STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2011-9-E

In the Matter of:	)	
South Carolina Electric & Gas Company's Integrated Resource Plan (IRP)	)	COMMENTS ON SOUTH CAROLINA ELECTRIC & GAS COMPANY'S 2011 INTEGRATED RESOURCE PLAN

Pursuant to South Carolina Public Service Commission ("Commission") Order No. 2010-124 on least cost planning for electric utilities, the Southern Alliance for Clean Energy ("SACE"), South Carolina Coastal Conservation League ("CCL") and Upstate Forever hereby, through counsel, submit comments in the above-captioned docket concerning South Carolina Electric & Gas Company's ("SCE&G") 2011 Integrated Resource Plan ("IRP").[1]

I. LEGAL FRAMEWORK FOR INTEGRATED RESOURCE PLANNING.

South Carolina electric utilities must prepare integrated resource plans, which may be patterned after the Commission's integrated resource planning process. S.C. Code Ann. § 58-37-40 (2010). Electric utilities that are regulated by the Commission must submit their IRPs to the State Energy Office on a triennial basis and must update the plans on an annual basis, and compliance with the Commission's IRP requirements constitutes compliance with statutory IRP requirements. *Id.*

In South Carolina, IRPs must contain the following information:[2]

1. The demand and energy forecast for at least a 15-year period.

2. The supplier's or producer's program for meeting the requirements shown in its forecast in an economic and reliable manner, including both demand-side and supply-side options.

[1] On March 30, 2011, CCL and SACE filed a petition for an extension of time to provide comments on SCE&G's IRP, and, on April 6, 2011, the Commission granted the extension until April 15, 2011. *See* Order No. 2011-266. Although Upstate Forever did not join to the comment extension request, it respectfully joins in submission of these comments, which were prepared with the assistance of John D. Wilson, Director of Research for SACE. Additionally, along with the filing of these comments, CCL, SACE, and Upstate Forever, through counsel, file a petition to intervene in the above-captioned docket.

[2] The Commission's IRP filing requirements mirror the statutory definition of an IRP. *Compare* Commission Order No. 1998-502, *with* S.C. Code Ann. § 58-37-10 (2010).

3. A brief description and summary of cost-benefit analysis, if available, of each option considered, including those not selected.

4. The supplier's and producer's assumptions and conclusions with respect to the effect of the plan on the cost and reliability of energy service, and a description of the external, environmental and economic consequences of the plan to the extent practicable.

Commission Order No. 1998-502; S.C. Code Ann. § 58-37-10 (2010). The Commission can require additional information in IRP filings, and it must provide further information to interested parties if necessary so that the parties can understand the required information. Commission Order No. 1998-502.

SCE&G is regulated by the Commission, and therefore is subject to the Commission's integrated resource planning process. S.C. Code Ann. § 58-3-140 (2010).

The Commission developed its integrated resource planning process in a docket initiated in 1987 to address least cost planning procedures for jurisdictional electric utilities. *See* Commission Docket No. 1987-223-E. Least cost planning, as the Commission defined it, "refers to efforts by utilities and regulators to ensure that the lowest cost options to the ratepayers and utilities are integrated into the designing resource plans for the provision of energy services to customers." Order No. 1987-569. In 1991, the Commission adopted an integrated resource planning process through which the Commission would review each IRP to "determin[e] whether the plan is reasonable at that point in time." Order No. 1991-1002 at 5. The overall objective of the process was to develop a plan that "results in the minimization of the long run total costs of the utility's overall system and produces the least cost to the consumer consistent with the availability of an adequate and reliable supply of electricity while maintaining system flexibility and considering environmental impacts." Appendix A at 1, Order 1991-1002.

