As Available Energy and REC				
	Contract AW	Solar Thermal	REC Only				
	Contract AX	Solar Thermal	REC Only				

Footnote

(1) These figures are total contracted RECs and not representative of expected annual deliveries

(2) Expected annual energy and REC estimates based on full project build-out (not initial capacity)

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 2: Energy Efficiency Forecast

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Energy Efficiency Forecast (GWh)	328	503	655	821	950	1,103	1,243	1,396	1,566	1,710	1,837	2,024	2,214	2,395	2,568	2,734
Maximum Energy Efficiency for REPS Compliance (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	40%	40%	40%	40%	40%	40%
PEC REPS Requirement (GWh)	8	1,123	1,133	1,146	2,322	2,350	2,386	4,037	4,095	4,152	5,265	5,335	5,401	5,468	5,539	5,607
Maximum Energy Efficiency for REPS Compliance (GWh)	-	281	283	286	581	587	597	1,009	1,024	1,038	2,106	2,134	2,160	2,187	2,216	2,243
Net Energy Efficiency for REPS	-	281	283	286	581	587	597	1,009	1,024	1,038	2,106	2,134	2,160	2,187	2,216	2,243

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 3: Proposed Retail Sales and REPS Compliance

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PEC REQUIREMENT:																
NC Retail GWh	37,444	37,776	38,185	38,705	39,164	39,770	40,365	40,953	41,518	42,122	42,683	43,209	43,740	44,310	44,854	45,441
REPS Req (%)	0.02%	3%	3%	3%	6%	6%	6%	10%	10%	10.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
REPS Req (GWh)	8	1,123	1,133	1,146	2,322	2,350	2,386	4,037	4,095	4,152	5,265	5,335	5,401	5,468	5,539	5,607
Wholesale Requirements:																
Wholesale GWh (1)	165	167	169	172	173	175	177	179	180	182	184	186	188	190	192	191
REPS Req (%)	0.02%	3.00%	3.00%	3.00%	6.00%	6.00%	6.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
REPS Req (GWh)	0	5	5	5	10	10	11	18	18	18	18	18	19	19	19	19
TOTAL REPS REQUIREMENT:	7.8	1,128.3	1,138.3	1,150.6	2,332.6	2,360.3	2,396.7	4,054.2	4,113.2	4,169.8	5,283.4	5,353.8	5,419.8	5,486.3	5,557.8	5,626.0

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Set Aside Requirements:																
PEC Solar Req %	0.02%	0.07%	0.07%	0.07%	0.14%	0.14%	0.14%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
PEC Solar Req GWh (2)	8	26	27	27	54	55	56	81	82	83	85	86	87	88	89	90
Swine Waste Req %		0.07%	0.07%	0.07%	0.14%	0.14%	0.14%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
PEC Swine Waste Req GWh (2)		26	27	27	54	55	56	81	82	83	85	86	87	88	89	90
State-Wide Poultry Waste Req GWh		170	700	900	900	900	900	900	900	900	900	900	900	900	900	900

Footnote:

(1) Wholesale load includes forecast for Waynesville, Sharpsburg, Stantonsburg, Black Creek and Lucama.

(2) Requirements are based on combined load for PEC NC Retail and Wholesale.

Progress Energy - Carolinas

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Exhibit 4: Proposed RPS Cost Cap - North Carolina

Projected Customers [1]

		2010 Actuals	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Est. Number of Res Cust	(000)	1,103	1,115	1,126	1,139	1,156	1,176	1,199	1,223	1,247	1,270	1,294	1,317	1,340	1,364	1,387	1,410	1,432
Est. Number of Comm Cust	(000)	179	181	183	187	191	195	199	203	207	211	215	219	223	227	231	235	240
Est. Number of Ind Cust	(000)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Est. Total Number of Cust	(000)	1,284	1,297	1,311	1,328	1,349	1,373	1,400	1,428	1,456	1,484	1,511	1,539	1,566	1,593	1,620	1,647	1,674

Annual Cap by Customer Account

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Residential Annual Cap Per Account		$10	$12	$12	$12	$34	$34	$34	$34	$34	$34	$34	$34	$34	$34	$34	$34
Commercial Annual Cap Per Account		$50	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Industrial Annual Cap Per Account		$500	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000

Projected Annual Total RPS Cap Amount - PEC

		Actuals	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Residential Class Amount	($ Millions)		**$11.0**	**$13.4**	**$13.5**	**$13.7**	**$39.3**	**$40.0**	**$40.8**	**$41.6**	**$42.4**	**$43.2**	**$44.0**	**$44.8**	**$45.6**	**$46.4**	**$47.1**	**$47.9**
Commercial Class Amount	($ Millions)		**$8.9**	**$27.1**	**$27.5**	**$28.0**	**$28.7**	**$29.2**	**$29.9**	**$30.5**	**$31.1**	**$31.7**	**$32.3**	**$32.9**	**$33.5**	**$34.1**	**$34.7**	**$35.3**
Industrial Class Amount	($ Millions)		**$1.0**	**$2.1**	**$2.1**	**$2.1**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**	**$2.2**
Total Amount from All Customers	($ Millions)		**$21.0**	**$42.6**	**$43.1**	**$43.8**	**$70.1**	**$71.4**	**$72.8**	**$74.3**	**$75.7**	**$77.1**	**$78.5**	**$79.9**	**$81.2**	**$82.6**	**$84.0**	**$85.4**

Footnote:

(1) The number of customer accounts reflect premise billing and represent PEC customer numbers only.

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 5: Avoided Costs

Current Avoided Cost [1]

Schedule CSP-25

	2-yr	5-yr	10-yr	15-yr
Total Nominal Avoided Energy and Capacity Cost ($ / MWh) [1]	$ 56.96	$ 58.29	$ 60.54	$ 61.11

Footnotes:

(1) Levelized energy and capacity costs as of August 1, 2011

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 6: Projected Total and Incremental Costs

($ millions)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
North Carolina Retail REPS Premium Cap	$ 21.0	$ 42.6	$ 43.1	$ 43.8	$ 70.1	$ 71.4	$ 72.8	$ 74.3	$ 75.7	$ 77.1	$ 78.5	$ 79.9	$ 81.2	$ 82.6	$ 84.0	$ 85.4
Wholesale REPS Premium Cap (1)	$ 0.1	$ 0.2	$ 0.2	$ 0.2	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4	$ 0.4
Total CAP	$ 21.1	$ 42.8	$ 43.3	$ 44.0	$ 70.5	$ 71.7	$ 73.2	$ 74.6	$ 76.1	$ 77.5	$ 78.9	$ 80.3	$ 81.6	$ 83.0	$ 84.4	$ 85.8
Total Cost of Purchases Excluding Undesignated	$ 57.5	$ 71.0	$ 92.8	$ 94.0	$ 79.6	$ 82.9	$ 84.2	$ 55.8	$ 55.6	$ 54.1	$ 41.4	$ 38.0	$ 38.0	$ 38.2	$ 38.2	$ 38.3
Avoided Cost of Purchases Excluding Undesignated	$ 38.4	$ 47.2	$ 59.9	$ 59.9	$ 48.3	$ 49.9	$ 49.8	$ 28.8	$ 28.7	$ 27.5	$ 21.2	$ 19.7	$ 19.7	$ 19.7	$ 19.7	$ 19.7
REPS PREMIUM EXCLUDING UNDESIGNATED	$ 19.1	$ 23.8	$ 32.9	$ 34.1	$ 31.3	$ 33.1	$ 34.4	$ 27.0	$ 26.9	$ 26.7	$ 20.3	$ 18.3	$ 18.4	$ 18.5	$ 18.5	$ 18.6
R&D and Incremental Expense	$ 1.2	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0	$ 2.0
TOTAL ($MM)	$ 20.4	$ 25.8	$ 34.9	$ 36.1	$ 33.3	$ 35.1	$ 36.4	$ 29.0	$ 28.9	$ 28.7	$ 22.3	$ 20.3	$ 20.4	$ 20.5	$ 20.5	$ 20.6
TOTAL Including GRT and Reg Fee ($MM)	$ 21.1	$ 26.7	$ 36.1	$ 37.3	$ 34.5	$ 36.3	$ 37.7	$ 30.0	$ 29.9	$ 29.6	$ 23.0	$ 21.0	$ 21.1	$ 21.2	$ 21.3	$ 21.3
REPS Premium Cap	$ 21.1	$ 42.8	$ 43.3	$ 44.0	$ 70.5	$ 71.7	$ 73.2	$ 74.6	$ 76.1	$ 77.5	$ 78.9	$ 80.3	$ 81.6	$ 83.0	$ 84.4	$ 85.8
Available Premium for Undesignated	$ 0.1	$ 16.1	$ 7.2	$ 6.7	$ 36.0	$ 35.5	$ 35.5	$ 44.6	$ 46.1	$ 47.8	$ 55.8	$ 59.3	$ 60.6	$ 61.8	$ 63.2	$ 64.5