In 1998, the Commission modified the IRP process to its present form. *See* Order No. 1998-502.[3]

II. SCE&G'S IRP IS DESCRIPTIVE, BUT IT DOES NOT REFLECT A SUFFICIENT INTEGRATED RESOURCE PLANNING PROCESS.

SCE&G's IRP provides a general description of the Company's conceptual approach to its resource mix, but the plan does not actually reflect integrated resource planning that is designed to result in an optimal resource mix. The plan lacks the basic components of resource plans used by utilities across the country. Notably, the plan does not consider alternative supply and demand resource options, or the cost estimates thereof, nor does it include any sensitivity analyses other than the three load growth

[3] The IRP process was modified once before in 1993 to account for certain changes, but the overall framework of the planning process remained intact. Order No. 1993-845. In 1998, however, it appears that the Appendix A to Order 1991-1002, which detailed the Commission's IRP planning process, was replaced in its entirety by the 1998 Order Modifying Reporting Requirements, Order No. 1998-502, which outlines the IRP requirements currently in place.

scenarios. Put simply, without knowing which alternatives SCE&G considered and rejected, the Commission and the public cannot know whether SCE&G has selected an optimal, least cost mix, and thus the IRP does not demonstrate how the Company's resource selection allows it to meet its forecast requirements in an economic and reliable manner. *See* Commission Order No. 1998-502; S.C. Code Ann. § 58-37-10 (2010). In that respect, SCE&G's IRP is in contrast to the plans of other regulated investor-owned utilities in South Carolina. Duke Energy Carolinas ("Duke") and Progress Energy Carolinas ("Progress") model alternative resource portfolios and conduct extensive sensitivity testing in their IRP analysis. *See* Duke's 2010 IRP, Docket No. 2010-10-E and Progress's 2010 IRP, Docket No. 2010-8-E. Although these utilities' plans raise several areas of concern, such as their failure to properly consider energy efficiency in the evaluation of resource options, the plans do provide an analysis of alternative resource mixes. We recommend that SCE&G do the same in its plan.

III. SCE&G'S HIGH RESERVE MARGIN DEMONSTRATES THAT THE COMPANY FORECASTS EXCESS CAPACITY.

Although the Company's load forecast has decreased, it does not appear that the Company has reconsidered its planned capacity in response. Over the past four years, SCE&G's load forecast has shifted, much like the forecasts of other utilities across the Southeast. As Table 1 illustrates, the Company's forecast of 2020 total firm demand has decreased steadily over the past four years, from 5,990 MW in 2008 to 5,439 MW in 2011. The Company's 2020 capacity forecast decreased in 2008-2010, going from 7,107 MW to 6,613 MW, but then increased to 6,630 MW in the 2011 IRP. IRP at 33.

Table 1: Comparison of the 2008-2011 SCE&G Resource Plan Forecasts for 2020

	2008 Plan	**2009 Plan**	**2010 Plan**	**2011 Plan**
Gross Load/Baseline Trend	6,199 MW	6,055 MW	6,149 MW	5,980 MW
Firm Peak Demand	5,990 MW	5,855 MW	5,614 MW	5,439 MW
Capacity	7,107 MW	6,888 MW	6,613 MW	6,630 MW
Reserve Margin	1,117 MW	833 MW	999 MW	1,191 MW
% Reserve Margin	**18.6 %**	**17.6 %**	**17.8 %**	**21.9 %**

The Company's current demand and capacity forecast for 2020 results in a reserve margin of 21.9%. This 21.9% margin exceeds the 12-18 percent of firm peak demand range, which the Company considers an "appropriate level of reserve capacity for SCE&G." IRP at 23, 33. SCE&G forecasts this high reserve margin even though it decreased the baseline gross load for 2020 by 169 MW from its 2010 plan. Similar patterns are evident for other years in the resource plans. The fact that SCE&G has reduced its projected gross load but forecasts an increased reserve margin in excess of its chosen range suggests that it will have excess capacity. Therefore, we recommend that SCE&G consider reducing net capacity additions by approximately 200-500 MW, which would bring the forecasted 2020 reserve margin within the Company's preferred 12-18

percent range. To reduce its capacity by 200-500MW, the Company could consider, for example, coal plant retirements or delays in the construction schedule for V.C. Summer.[4]

IV. SCE&G DOES NOT TREAT ENERGY EFFICIENCY AS A RESOURCE.

Energy efficiency is the least-cost system resource. Unlike supply-side resources, energy efficiency, even at aggressive levels, reduces customer utility bills. Energy efficiency also moderates rate increases by reducing electricity consumption, which will reduce or delay the need for new generating capacity. [5] In fact, states with leading energy efficiency programs often have electricity rates that are comparable to, or even lower than, the rates in South Carolina. In addition to lower customer bills and rate moderation, the numerous benefits of energy efficiency include environmental quality improvements, water conservation, energy market price reductions, lower portfolio risk, job growth, and assistance for low-income populations.[6]

SCE&G should consider the system-wide benefits of increased energy efficiency savings. The Company's new suite of energy efficiency programs are a positive step forward and we commend the Company for its efforts. SCE&G should continue this progress in the IRP context by evaluating energy efficiency resources as an alternative to new generation. SCE&G incorporated energy efficiency into its 2011 IRP by adjusting the baseline forecast to account for the new suite of efficiency programs and federal requirements. IRP at 3-4. This method of treating energy efficiency as a load modifier rather than a resource that can help the Company meet its load obligation relegates efficiency to a fixed amount that cannot increase based on need. Done this way, SCE&G fails to treat energy efficiency as a resource equivalent of supply-side resources, which likely results in underutilization of this demand-side resource.

The Company estimates almost 5% energy savings due to its efficiency programs by 2020. *Id.* at 4. While this is a good start, additional cost-effective energy efficiency can achieve greater savings. Achieving 7% energy savings by 2020 (10% by 2025) is realistic considering the achievements of other utilities as well as a 2010 analysis of several potential studies in the South, which found that the achievable electric efficiency potential ranges from 7.2 to 13.6% after ten years.[7] Additional energy efficiency programs could save enough energy to reduce capacity needs on the SCE&G system by an additional 175 MW by 2020 (375 MW by 2025).

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[4] In response to similar changes in load forecast in Florida, for example, both Florida Power & Light and Progress Energy Florida delayed their nuclear construction schedules beyond their official ten-year site plans.

[5] *See, e.g.* Marilyn A. Brown et al., Energy Efficiency in the South, Southeast Energy Efficiency Alliance (April, 12, 2010), http://www.seealliance.org/se_efficiency_study/full_report_efficiency_in_the_south.pdf.