Footnotes:

(1) Premium based on assumption of 0.5% of Progress Energy North Carolina retail load

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 7: REPS Compliance

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
REPS REQUIREMENT																
North Carolina Retail (GWh)	37,444	37,776	38,185	38,705	39,164	39,770	40,365	40,953	41,518	42,122	42,683	43,209	43,740	44,310	44,854	45,441
Wholesale (GWh) [1]	165	167	169	172	173	175	177	179	180	182	184	186	188	190	192	191
REPS Requirement (GWh Equivalent)	8	1,128	1,138	1,151	2,333	2,360	2,397	4,054	4,113	4,170	5,283	5,354	5,420	5,486	5,558	5,626
ENERGY EFFICIENCY (GWh Equiv.) [2]	-	281	283	286	581	587	597	1,009	1,024	1,038	2,106	2,134	2,160	2,187	2,216	2,243
COMMITTED PURCHASES (GWh Equiv.)																
Solar Generation	10	14	14	14	14	14	14	14	12	12	12	12	12	11	11	11
Biomass Generation	1,058	977	976	976	726	752	751	394	394	376	90	-	-	-	-	-
Hydro Generation	10	19	19	19	19	19	19	19	19	19	-	-	-	-	-	-
Wind Generation	-	277	281	287	555	-	-	-	-	-	-	-	-	-	-	-
Poultry Generation	-	73	218	218	218	219	218	218	218	219	218	218	218	219	218	218
Swine Generation	-	6	21	21	21	21	21	21	21	21	21	21	21	21	21	21
UNDESIGNATED RESOURCES (GWh Equiv.) [3] [4]																
Undesignated Solar Generation	3	15	25	35	46	56	66	66	66	66	66	66	66	66	66	66
Undesignated Poultry Generation	-	-	-	48	48	47	48	48	48	47	48	48	48	47	48	48
Undesignated Swine Generation	-	19	5	6	34	35	36	61	62	63	64	66	67	68	69	70
Undesignated Other Renewables	-	17	51	51	51	51	51	51	838	2,308	2,658	2,789	2,828	2,868	2,909	2,949
TOTAL SUPPLY RESOURCES AND EE (GWh Equiv.)	1,080	1,698	1,894	1,960	2,312	1,801	1,820	1,901	2,702	4,170	5,283	5,354	5,420	5,486	5,558	5,626
REPS Requirement (GWh Equiv.)	8	1,128	1,138	1,151	2,333	2,360	2,397	4,054	4,113	4,170	5,283	5,354	5,420	5,486	5,558	5,626
SUPPLY RESOURCES RELATIVE TO REQ. (GWh Equiv.)	1,073	570	756	810	(21)	(559)	(577)	(2,153)	(1,411)	-	-	-	-	-	-	-
REC BANKING																
Beginning REC Carryforward Balance (000)	1,513	2,585	3,155	3,911	4,721	4,700	4,141	3,564	1,411	-	-	-	-	-	-	-
RECs Added (Removed) (000)	1,073	570	756	810	(21)	(559)	(577)	(2,153)	(1,411)	-	-	-	-	-	-	-
Ending REC Carryforward Balance (000)	2,585	3,155	3,911	4,721	4,700	4,141	3,564	1,411	-	-	-	-	-	-	-	-
Net Supply Relative to Req. After REC Carryover (GWh Equiv.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Footnotes:

(1) Represents the requirement of wholesale customers that have agreed to have Progress Energy comply on their behalf and have contributed REPS premium dollars for this requirement

(2) Reflects the forecasted Energy Efficiency limited to 25% of REPS compliance through 2020 and 40% afterwards

(3) The undesignated resources is the amount required to meet the MWh requirement. The MWh shown may decrease due to $/customer cap limitations depending on the price of these resources

(4) The undesignated resources may include REC only purchases for compliance (no associated generation)

Progress Energy - Carolinas

2011 REPS Compliance Filing

Exhibit 8: Set Asides

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PEC Solar Energy Requirement (GWh)	7.8	26.3	26.6	26.8	54.4	55.1	55.9	81.1	82.3	83.4	84.6	85.7	86.8	87.9	89.0	90.1
PEC Swine Waste Energy Requirement (GWh)	-	26.3	26.6	26.8	54.4	55.1	55.9	81.1	82.3	83.4	84.6	85.7	86.8	87.9	89.0	90.1
State-Wide Poultry Waste Energy Requirement (GWh)	-	170.0	700.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0
Solar Purchase Summary (GWh)																
Solar Energy Requirement [1]	7.8	26.3	26.6	26.8	54.4	55.1	55.9	81.1	82.3	83.4	84.6	85.7	86.8	87.9	89.0	90.1
Contracted Solar RECs	9.9	13.6	13.6	13.6	13.6	13.6	13.6	13.5	12.1	12.1	12.1	12.1	12.1	11.3	11.1	11.1
Undesignated Solar RECs	2.8	15.0	25.2	35.5	45.7	56.0	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2
Total Solar Resources	12.6	28.6	38.8	49.1	59.3	69.6	79.8	79.8	78.4	78.4	78.4	78.4	78.4	77.6	77.4	77.4
Solar Resources Relative to Requirement (000)	4.8	2.3	12.3	22.2	4.9	14.5	23.9	(1.3)	(3.9)	(5.0)	(6.3)	(7.4)	(8.4)	(10.3)	(11.6)	(12.7)
Beginning Solar REC Bank (000)	6.1	10.8	13.1	25.4	47.6	52.6	67.1	91.0	89.7	85.8	80.7	74.5	67.1	58.7	48.4	36.7
Ending Solar REC Bank (000)	10.8	13.1	25.4	47.6	52.6	67.1	91.0	89.7	85.8	80.7	74.5	67.1	58.7	48.4	36.7	24.0
Swine Purchase Summary (GWh):																
Swine Waste Energy Requirement [1]	-	26.3	26.6	26.8	54.4	55.1	55.9	81.1	82.3	83.4	84.6	85.7	86.8	87.9	89.0	90.1
Contracted Swine	-	6.4	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Undesignated Swine		19.4	5.4	5.9	33.8	34.8	35.7	61.1	62.1	63.2	64.4	65.6	66.8	67.9	69.1	70.3
Total:	-	25.8	26.3	26.7	54.7	55.6	56.6	81.9	83.0	84.1	85.2	86.5	87.6	88.7	89.9	91.1
Poultry Waste Purchase Summary (GWh):																
Poultry Waste Energy State-Wide Requirement	-	170.0	700.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0	900.0
Contracted Poultry	-	73.4	218.0	218.0	218.0	218.6	218.0	218.0	218.0	218.6	218.0	218.0	218.0	218.6	218.0	218.0
Undesignated Poultry	-	-	-	47.5	47.5	46.9	47.5	47.5	47.5	46.9	47.5	47.5	47.5	46.9	47.5	47.5

Footnotes:

(1) Requirements are based on combined load for PEC NC Retail and Wholesale.

Progress Energy Carolinas

Integrated Resource Plan

Appendix E
Demand Side Management and Energy Efficiency

September 1, 2011

New Demand Side Management (DSM) and Energy Efficiency (EE) Programs

Progress Energy Carolinas, Inc. (PEC) continues to pursue a long-term, balanced capacity and energy strategy to meet the future electricity needs of its customers. This balanced strategy includes a strong commitment to demand side management (DSM) and energy efficiency (EE) programs, investments in renewable and emerging energy technologies, and state-of-the art power plants and delivery systems. PEC currently has the following seven EE programs, three DSM programs and one pilot program that have been approved by both the North Carolina Utilities Commission and the Public Service Commission of South Carolina:

Energy Efficiency Programs

- Residential Home Energy Improvement
- Residential Home Advantage
- Residential Neighborhood Energy Saver (Low-Income)
- Residential Lighting Program
- Residential Appliance Recycling Program
- Residential Energy Efficient Benchmarking Program
- Commercial, Industrial, and Governmental (CIG) Energy Efficiency

Demand Response Programs

- Residential EnergyWise Home℠
- CIG Demand Response Automation Program
- Distribution System Demand Response (DSDR) Program

Pilot Programs

- Solar Water Heating Pilot Program

Energy Efficiency Programs

Residential Home Energy Improvement Program

The Residential Home Energy Improvement Program offers PEC customers a variety of energy conservation measures designed to increase energy efficiency for existing residential dwellings that can no longer be considered new construction. The prescriptive menu of energy efficiency measures provided by the program allows customers the opportunity to participate based on the needs and characteristics of their individual homes. Financial incentives are provided to participants for each of the conservation measures promoted within this program. The program utilizes a network of pre-qualified contractors to install each of the following energy efficiency measures:

- High-Efficiency Heat Pumps and Central A/C
- Duct Testing & Repair

- HVAC Tune-up
- Insulation Upgrades/Attic Sealing
- Window Replacement

The Residential Home Energy Improvement program was launched in July 2009. Through July 31, 2011, there have been 44,412 participants contributing 11,503 MWh in net annualized energy savings and 11,100 kW in peak demand savings.

Residential Home Advantage (New Construction) Program

The Residential Home Advantage Program offers developers and builders the potential to maximize energy savings in various types of new residential construction. The program utilizes a prescriptive approach for developers and builders of projects for single-family, multi-family (three stories or less), and manufactured housing units (SC only). The program is also available to high rise multi-family units that are currently not eligible for ENERGY STAR® as long as each unit meets the intent of the ENERGY STAR® builder option package for their climate zone and the Home Advantage Program criteria.

The primary objectives of this program are to reduce system peak demands and energy consumption within new homes. New construction represents a unique opportunity for capturing cost effective DSM and EE savings by encouraging the investment in energy efficiency features that would otherwise be impractical or more costly to install at a later time. These are often referred to as lost opportunities.

Since the launch of the Residential Home Advantage program in December 2008, there have been 2,253 participants through July 31, 2011, contributing 5,153 MWh in net annualized energy savings and 1,790 kW in peak demand savings.

Residential Neighborhood Energy Saver (Low-Income) Program

PEC's Neighborhood Energy Saver Program was launched in October 2009 to assist low-income residential customers with the implementation of energy conservation. The program provides assistance to low-income families by installing a comprehensive package of energy conservation measures that lower energy consumption at no cost to the customer. Prior to installing measures, an energy assessment is conducted on each residence to identify the appropriate measures to install. In addition to the physical installation of measures, an important component of the Neighborhood Energy Saver program is the provision for one-on-one energy education. Each household receives education on energy saving techniques that encourage behavioral changes to help reduce and control their energy usage.

As of July 31, 2011, measures have been installed in 8,206 homes. These installed measures contributed 7,624 MWh in net annualized energy savings and 1,176 kW in peak demand savings.

Residential Lighting Program

PEC has partnered with various manufacturers and retailers across its entire service territory to offer ENERGY STAR® qualified lighting products to its customers. PEC's Residential Lighting Program was launched in January 2010 to provide both customer incentives, in the form of reduced pricing, and marketing support to retailers in order to encourage a greater adoption of ENERGY STAR® qualified or other high efficiency lighting products. The program promotes the purchase of these products using in-store and on-line promotions. PEC is also promoting a greater awareness of these products using special retail and community events. The early years of the program focus on compact fluorescent light bulbs (CFLs), with the intent to add newer lighting technologies as they become available and cost-effective.

Through July 31, 2011, 5,005,376 CFLs have been sold through the Residential Lighting Program, contributing 107,755 MWh in net annualized energy savings and 10,231 kW in peak demand savings.

Prior to implementation of the Residential Lighting Program, PEC ran a CFL Buy-Down Pilot during the last quarter of 2007 which accounted for 203,222 bulbs sold and contributed 6,706 MWh in annualized net energy savings and 630 kW in peak demand savings.

Residential Appliance Recycling Program

The Appliance Recycling Program is designed to reduce energy usage by removing less efficient refrigerators and freezers that are operating within residences across the PEC service territory. The program provides residential customers with free pick-up and an incentive of $50 for allowing PEC to collect and recycle their less efficient refrigerator or freezer and permanently remove the unit from service.

The Residential Appliance Recycling Program was launched in April 2010. As of July 31, 2011, there have been 9,873 participants contributing 6,523 MWh in net annualized energy savings and 759 kW in peak demand savings.

Residential Energy Efficient Benchmarking Program

The Residential Energy Efficient Benchmarking Program is designed to reduce residential electrical consumption by applying behavioral science principals in which eligible customers receive reports that compare their energy use with neighbors in similar homes. Participants will be periodically mailed the individualized reports and can elect to switch to on-line reports at any

time during the duration of the program. In addition to the household comparative analysis, the reports will provide specific recommendations for reducing energy consumption.

The Residential Energy Efficient Benchmarking Program was launched in July 2011. As of July 31, 2011, there have been 50,121 participants contributing 14,424 MWh in net annualized energy savings and 2,589 kW in peak demand savings.

Commercial, Industrial, and Governmental (CIG) Energy Efficiency Program

The CIG Energy Efficiency Program is available to all CIG customers interested in improving the energy efficiency of their new construction projects or existing facilities. New construction incentives provide an opportunity to capture cost effective energy efficiency savings that would otherwise be impractical or more costly to install at a later time. The retrofit market offers energy saving opportunities for CIG customers with older, energy inefficient electrical equipment. The program includes prescriptive incentives for measures that address the following major end-use categories:

- HVAC
- Lighting
- Motors & Drives
- Refrigeration

In addition, the program offers incentives for custom measures to specifically address the individual needs of customers in the new construction or retrofit markets, such as those with more complex applications or in need of energy efficiency opportunities not covered by the prescriptive measures. The program also seeks to meet the following overall goals:

- Educate and train trade allies, design firms and customers to influence selection of energy efficient products and design practices.
- Educate CIG customers regarding the benefits of energy efficient products and design elements and provide them with tools and resources to cost-effectively implement energy-saving projects.

The CIG Energy Efficiency program was launched in April 2009. As of July 31, 2011, there have been 1,183 participants contributing 71,438 MWh in net annualized energy savings and 15,871 kW in peak demand savings.

Demand Response Programs

Residential EnergyWise Home℠ Program

The Residential EnergyWise Home℠ Program is a direct load control program that allows PEC, through the installation of load control switches at the customer's premise, to remotely control the following residential appliances.

- Central air conditioning or electric heat pumps
- Auxiliary strip heat on central electric heat pumps (Western Region only)
- Electric water heaters (Western Region only)

For each of the control options above, an initial one-time bill credit of $25 following the successful installation and testing of load control device(s) and annual bill credits of $25 will be provided to program participants in exchange for allowing PEC to control the listed appliances.

The program provides PEC with the ability to reduce and shift peak loads, thereby enabling a corresponding deferral of new supply-side peaking generation and enhancing system reliability. Participating customers are impacted by (1) the installation of load control equipment at their residence, (2) load control events which curtail the operation of their air conditioning, heat pump strip heating or water heating unit for a period of time each hour, and (3) the receipt of an annual bill credit from PEC in exchange for allowing PEC to control their electric equipment.

Through July 31, 2011, the Residential EnergyWise Home℠ Program has 65,399 participants contributing 76,293 kW of summer peak load reduction capability and 4,348 kW of winter peak load reduction capability. From August 1, 2010 through July 31, 2011, there were six Residential EnergyWise Home℠ Program activations.

Residential EnergyWise Home℠			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction**
8/11/2010 15:00	8/11/2010 18:00	180	40.8
5/31/2011 16:00	5/31/2011 17:30	90	71.5
6/1/2011 16:00	6/1/2011 18:00	120	58.9
7/12/2011 15:00	7/12/2011 18:00	180	76.0
7/22/2011 15:00	7/22/2011 17:30	150	82.0
7/29/2011 15:00	7/29/2011 17:30	150	82.9

PEC has also initiated an investigation into the potential use of its residential load control program for the purposes of generating fuel savings. To accomplish this, PEC is leveraging the equipment and data collection activities associated with the measurement and verification

(M&V) for this program being deployed during the summer of 2011 and winter 2011/12. Additionally, information is being collected regarding program overrides, drop-outs, and customer complaints in attempt to help understand the potential downside customer risks associated with dispatching the program for various purposes. Results from these analyses will be addressed in PEC's 2012 IRP filing.

Commercial, Industrial, and Governmental (CIG) Demand Response Automation Program

The CIG Demand Response Automation Program allows PEC to install load control and data acquisition devices to remotely control and monitor a wide variety of electrical equipment capable of serving as a demand response resources. This program utilizes customer education, enabling two-way communication technologies, and an event-based incentive structure to maximize load reduction capabilities and resource reliability. The primary objective of this program is to reduce PEC's need for additional peaking generation by reducing PEC's seasonal peak load demands, primarily during the summer months, through deployment of load control and data acquisition technologies.

The CIG Demand Response Automation Program was launched in October 2009. As of July 31, 2011, there were 29 active installations in the program contributing 13,382 kW of available load reduction capability. From August 1, 2010 through July 31, 2011, there have been four CIG Demand Response Automation Program control events.