[6] *Id.*

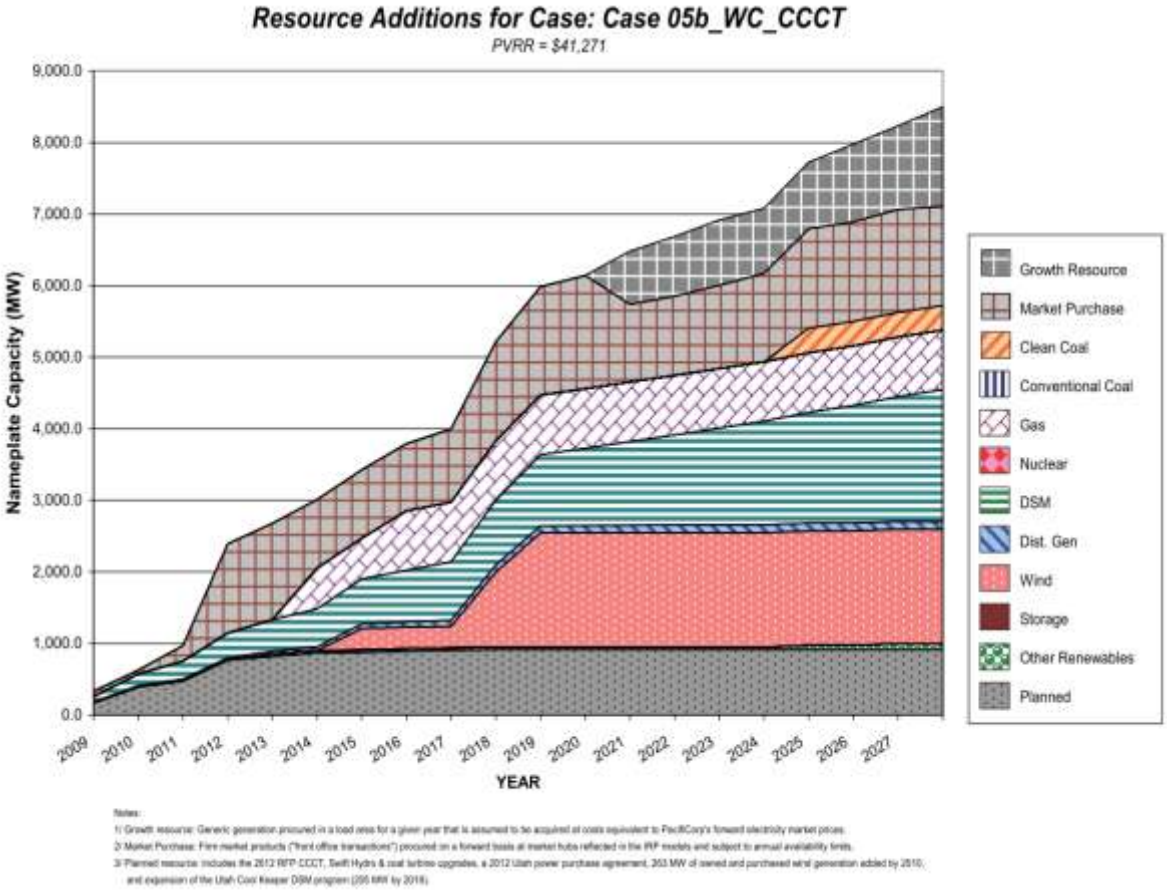
[7] Chandler, S. and M.A. Brown, "Meta-Review of Efficiency Potential Studies and Their Implications for the South," Working Paper # 51 (August 2009). *See also* American Council for an Energy-Efficient Economy, "North Carolina's Energy Future: Electricity, Water, and Transportation Efficiency," Report Number E102, March 2010, p. 15 (finding that the "medium case" energy savings potential for utility-led energy efficiency programs is approximately 17% by 2025).

In light of additional energy efficiency opportunities, and the Company's high forecasted reserve margin, SCE&G should consider reducing net capacity additions by approximately 375-875 MW in this forecast period.

A. SCE&G Does Not Forecast A Long-Term Impact of Energy Efficiency Programs.

According to the Company's forecast, energy efficiency programs cease having any net effect on the system after 2020. *See* IRP at 4-5 (showing the energy and demand impact of SCE&G's programs remain -1,285 GWh and -210 MW, respectively, from 2020-2025). Rather than coming to a halt, the Company's efficiency programs should achieve increased demand and energy savings each year over the 15-year planning period. SCE&G can continue to grow its energy efficiency programs over the IRP forecast period by relying on new technologies to provide additional cost-effective opportunities for efficiency in the outer years of the resource planning horizon. Graph 1 illustrates the continued growth of DSM resources in PacifiCorp's 2008 preferred resource portfolio. SCE&G should pursue opportunities for similar growth of energy efficiency within its resource plan.

Graph 1: PacifiCorp Preferred Resource Portfolio, 2008 IRP



B. SCE&G Should Aim to Increase the Energy Efficiency Program Impacts Under Its High Load Scenario.

There appears to be an inverse relationship between the Company's forecasted energy efficiency program impacts and its load scenarios. *See* IRP at 33-35. As Table 2 shows, SCE&G assumes low load growth and high energy efficiency impacts in the low load scenario.

Table 2: Comparison of SCE&G Resource Plan Scenarios for 2020

2011 Plan	Low Load	Baseline	High Load
Gross Load	5,506 MW	5,980 MW	6,473 MW
Energy Efficiency	-394 MW	-316 MW	-158 MW
Firm Peak Demand	4,887 MW	5,439 MW	6,090 MW
Capacity	6,200 MW	6,630 MW	7,116 MW
Reserve Margin	1,313 MW	1,191 MW	1,026 MW
% Reserve Margin	**26.9 %**	**21.9 %**	**16.8 %**

Because some energy efficiency program opportunities are related to growth, such as new construction programs and replace-on-burnout programs that are related to electricity use, one would expect *higher* energy efficiency program impacts with high load than with low load.

An additional 175MW of energy efficiency program impacts in the high load scenario would result in a 14% reserve margin in 2020, approximately the same as the reserve margin forecast in SCE&G's 2009 IRP. *See supra* Table 1. If the high load scenario was modeled with 300-500 MW of energy efficiency program impacts, the least cost resource plan would likely have a different resource mix and schedule – particularly if the model were not constrained by nuclear plant completion in 2016 and 2019. Based on SCE&G's IRP, however, it is unclear what resources are needed and when they should be scheduled for completion if aggressive energy efficiency were implemented. We encourage the Company to conduct this analysis.

V. SCE&G UNDERVALUES LOAD SHIFTING OPPORTUNITIES.

SCE&G states that it is able to achieve a "DSM-like impact" from its Fairfield Pumped Storage Plant. IRP at 23. While pumped storage can be a valuable resource to displace on-peak generation, there is a significant difference between pumped storage and load shifting programs (a type of demand-side management activity). That difference is energy use. Load shifting programs typically carry a small or no energy penalty, whereas pumped storage requires a net expenditure of energy to shift energy supplies from off-peak to on-peak periods (by pumping the water uphill and into storage).

SCE&G is correct that a time of use rate (demand-side) is less valuable on its system with pumped storage (supply-side) than on many other utility systems, IRP at 23, but SCE&G presents its system in isolation from cost and arbitrage opportunities in the

larger regional market. In a regional market, a utility with economic dispatch of demand side management resources or time of use rates could operate both its demand-side and pumped storage resources in a regionally cost-effective manner, resulting in lower overall costs for its customers due to the regional optimization of the marginal cost of energy over the long term.[8]

Additionally, from a capital planning perspective, load shifting resources, in combination with more aggressive energy efficiency programs as described above, could eliminate the need for an intermediate or peaking unit or a nuclear unit, saving ratepayers billions of dollars.

VI. SCE&G DOES NOT ADQUATELY EVALUATE RENEWABLE RESOURCES.

In its plan, SCE&G discusses its existing renewable energy resources, namely biomass and hydro, and its work on future renewable development, including offshore, and biomass co-firing. IRP at 15-16, 21. It is unclear, however, how the Company is evaluating these resource options. We urge SCE&G to evaluate renewable resource options in the context of an analysis of alternative supply and demand resource options, and to include in its analysis the potential ancillary benefits or costs of integrating significant levels of on-system renewable energy resources, which include increased grid stability; increased efficiency in transmission and distribution associated with higher levels of distributed generation; and reduced costs associated with greenhouse gas and air pollutant mitigation.

VII. SCE&G DOES NOT ADEQUATELY ACCOUNT FOR ENVIRONMENTAL COMPLIANCE COSTS

IRPs must include assumptions and conclusions with respect to the effect of the plan on the cost of energy service. *See* Commission Order No. 1998-502; S.C. Code Ann. § 58-37-10 (2010). However, SCE&G does not appear to consider the impact of anticipated federal regulations on the cost of continuing to operate its coal plants.

A number of environmental regulations on the horizon are likely to alter the energy landscape by imposing substantial costs on existing coal-fired generation. Existing coal-fired units face an array of regulations, including greenhouse gas regulation, new EPA air quality regulations, regulations under Section 316(b) of the Clean Water Act, new steam electric effluent guidelines and new coal combustion waste regulations. Compliance with these regulations will have substantial costs in the form on capital investments and increased operating expenses.

SCE&G's IRP presents a brief discussion of certain impending environmental regulations, IRP at 19-20, but does not present any analysis of the costs associated with these regulations and the effect on existing scrubbed coal plants; any assessment of what

[8] In fact, regional dispatch benefits are cited by Duke and Progress as a major economic benefit of their proposed merger. *See* Transcript of Allowable Ex Parte Briefing at 17, Merger of Duke and Progress, South Carolina Public Service Commission (Jan. 20, 2011) (Hearing #11-11171).

controls it will need to add at each of these units; or whether it will be more economic to add such needed controls than to retire the unit(s). The Company provides a brief description of its "Greener Scenario," IRP at 26, but offers no information about the costs it assumed in connection with the new environmental regulations, or resource selection under this scenario. If the Company has prepared such an analysis, it should be discussed in the Company's IRP.