CIG Demand Response Automation			
Start Time	**End Time**	**Duration (Minutes)**	**MW Load Reduction**
8/11/2010 13:00	8/11/2010 19:00	360	5.2
12/15/2010 6:00	12/15/2010 10:00	240	1.0
7/12/2011 13:00	7/12/2011 19:00	360	13.5
7/22/2011 13:00	7/22/2011 19:00	360	15.3

Distribution System Demand Response Program (DSDR)

PEC and other utilities have historically utilized conservation voltage reduction (CVR) to reduce peak demand for short periods of time by lowering system voltage. This practice has been used in a limited fashion due to concerns that some customers could experience voltages below the lowest allowable level. DSDR is a program that enables PEC to increase peak load reduction capability and displace the need for additional future peaking generation capacity by investing in a robust system of advanced technology, telecommunications, equipment, and operating controls. This increased peak load reduction is accomplished while maintaining customer delivery voltage above the minimum requirements. The DSDR Program enables PEC to implement a least cost

mix of demand reduction and generation resources that meet the electricity needs of its customers.

Pilot Programs

Residential Solar Water Heating Pilot Program

This pilot program was launched in June 2009 and was designed to provide PEC with the ability to measure and validate the achievable energy savings and coincident peak impacts associated with implementing residential solar water heating in the PEC service territory. Results from the pilot program will enable PEC to determine whether it is cost effective to incorporate solar water heating as part of its least cost mix of demand reduction and generation measures to meet the electricity needs of its customers. The data from this pilot program will also enable PEC to form a validated foundation for determining the future value of energy efficiency rebates or potential REC values, and create a better database of operational characteristics that could be used by other stakeholders (i.e., vendors/installers, developers, homeowners, solar advocates, policy makers, regulators, etc.).

As of July 31, 2011, there are 150 customers participating in the Residential Solar Water Heating Pilot Program, which has a cap of 150 total participants in PEC's service area.

Summary of Prospective Program Opportunities

PEC is considering the following future enhancements to its DSM/EE portfolio: (1) the addition of a small commercial direct install program, (2) expansion of existing programs to include additional measures, (3) program modifications to account for changing market conditions and new measurement and verification (M&V) results, and (4), other EE research & development pilots. Proposed revisions to the Residential Home Energy Improvement program include the addition of high efficiency room air conditioners and heat pump water heaters to the list of measures being promoted by the program and the discontinuation of the level-1 tune-up (coil cleaning) measure. The Residential Home Advantage and Residential Lighting programs are also under review to account for upcoming changes in codes and standards, as well as new lighting technologies.

DSM and EE Forecasts

On March 16, 2009, a DSM Potential Study Final Report for PEC was completed and issued by ICF International. The primary objective of this study was to characterize the realistically achievable potential for a variety of DSM and EE programs in the PEC service territory under a specific set of assumptions, which included the significant effect of certain large commercial and industrial customers "opting-out" of the programs, thereby reducing the amount of potential that

could be developed by PEC. In August 2010, ICF International updated that forecast of PEC's DSM/EE potential based on updated avoided cost projections and the addition of several measures that were not part of the original study.

While these estimates are suitable for use in long-range system planning models and integrated resource planning, the study did not attempt to closely forecast DSM/EE achievements in the short-term or from year to year. Such an annual accounting is highly sensitive to the nature of programs adopted, the timing of the introduction of those programs, and other factors. In contrast, this study illustrates the approximate DSM/EE impacts that may be possible over an extended time period if the study assumptions hold, as well as the approximate cost of those impacts.

PEC's forecast of DSM/EE program savings for integrated resource planning purposes are based on the results of the updated potential study. The tables below show the projected composite impacts of all DSM, EE, and DSDR programs implemented since the adoption of North Carolina Senate Bill 3 (SB-3) in 2007, including the expected potential from program growth, program enhancements and future new programs. The tables do not include savings from previously existing programs, such as large load Curtailment Rates or Voltage Control, which will be discussed later in this document.

Peak MW Demand Savings for New Post SB-3 DSM/EE (at generator)

	Summer Peak MW Savings				Winter Peak MW Savings			
Year	**DSM**	**EE**	**DSDR**	**Total**	**DSM**	**EE**	**DSDR**	**Total**
2012	139	72	241	453	18	38	241	297
2013	196	107	247	550	27	59	247	333
2014	250	146	253	650	36	86	253	375
2015	289	183	259	731	43	111	259	412
2016	321	219	264	804	45	131	264	440
2017	344	258	268	871	47	154	268	469
2018	360	301	272	933	48	179	272	499
2019	370	348	277	995	49	206	277	532
2020	377	396	281	1,054	51	235	281	567
2021	381	439	286	1,107	51	261	286	598
2022	384	485	290	1,159	52	288	290	630
2023	386	533	295	1,213	52	318	295	665
2024	387	580	299	1,267	52	348	299	700
2025	388	626	304	1,318	52	377	304	733
2026	389	669	309	1,367	53	405	309	766

Annual MWh Energy Savings (at generator)

Year	DSM	EE	DSDR	Total Savings
2012	2,079	453,767	48,931	504,777
2013	2,927	604,739	49,934	657,600
2014	3,749	770,106	50,883	824,738
2015	4,352	898,617	51,718	954,687
2016	4,827	1,049,971	52,567	1,107,366
2017	5,177	1,189,737	53,360	1,248,274
2018	5,409	1,341,482	54,181	1,401,072
2019	5,562	1,511,254	54,998	1,571,814
2020	5,666	1,653,810	55,837	1,715,313
2021	5,734	1,779,851	56,680	1,842,265
2022	5,774	1,966,779	57,533	2,030,086
2023	5,799	2,155,526	58,399	2,219,724
2024	5,819	2,335,892	59,284	2,400,995
2025	5,835	2,508,257	60,188	2,574,280
2026	5,849	2,672,981	61,127	2,739,957

PEC is planning to commence a new DSM/EE potential study by the end of the year in preparation for the 2012 biennial IRP filing. It has been over three-years since work on the original PEC Potential Study began in 2008. All eleven of the DSM/EE programs/pilots reported above were also implemented during this period. Thus, there is good reason to initiate a new DSM/EE potential study. A new study would include the impact of new technologies, account for new appliance efficiency standards and building codes, and incorporate new information regarding appliance saturations, customer growth projections and any other relevant factors affecting electricity use.

Previously Existing Demand Side Management and Energy Efficiency Programs

Prior to the passage of North Carolina Senate Bill 3 in 2007, PEC had a number of DSM/EE programs in place. These programs are available in both North and South Carolina and include the following:

Existing Energy Efficiency Programs

Energy Efficient Home Program

PEC introduced in the early 1980's an Energy Efficient Home program. This program provides residential customers with a 5% discount of the energy and demand portions of their electricity

bills when their homes met certain thermal efficiency standards that were significantly above the existing building codes and standards. Homes that pass an ENERGY STAR® test receive a certificate as well as a 5% discount on the energy and demand portions of their electricity bills. Through December 2010, 281,451 dwellings system-wide qualified for the discount.

Energy Efficiency Financing

PEC began offering energy efficiency financing for its residential customers through its "Home Energy Loan Program" in 1981. Since the last biennial report, energy efficiency financing options have now been integrated within PEC's Residential Home Energy Improvement program.

Existing Demand Response (DR) Programs

Time-of-Use Rates

PEC has offered voluntary Time-of-Use (TOU) rates to all customers since 1981. These rates provide incentives to customers to shift consumption of electricity to lower-cost off-peak periods and lower their electric bill.

Thermal Energy Storage Rates

PEC began offering thermal energy storage rates in 1979. The present General Service (Thermal Energy Storage) rate schedule uses two-period pricing with seasonal demand and energy rates applicable to thermal storage space conditioning equipment. Summer on-peak hours are noon to 8 p.m. and non-summer hours of 6 a.m. to 1 p.m. weekdays.

Real-Time Pricing

PEC's Large General Service (Experimental) Real Time Pricing tariff was implemented in 1998. This tariff uses a two-part real time pricing rate design with baseline load representative of historic usage. Hourly rates are provided on the prior business day. A minimum of 1 MW load is required. This rate schedule is presently fully subscribed.

Curtailable Rates

PEC began offering its curtailable rate options in the late 1970s, and presently has two tariffs whereby industrial and commercial customers receive credits for PEC's ability to curtail system load during times of high energy costs and/or capacity constrained periods.

Voltage Control

This procedure involves reducing distribution voltage during periods of capacity constraints, representing a potential system reduction of approximately 75 MW. This level of reduction does not adversely impact customer equipment or operations.