VIII. SCE&G'S LACK OF DETAIL CONCERNING POTENTIAL COAL UNIT RETIREMENTS FURTHER DEMONSTRATES THE NEED FOR MORE ROBUST RESOURCE PLANNING.

SCE&G does not provide a specific plan for retiring older coal-fired power plants. Under the header of "Potential Retirement of Coal Plants," the Company states that if its energy efficiency programs are a success and economic growth remains below pre-recession levels, the Company "will have the flexibility to evaluate its aging coal-fired plants for potential opportunities to mothball, re-power or retire some of these facilities." IRP at 25. The Company indicates it will consider the age of its fleet and potential environmental compliance costs in determining which units to retire, and that it anticipates "significant capital investment" in some of its smaller, older units, *id.*, but provides no further details, other than including an unnamed capacity reduction in its base and low-load scenarios in 2016 and 2019 as a placeholder for potential retirements. *Id.* at 32, 33, 35.

The Company's lack of detail on potential retirements is a function of its inadequate resource planning, as discussed in Part II. We agree with SCE&G that the age of a unit and potential environmental compliance costs, in addition to the size of the unit, are among the key factors in determining whether to retire a given unit. The Company should examine the projected cost of continuing to run its smaller and older units, as compared to alternatives on both the supply and demand side. Rather than undertaking a "significant capital investment" in these units, as the Company anticipates, we believe an analysis will show that it does not make economic sense for the Company to meet forecasted demand with these resource options when compared to alternatives. Although SCE&G is correct that the IRP process has a degree of flexibility, such flexibility does not obviate the need for responsible planning now to ensure that it can meet demand in an "an economic and reliable manner, including both demand-side and supply-side options." Commission Order No. 1998-502; S.C. Code Ann. § 58-37-10 (2010)

Moreover, SCE&G's lack of a coal retirement plan is in contrast to the plans of its peer utilities in South Carolina. In their 2010 IRPs, both Duke and Progress presented their plans to retire specific coal units on specific dates. Duke, which currently owns approximately 7,650 MW of coal-fired facilities in North and South Carolina, has assumed that all of its coal units without sulfur dioxide ("SO_2") scrubbers will be retired by 2015. *See* Duke 2010 IRP at 60. Along similar lines, Progress, which currently owns approximately 5,200 MW of coal-fired facilities in North and South Carolina, indicated that it plans to retire 1,500 MWs of unscrubbed coal at the beginning of 2015, s*ee* Progress 2010 IRP at 3, and has recently announced that it will accelerate the retirement

of its coal-fired units at the Weatherspoon facility to October 1, 2011.[9] Therefore, although these utilities remain flexible in terms of the specific units to be retired and/or their exact retirement dates, they have announced plans for significant retirements beginning this fall.[10] SCE&G's retirement analysis, to the extent one can be discerned from the IRP, appears out of step with that of its peers in South Carolina, and we urge the Company to re-evaluate potential retirements with an eye towards units that do not have state-of-the-art pollution controls, such as the coal-fired units at the Canadys,[11] Cope, McMeekin, and Urquhart plants.

IX. SCE&G SHOULD CONSIDER MODELING THE ECONOMIC IMPACTS OF ITS RESOURCE PORTFOLIOS TO FURTHER EVALUATE ITS OPTIONS.

IRPs must include a description of the economic consequences of the plan to the extent practicable. *See* Commission Order No. 1998-502; S.C. Code Ann. § 58-37-10 (2010). SCE&G raises several economic questions with regards to evaluating its aging coal-fired plants for potential opportunities to mothball, re-power or retire, IRP at 25, and discusses economic variables in its sales forecast, IRP at A-1 and B-5. However, the Company does not discuss the economic consequences of its plan.