Projected summer peak demand savings for all PEC existing and new DSM/EE programs not embedded in the load forecast are presented in the table below.

Summer Peak MW Demand Savings for All DSM/EE (at generator)

Year	Pre SB-3 Programs		Post SB-3 Programs	All DSM/EE Programs
	Curtailable Rates	Voltage Control	DSM/EE/DSDR	
2012	275	75	453	803
2013	275	76	550	901
2014	275	78	650	1,003
2015	275	79	731	1,085
2016	275	81	804	1,160
2017	275	82	871	1,228
2018	275	84	933	1,292
2019	275	84	995	1,354
2020	275	86	1,054	1,415
2021	275	88	1,107	1,470
2022	275	89	1,159	1,523
2023	275	90	1,213	1,578
2024	275	92	1,267	1,634
2025	275	93	1,318	1,686
2026	275	95	1,367	1,737

Summary of Available Existing Demand-Side and Energy Efficiency Programs

The following table provides current information available at the time of this report on PEC's existing DSM/EE programs (i.e., those programs that were in effect prior to January 1, 2007). This information, where applicable, includes program type, capacity, energy, and number of customers enrolled in the program as of the end of 2010, as well as load control activations since those enumerated in PEC's last biennial resource plan. The energy savings impacts of these existing programs are embedded within PEC's load and energy forecasts.

Program Description	Type	Capacity (MW)	Annual Energy (MWH)	Participants	Activations Since Last Biennial Report
Energy Efficiency Programs[1]	EE	488	NA	NA	NA
Real Time Pricing (RTP)[1]	DSM	22	NA	100	NA
Commercial & Industrial TOU[1]	DSM	5	NA	23,689	NA
Residential TOU[1]	DSM	12	NA	28,787	NA
Curtailable Rates	DSM	275	NA	86	0
Voltage Control	DSM	75	NA	NA	62

There were no Large Load Curtailment activations during the August 2010 through July 2011 period since PEC's last biennial resource plan. Voltage reduction was activated 62 times from August 2010 through July 2011. The following table shows the date, starting and ending time, and duration for each of those voltage reduction activations.

Voltage Reduction		
Start Time	**End Time**	**Duration (Minutes)**
8/2/2010 13:00	8/2/2010 19:00	360
8/3/2010 13:00	8/3/2010 19:01	361
8/4/2010 13:00	8/4/2010 19:00	360
8/6/2010 13:00	8/6/2010 18:59	359
8/9/2010 13:00	8/9/2010 18:59	359
8/13/2010 12:59	8/13/2010 18:59	360
8/16/2010 12:59	8/16/2010 18:59	360
8/17/2010 13:33	8/17/2010 18:59	326
8/18/2010 13:00	8/18/2010 19:00	360
8/20/2010 13:00	8/20/2010 19:00	360
8/23/2010 12:59	8/23/2010 19:00	361
8/26/2010 13:00	8/26/2010 18:59	359
8/30/2010 13:00	8/30/2010 18:59	359
9/1/2010 12:25	9/1/2010 12:31	6
9/5/2010 14:54	9/5/2010 15:05	11
9/8/2010 12:59	9/8/2010 19:00	361
9/9/2010 13:00	9/9/2010 19:00	360
10/7/2010 0:14	10/7/2010 0:29	15
10/10/2010 11:28	10/10/2010 11:44	16

[1] Impacts from these existing programs are embedded within the load and energy forecast.

Voltage Reduction		
Start Time	**End Time**	**Duration (Minutes)**
10/29/2010 8:16	10/29/2010 8:25	9
11/7/2010 14:29	11/7/2010 14:36	7
11/12/2010 16:20	11/12/2010 16:29	9
12/2/2010 23:17	12/2/2010 23:26	9
12/3/2010 6:36	12/3/2010 6:45	9
12/19/2010 23:36	12/19/2010 23:55	19
1/13/2011 6:00	1/13/2011 8:00	120
1/13/2011 18:00	1/13/2011 21:00	180
1/20/2011 6:00	1/20/2011 8:00	120
1/21/2011 8:43	1/21/2011 8:51	8
1/23/2011 1:02	1/23/2011 1:26	24
1/24/2011 6:00	1/24/2011 8:01	121
1/24/2011 17:59	1/24/2011 20:59	180
1/25/2011 6:01	1/25/2011 8:00	119
1/27/2011 18:00	1/27/2011 20:59	179
1/28/2011 6:00	1/28/2011 8:00	120
2/3/2011 6:00	2/3/2011 8:00	120
2/3/2011 18:00	2/3/2011 21:13	193
2/4/2011 6:00	2/4/2011 8:00	120
2/8/2011 18:01	2/8/2011 20:59	178
2/9/2011 6:06	2/9/2011 8:00	114
2/10/2011 18:00	2/10/2011 20:59	179
2/11/2011 6:00	2/11/2011 8:00	120
4/12/2011 10:27	4/12/2011 10:36	9
4/16/2011 18:54	4/16/2011 19:00	6
5/16/2011 14:50	5/16/2011 14:55	5
5/22/2011 21:14	5/22/2011 22:00	46
6/14/2011 13:00	6/14/2011 19:05	365
6/21/2011 13:00	6/21/2011 19:00	360
6/21/2011 23:49	6/21/2011 23:59	10
6/23/2011 13:00	6/23/2011 19:00	360
6/27/2011 13:01	6/27/2011 19:00	359
6/29/2011 13:01	6/29/2011 19:02	361
7/1/2011 22:41	7/1/2011 22:54	13
7/7/2011 13:00	7/7/2011 19:00	360
7/11/2011 13:00	7/11/2011 18:59	359
7/14/2011 13:00	7/14/2011 19:00	360
7/19/2011 12:59	7/19/2011 19:00	361
7/21/2011 12:59	7/21/2011 19:00	361

Voltage Reduction		
Start Time	**End Time**	**Duration (Minutes)**
7/26/2011 15:40	7/26/2011 15:55	15
7/27/2011 13:00	7/27/2011 19:00	360
7/28/2011 13:00	7/28/2011 19:00	360
7/29/2011 19:20	7/29/2011 19:32	12

Discontinued Demand Side Management and Energy Efficiency Programs

PEC has not discontinued any of its DSM/EE programs since the last Resource Plan filing.

Rejected Demand Side Management and Energy Efficiency Programs

PEC has not rejected any evaluated DSM/EE programs since the last Resource Plan filing.

Current and Anticipated Consumer Education Programs

In addition to the DSM/EE programs previously listed, PEC also has the following informational and educational programs.

- Customized Home Energy Report
- On Line Account Access
- "Lower My Bill" Toolkit
- Online Energy Saving Tips
- CIG Account Management
- eSMART Kids Website
- SunSense Schools Program
- Community Events

Customized Home Energy Report

During 2009, PEC launched a new educational tool available to all residential customers called the Customized Home Energy Report. This free tool educates customers about their household energy usage and how to save money by saving energy. The customer answers a questionnaire either online via www.progresscher.com or through the mail, and then receives a report that details their energy usage and educates them on specific ways to reduce their energy consumption. Additionally, the report provides specific information about energy efficiency programs and rebates offered by Progress Energy that are uniquely applicable to the customer based on data obtained within the questionnaire.

On Line Account Access

On Line Account Access provides energy analysis tools to assist customers in gaining a better understanding of their energy usage patterns and identifying opportunities to reduce energy consumption. The service allows customers to view their past 24 months of electric usage including the date the bill was mailed; number of days in the billing cycle; and daily temperature information. This program was initiated in 1999.

"Lower My Bill" Toolkit

This tool, implemented in 2004, provides on-line tips and specific steps to help customers reduce energy consumption and lower their utility bills. These range from relatively simple no-cost steps to more extensive actions involving insulation and heating and cooling equipment.

Online Energy Saving Tips

PEC has been providing tips on how to reduce home energy costs since approximately 1981. PEC's web site includes information on household energy wasters and how a few simple actions can increase efficiency. Topics include: Energy Efficient Heat Pumps, Mold, Insulation R-Values, Air Conditioning, Appliances and Pools, Attics and Roofing, Building/Additions, Ceiling Fans, Ducts, Fireplaces, Heating, Hot Water, Humidistats, Landscaping, Seasonal Tips, Solar Film, and Thermostats.

CIG Account Management

All PEC commercial, industrial, and governmental customers with an electrical demand greater than 200 kW (approximately 4,800 customers) are assigned to a PEC Account Executive (AE). The AEs are available to personally assist customers in evaluating energy improvement opportunities and can bring in other internal resources to provide detailed analyses of energy system upgrades. The AEs provide their customers with a monthly electronic newsletter which includes energy efficiency topics and tips. They also offer numerous educational opportunities in group settings to provide information about PEC's new DSM and EE program offerings and to help ensure the customers are aware of the latest energy improvement and system operational techniques.

e-SMART Kids Website

PEC is offering an educational online resource for teachers and students in our service area called e-SMART Kids. The web site educates students on energy efficiency, conservation, and renewable energy and offers interactive activities in the classroom. It is available on the web at http://progressenergy.e-smartonline.net/.

SunSense Schools Program

The SunSense Schools program was available to schools in the PEC service territory during the 2009-2010 school-year, and was announced by PEC in March 2009. This solar education program was the first of its kind in the Carolinas, and was designed to give middle and high school students and faculty a unique, hands-on opportunity to learn more about solar energy. Five winning schools received a two-kilowatt solar photovoltaic system installed on their campus along with internet-based tracking equipment that shows the real-time energy output. Progress Energy was proud to bring this exciting opportunity to local schools. Details on the winning schools and their solar arrays are available at www.progress-energy.com/sunsense.

Community Events

PEC representatives participated in community events across the service territory to educate customers about PEC's energy efficiency programs and rebates and to share practical energy saving tips. PEC energy experts attended events and forums to host informational tables and displays, and distributed handout materials directly encouraging customers to learn more about and sign up for approved DSM/EE energy saving programs.

Progress Energy Carolinas

Integrated Resource Plan

Appendix F
Air Quality and Climate Change

September 1, 2011

Air Quality Legislative and Regulatory Issues

Progress Energy Carolinas (PEC) is subject to various federal and state environmental compliance laws and regulations that require reductions in air emissions of nitrogen oxides (NOx), sulfur dioxide (SO_2), and mercury. PEC is installing control equipment pursuant to the provisions of the NOx SIP Call, the North Carolina Clean Smokestacks Act, the Clean Air Interstate Rule (CAIR), the Clean Air Visibility Rule (CAVR) and mercury regulation, which are discussed below.

NOx SIP Call

The EPA finalized the NOx State Implementation Plan (SIP) Call in October 1998. The NOx SIP Call requires reductions in NOx emissions from power plants and other large combustion sources in 21 eastern states. The regulation is designed to reduce interstate transport of NOx emissions that contribute to non-attainment for ground-level ozone. As a result, PEC has installed NOx controls on many of its units.

North Carolina Clean Smokestacks Act

In June 2002, the North Carolina Clean Smokestacks Act was enacted, requiring the state's electric utilities to reduce NOx and SO_2 emissions from their North Carolina coal-fired power plants in phases by 2013. PEC owns and operates approximately 5,000 MW of coal-fired generation capacity in North Carolina that is affected by the Clean Smokestacks Act.

As a result of compliance with the Clean Smokestacks Act and the NOx SIP Call, PEC has significantly reduced SO_2 and NOx emissions from its NC coal-fired units. By 2013, PEC projects SO_2 emissions will be reduced by approximately 80% and NOx emissions will be reduced by approximately 70% from their year 2000 levels.

Cross-State Air Pollution Rule (CSAPR)

On March 10, 2005, the EPA issued the final CAIR, which required the District of Columbia and 28 states, including North and South Carolina, to reduce NOx emissions in two phases beginning in 2009 and 2015, respectively, and reduce SO_2 in two phases beginning in 2010 and 2015, respectively. States were required to adopt rules implementing the CAIR. The EPA approved both the North and South Carolina CAIR rules in 2007.

On July 11, 2008, the U.S. Court of Appeals for the District of Columbia (D.C. Court of Appeals) vacated the CAIR in its entirety. The Court ruled that the CAIR would remain in effect until EPA revised or replaced it with a regulation that complies with the Court's decision. On July 7, 2011 the EPA issued the final Cross-State Air Pollution Rule (CSAPR), which is the regulatory program that replaces the CAIR. The CSAPR contains limited intrastate emissions trading programs for NOx and SO_2 emissions and significantly more stringent overall emissions targets. PEC is reviewing the impacts of the CSAPR on the generating fleet, and additional reductions may be needed at some of PEC's units.

Clean Air Visibility Rule (CAVR)

On June 15, 2005, the EPA issued the final CAVR. The EPA's rule requires states to identify facilities, including power plants, built between August 1962 and August 1977 with the potential to produce emissions that affect visibility in 156 specially protected areas, including national parks and wilderness areas. To help restore visibility in those areas, states must require the identified facilities to install Best Available Retrofit Technology (BART) to control their emissions. PEC's BART eligible units are Asheville Units No. 1 and No. 2, Roxboro Units No. 1, No. 2 and No. 3, and Sutton Unit No. 3. PEC's compliance plan to meet the NC Clean Smokestacks Act requirements fulfills the BART requirements.

Mercury Regulation

On March 15, 2005, the EPA finalized two separate but related rules: the CAMR that set mercury emissions limits to be met in two phases beginning in 2010 and 2018, respectively, and encouraged a cap-and-trade approach to achieving those caps, and; a delisting rule that eliminated any requirement to pursue a maximum achievable control technology (MACT) approach for limiting mercury emissions from coal-fired power plants. On February 8, 2008, the D. C. Court of Appeals vacated both the delisting determination and the CAMR. As a result, the EPA subsequently announced that it will develop a MACT standard consistent with the agency's original listing determination. The United States District Court for the District of Columbia has issued an order requiring the EPA to issue a final MACT standard for power plants by November 16, 2011. On May 3, 2011 EPA published a proposed MACT rule to regulate mercury and other hazardous air pollutants from coal- and oil-fired electric utility steam generating units. The proposed rule would establish strict emission standards for mercury, hydrogen chloride (HCl, as a surrogate for acid gases), and particulate matter (as a surrogate for non-mercury metals). The final MACT rule may require additional emission controls at PEC's coal-fired facilities. Although the federal CAMR was vacated, state-specific mercury control requirements remain in effect. The North Carolina mercury rule contains a requirement that all coal-fired units in the state install mercury controls by December 31, 2017, and it requires compliance plan applications to be submitted in 2013.

National Ambient Air Quality Standards (NAAQS)

On March 12, 2008, the EPA announced changes to the NAAQS for ground-level ozone. The EPA revised the 8-hour primary and secondary standards from 0.08 parts per million to 0.075 parts per million. As a result of legal action regarding the revised standard, in September 2009 the EPA announced that it is reconsidering the level of the ozone NAAQS. On January 7, 2010, the EPA announced a proposed revision to the primary ozone NAAQS. In addition, the EPA proposed a cumulative seasonal secondary standard. The EPA plans to finalize the revisions in the third quarter of 2011, and to designate nonattainment areas by August 2012. The proposed revisions are significantly more stringent than the current NAAQS. Should additional nonattainment areas be designated in our service territories, PEC may be required to install additional emission controls at some facilities.

On October 15, 2008, the EPA revised the NAAQS for lead to 0.15 micrograms per cubic meter on a rolling 3-month average basis. The revision is not expected to have a material impact on PEC's operations.

On January 25, 2010, the EPA announced a revision to the primary NAAQS for NOx. Since 1971, when the first NAAQS were promulgated, the standard for NOx has been an annual average. The EPA has retained the annual standard and added a new 1-hour NAAQS. In conjunction with proposing changes to the standard, the EPA is also requiring an increase in the coverage of the monitoring network, particularly near roadways where the highest concentrations are expected to occur due to traffic emissions. The EPA plans to designate nonattainment areas by January 2012. Currently, there are no monitors reporting violation of the new standard in PEC's service territories, but the expanded monitoring network will provide additional data, which could result in additional nonattainment areas.

On June 22, 2010, the EPA published a final new 1-hour NAAQS for SO_2, which sets the limit at 75 parts per billion. The primary NAAQS on a 24-hour average basis and annual average will be eliminated under the new rule. The new 1-hour standard is a significant increase in the stringency of the standard and increases the risk of nonattainment, especially near uncontrolled coal-fired facilities. In addition, for the first time the EPA plans to use air quality modeling in addition to monitor data in determining whether areas are attaining the new standard, which is likely to expand the number of nonattainment areas. EPA is scheduled to designate nonattainment areas in June 2012. Should additional nonattainment areas be designated in PEC's service territories, PEC may be required to install additional emission controls at some of its facilities.

Global Climate Change

PEC has identified principles that should be incorporated into any global climate change policy. In addition to reports issued in 2006 and 2008, PEC issued an updated report on global climate change in 2010 as part of its annual Corporate Responsibility Report, which further evaluates this dynamic issue. While PEC participates in the development of a national climate change policy framework, it will continue to actively engage others in its region to develop consensus-based solutions, as was done with the NC Clean Smokestacks Act. In North Carolina, PEC participated in the Legislative Commission on Global Climate Change, which developed recommendations on how the state should address the issue. In South Carolina, PEC participated in the Governor's Climate, Energy, and Commerce Committee, which released recommendations on how the state should address the issue in August 2008.

On April 2, 2007, the U.S. Supreme Court ruled that the EPA has the authority under the Clean Air Act (CAA) to regulate CO_2 emissions from new automobiles. On December 15, 2009, the EPA announced that six GHGs (CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride) pose a threat to public health and welfare under the CAA. A number of parties have filed petitions for review of this finding in the D.C. Court of Appeals.

On April 1, 2010, the EPA and the National Highway Transportation Safety Administration jointly announced the first regulation of GHG emissions from new vehicles. The EPA is regulating mobile source GHG emissions under Section 202 of the CAA, which according to the

EPA also results in stationary sources, such as coal-fired power plants, being subject to regulation of GHG emissions under the CAA. On March 29, 2010, the EPA issued an interpretation that stationary source GHG emissions will be subject to regulation under the CAA beginning in January 2011. On May 13, 2010, the EPA issued the final "tailoring rule", which establishes the thresholds for applicability of Prevention of Significant Deterioration (PSD) permitting requirements for GHG emissions from stationary sources such as power plants and manufacturing facilities. The rule establishes the GHG permitting threshold at 75,000 tons per year, and the permitting requirements for GHG emissions from stationary sources began January 2, 2011. These developments may require PEC to address GHG emissions in air quality permits.

In December, 2010, the EPA announced a settlement with environmental groups and several states that established a schedule by which EPA would promulgate New Source Performance Standards (NSPS) for GHG emissions from new and modified electric utility units. The EPA is scheduled to issue a proposed rule by September 30, 2011 and finalize it by May 26, 2012.

Although Congressional activity on climate change has decreased, Congress may consider passing GHG emissions legislation in the future. The full impact of such legislation, if enacted, and additional regulation resulting from other federal GHG initiatives cannot be determined at this time; however, PEC anticipates that it could result in significant cost increases over time.

Progress Energy Carolinas

Integrated Resource Plan

Appendix G
Transmission and NC Rule R8-62

September 1, 2011

This appendix lists transmission line and substation additions, and a discussion of the adequacy of PEC's transmission system. This appendix also provides information pursuant to the North Carolina Utility Commission Rule R8-62.

PEC Transmission Line Additions

	LOCATION				
YEAR	FROM	TO	CAPACITY MVA	VOLTAGE KV	COMMENTS
2011	Richmond	Fort Bragg Woodruff Street	1195	230	New
	Asheboro	Pleasant Garden (Duke)	1195	230	New
	Rockingham	West End East	1195	230	New
	Clinton	Lee Sub	628	230	New
2014	Harris	RTP Switching Sta.	1195	230	New
2017	Greenville	Kinston Dupont	615	230	New

PEC Substation Additions

YEAR	SUBSTATION NAME	COUNTY	STATE	VOLTAGE (KV)	MVA	COMMENTS
2011	Mt Olive	Duplin	NC	230/115	200	New
2012	West End	Moore	NC	230/115	600	Uprate
	Lee Sub	Wayne	NC	230/115	N/A	Modification
	Folkstone	Onslow	NC	230/115	200	New
2013	Jacksonville	Onslow	NC	230	300	New
	Sumter	Sumter	SC	230	N/A	Modification
	Selma	Johnston	NC	230/115	400	Uprate
	Sutton Plant	Brunswick	NC	230/115	N/A	Modification
2014	Fayetteville	Cumberland	NC	230/115	600	Uprate
2016	Falls	Wake	NC	230/115	600	Uprate

Rule R8-62: Certificates of environmental compatibility and public convenience and necessity for the construction of electric transmission lines in North Carolina.

(p) Plans for the construction of transmission lines in North Carolina (161 kV and above) shall be incorporated in filings made pursuant to Commission Rule R8-60. In addition, each public utility or person covered by this rule shall provide the following information on an annual basis no later than September 1:

(1) For existing lines, the information required on FERC Form 1, pages 422, 423, 424, and 425, except that the information reported on pages 422 and 423 may be reported every five years.

Please refer to the Company's FERC Form No. 1 filed with NCUC in April, 2011.

(p) Plans for the construction of transmission lines in North Carolina (161 kV and above) shall be incorporated in filings made pursuant to Commission Rule R8-60. In addition, each public utility or person covered by this rule shall provide the following information on an annual basis no later than September 1:

(2) For lines under construction, the following:

a. Commission docket number;

b. Location of end point(s);

c. length;

d. range of right-of-way width;

e. range of tower heights;

f. number of circuits;

g. operating voltage;

h. design capacity;

i. date construction started;

j. projected in-service date;

See following pages

Richmond-Fort Bragg Woodruff Street 230 kV Line

Project Description: Construct 60 miles of new 230 kV line from the Richmond 500 kV Substation in Richmond County to the Fort Bragg Woodruff Street 230 kV Substation in Cumberland County.

a. Commission docket number; NCUC Docket No. E2, Sub 925
b. Location of end point(s); Richmond and Cumberland Counties
c. Length; 60 Miles
d. Range of right-of-way width; 45-100 feet
e. Range of tower heights; 75 – 130 feet
f. Number of circuits; 1
g. Operating voltage; 230 kV
h. Design capacity; 1195 MVA
i. Estimated date for starting construction; May 2009 Right-of-way clearing underway, July 2009 – Construction underway
j. In-service date; June 2011

Asheboro – Pleasant Garden 230 kV Line

Project Description: Construct 22 miles of new 230 kV line from the Asheboro 230 kV Substation in Randolph County to Duke Power's Pleasant Garden 230 kV Substation in Guilford Counties.

a. Commission docket number; NCUC Docket No. E2, Sub 920
b. Location of end points(s); Randolph (Asheboro) and Guilford (Pleasant Garden)
c. Length; 18.9 miles
d. Range of right-of-way width; 100 feet
e. Range of tower heights; 80 feet
f. Number of circuits; 1
g. Operating voltage; 230 kV
h. Design capacity; 1195 MVA
i. Estimated date for starting construction; January 2010 – Clearing, May 2010-Construction
j. In-service date; June 2011

Rockingham-West End East 230 kV Line

Project Description: Construct 32 miles of new 230 kV line from the Rockingham 230 kV Substation in Richmond County to the West End 230 kV Substation in Moore County.

a. Commission docket number; NCUC Docket No. E2, Sub 933
b. Location of end points(s); Richmond and Moore Counties
c. Length; 32 miles
d. Range of right-of-way width; 100 feet
e. Range of tower heights; 75 - 110 feet
f. Number of circuits; 1
g. Operating voltage; 230 kV
h. Design Capacity; 1195 MVA
i. Estimated date for starting construction; October 2009-Clearing, March 2010-Construction
j. In-service date; June 2011

Clinton – Lee Substation 230 kV Line

Project Description: Construct approximately 28 miles of new 230 kV transmission line from the Lee Substation in Wayne County to the Clinton 230 kV Substation in Sampson County.

a. Commission docket number; NCUC Docket No. E-2, Sub 796
b. Location of end point(s); Wayne and Sampson Counties
c. Length; 28 Miles
d. Range of right-of-way width; 100 feet
e. Range of tower heights; 90 – 120 feet
f. Number of circuits; 1
g. Operating voltage; 230 kV
h. Design capacity; 628 MVA
i. Estimated date for starting construction; July 2010-construction underway (Right-of-way has been cleared)
j. Projected in-service date; December 2011

Harris – Research Triangle Park (RTP) 230kV Line

Project Description: Construct 22 miles of new 230 kV line from the Harris 230 kV Substation in Wake County to the RTP 230 kV Substation in Wake County. The four-mile segment from Amberly Substation to RTP Substation is in service and built on self-supporting single poles. The remaining construction is planned to be placed in service 6/2014 and consists of: a four-mile segment from Harris Substation to Apex US1 Substation built on H-frame construction; the seven-mile segment from Apex US1 to Green Level Substation is an existing 115 kV line, which will be removed and rebuilt as 230 kV on self-supporting single poles; the remaining seven-mile segment from Green Level Substation to Amberly Substation will be built on self-supporting single poles.

a. Commission docket number; NCUC Docket No. E2, Sub 914
b. County location of end point(s); Wake
c. Approximate length; 22 miles
d. Range of right-of-way width; 70 feet
e. Range of tower heights; 100 feet
f. Number of circuits; 1
g. Operating voltage; 230 kV
h. Design capacity; 1195 MVA
i. Estimated date for starting construction; 2010- RTP-Amberly 230 kV Section in-service Amberly-Green Level Section is Cleared, 2011- Construction of line to resume.
j. Projected in-service date; June 2014 (Delayed due to updated load projections)

(p) Plans for the construction of transmission lines in North Carolina (161 kV and above) shall be incorporated in filings made pursuant to Commission Rule R8-60. In addition, each public utility or person covered by this rule shall provide the following information on an annual basis no later than September 1:

(3) For all other proposed lines, as the information becomes available, the following:

a. county location of end point(s);
b. approximate length;
c. typical right-of-way width for proposed type of line;
d. typical tower height for proposed type of line;
e. number of circuits;
f. operating voltage;
g. design capacity;
h. estimated date for starting construction (if more than 6 month delay from last report, explain); and
i. estimated in-service date (if more than 6-month delay from last report, explain). (NCUC Docket No. E-100, Sub 62, 12/4/92; NCUC Docket No. E-100, Sub 78A, 4/29/98.)

See following pages.

Greenville – Kinston DuPont 230 kV Line

Project Description: Construct approximately 25.3 miles of new 230 kV transmission line from the Greenville 230 kV Substation in Pitt County to the Kinston DuPont 230 kV Substation in Lenoir County. Pursuant to N.C.G.S. 62-101, no Certificate of Environmental Compatibility and Public Convenience and Necessity is required because the rights-of-way for this line were acquired prior to March 6, 1989.

a. County location of end point(s); Lenoir and Pitt Counties
b. Approximate length; 25.3 Miles
c. Typical right-of-way width for proposed type of line; 100 Feet
d. Typical tower height for proposed type of line; 80 - 120 Feet
e. Number of circuits; 1
f. Operating voltage; 230 kV
g. Design capacity; 628 MVA
h. Estimated date for starting construction; March 2015 (Delayed due to updated load projections)
i. Estimated in-service date; June 2017 (Delayed due to updated load projections)

Discussion of the adequacy of the PEC transmission system

The PEC transmission system consists of approximately 6,000 miles of 69, 115, 138, 161, 230 and 500 kV transmission lines and just over 100 transmission-class switching stations in its North and South Carolina service areas. PEC has transmission interconnections with Duke Energy Carolinas, PJM (via American Electric Power and Dominion Virginia Power), South Carolina Electric & Gas Company, South Carolina Public Service Authority, Tennessee Valley Authority, and Yadkin. The primary purpose of this transmission system is to provide the electrical path necessary to accommodate the transfer of bulk power as required to ensure safe, reliable, and economic service to control area customers.

Transmission planning typically takes into consideration a 10-year planning period. Required engineering, scheduling, and construction lead times can be satisfactorily accommodated within this planning period. Planning is based on PEC's long-range system peak load forecast, which includes all territorial load and contractual obligations; PEC's resource plan; and local area forecasts for retail, wholesale, and industrial loads.

The PEC transmission system is planned to comply with the North American Electric Reliability Corporation (NERC) Reliability Standards. The Energy Policy Act of 2005 included new federal requirements to create an electric reliability organization (ERO) with enforceable mandatory reliability rules with Federal Energy Regulatory Commission (FERC) oversight. FERC chose NERC to fulfill the role of ERO for the industry. Compliance with the NERC Reliability Standards became mandatory on June 18, 2007 and is enforced by the NERC Regions. PEC's service area is within the SERC Reliability Corporation (SERC) Region. SERC annually checks for compliance and conducts detailed audits of standards compliance every three years. The most recent PEC audit, in the spring of 2011, found "no possible violations" of the NERC Reliability Standards.

Planning studies are performed to assess and test the strength and limits of the PEC transmission system to meet its load responsibility and to move bulk power between and among other electrical systems. PEC will study the system impact and facilities requirements of all transmission service requests pursuant to its established procedures.

Transmission planning requires power flow simulations based on detailed system models. PEC participates with neighboring companies in developing and maintaining accurate models of the eastern interconnection. These models include the specific electrical characteristics of transmission equipment such as lines, transformers, relaying equipment, and generators. All significant planned equipment outages, planned inter-company transactions, and operating constraints are included.

The transmission planning process and the generation resource planning process are interrelated. The location and availability of generation additions has significant impacts on the adequacy of the transmission system. Generation additions within the PEC system may help or hinder transmission loading. By planning for both generation needs and transmission needs, PEC is able to minimize costs while maintaining good performance. PEC will interconnect new

generating facilities to the transmission system and will accommodate increases in the generating capacity of existing generation pursuant to its established interconnection procedures.

PEC coordinates its transmission planning and operations with neighboring systems to assure the safety, reliability, and economy of its power system. Coordinated near-term operating studies and longer-range planning studies are made on a regular basis to ensure that transmission capacity will continue to be adequate. These studies involve representatives from the Virginia-Carolinas Subregion (VACAR) and adjacent subregions and regions to provide interregional coordination. For intra-regional studies, PEC actively participates on the SERC Intra-regional Long-Term Study Group (LTSG), the SERC Intra-regional Near-Term Study Group (NTSG), and the VACAR reliability committees. For inter-regional studies PEC actively participates on the Eastern Interconnection Reliability Assessment Group (ERAG).

The transmission system is planned to ensure that no equipment overloads and adequate voltage is maintained to provide reliable service. The most stressful scenario is typically at peak load with certain equipment out of service. A thorough screening process is used to analyze the impact of potential equipment failures or other disturbances. As problems are identified, solutions are developed and evaluated.

In addition, PEC, Duke, NCEMPA and NCEMC are engaged in a collaborative transmission planning process called the NCTPC (NC Transmission Planning Collaborative). This effort allows NCEMPA and NCEMC to participate in all stages of the transmission planning process, resulting in Duke and PEC moving towards a single collaborative transmission plan for their control areas, and a plan designed to address both reliability and market access. The NCTPC has a data exchange agreement with PJM to share planning data.

PEC also participates in the SIRPP (Southeastern Inter-regional Participation Process) and the EIPC (Eastern Interconnection Planning Collaborative) inter-regional efforts.

PEC's transmission system is expected to remain adequate to continue to provide reliable service to its native load and firm transmission customers.

Progress Energy Carolinas

Integrated Resource Plan

Appendix H
Short Term Action Plan

September 1, 2011

PEC Short Term Action Plan Summary

The following activities are underway as part of the near-term implementation of the Company's Integrated Resource Plan.

Near Term, Known Resource Additions

1. Miscellaneous unit uprates (see 2011 IRP)
2. Wayne County CC – 01/2013, Certificate of Public Convenience and Necessity was approved on October 22, 2009.
3. Sutton CC – 12/2013, Certificate of Public Convenience and Necessity was approved on June 9, 2010.

Near Term, Known Resource Retirements

1. Cape Fear CC Units 1 & 2 Steam Turbines only – 03/2011
2. Weatherspoon Coal Units 1-3 – 10/2011
3. Lee Coal Units 1-3 – 09/2012
4. Cape Fear Coal Units 5 & 6 – 06/2013
5. Sutton Coal Units 1-3 – 12/2013

New DSM and EE

PEC will be implementing the following new DSM and EE programs as approved by the North Carolina Utilities Commission and the Public Service Commission of South Carolina:

1. Residential Home Energy Improvement Program
2. Residential Home Advantage (New Construction) Program
3. Neighborhood Energy Saver (Low-Income) Program
4. Residential Lighting Program
5. Appliance Recycling Program
6. Residential Energy Efficient Benchmarking Program
7. Commercial, Industrial, and Governmental (CIG) Energy Efficiency Program
8. Residential EnergyWise℠ Program
9. Commercial, Industrial, and Governmental (CIG) Demand Response Program
10. Distribution System Demand Response (DSDR) Program
11. Solar Water Heating Pilot

PEC is considering the following future enhancements to its DSM/EE portfolio: (1) the addition of a small commercial direct install program, (2) expansion of existing programs to include additional measures, (3) program modifications to account for changing market conditions and new measurement and verification (M&V) results, and (4), other EE research & development pilots. Proposed revisions to the Residential Home Energy Improvement program have been filed which seek to add high efficiency room air conditioners and heat pump water heaters to the list of measures being promoted by the program, and discontinue the level-1 tune-up (coil cleaning) measure. The Residential Home Advantage and Residential Lighting programs are

also under review to account for upcoming changes in codes and standards, as well as new lighting technologies.

Alternative Supply Resources (Incremental Renewables)

The 2011 Integrated Resource Plan includes the following near term assumptions for additional renewable resources:

1. Approximately 36 MW of poultry waste generation online before year-end 2012
2. Approximately 1.8 MW of swine waste generation online before year-end 2012
3. 6 MW of new solar generation each year

Negotiations for these and other projects are ongoing.

For more detail on all of these ongoing activities, please see PEC's 2011 IRP.