Several major utilities across the country are performing modeling and analyses to understand the economic impacts of their resource planning decisions, and SCE&G and its ratepayers would be well served if that approach were considered here. Information about economic impacts would assist SCE&G, the Commission and interested parties in understanding the broader implications of the Company's resource planning decisions.

Specifically, SCE&G should consider using the REMI Policy Insight model, a highly-regarded tool for conducting economic impacts analyses of resource planning portfolios.[12] A 2010 study on Wisconsin's energy efficiency and renewable energy programs provides a good example of how the REMI Policy Insight model can be used to cover "all aspects of changes in the economy," including changes in business sales, gross regional product, real after-tax income, and jobs.[13] In that study, the REMI model showed various economic development impacts of efficiency and renewable energy programs, including lower energy costs, increased "business competitiveness," and a

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[9] *See* Ltr. from Len S. Anthony , General Counsel of Progress, to The Honorable Edward S. Finley, Jr., Chariman of the North Carolina Utilities Commission (March 14, 2011), http://ncuc.commerce.state.nc.us/cgi-bin/webview/senddoc.pgm?dispfmt=&itype=Q&authorization=&parm2=1AAAAA47011B&parm3=000133323.

[10] Again, although Duke's and Progress's IRPs provide more detail and analysis that of SCE&G, the plans raise some serious concerns. For example, neither Duke nor Progress presents in its 2010 IRP any specific analysis of the risks faced by its existing scrubbed coal plants. This is a serious flaw.

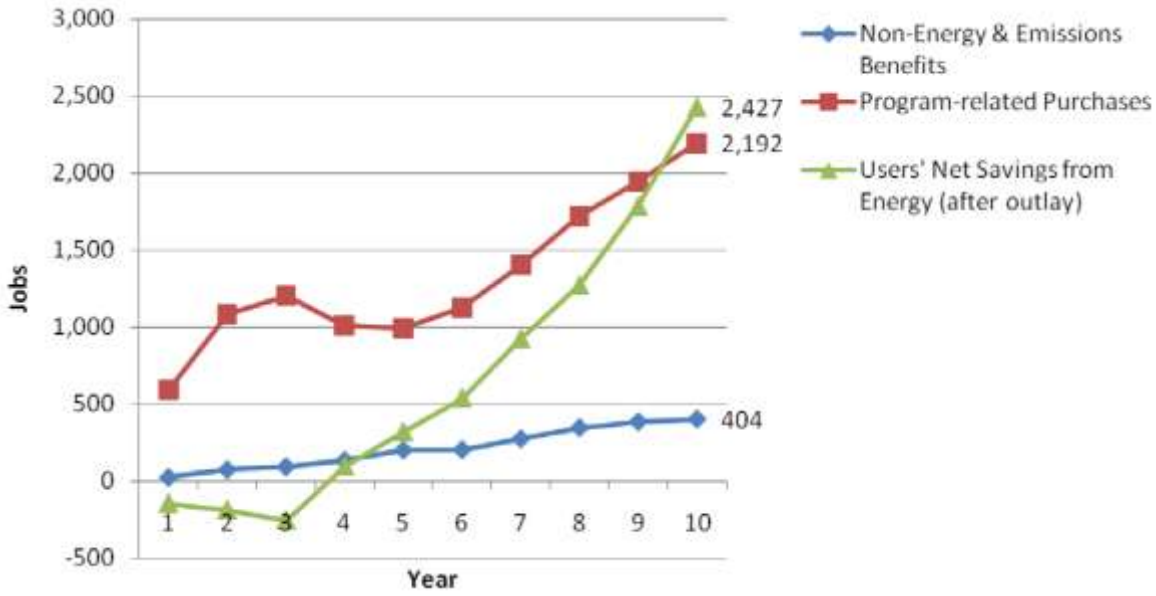
[11] Colleton County recently denied SCE&G's request for permission to construct a new coal ash landfill for Canadys, raising serious questions about the station's long-term viability.

[12] *See* U.S. Environmental Protection Agency, *Assessing the Multiple Benefits of Clean Energy: A Resource for States* (February 2010), http://www.epa.gov/statelocalclimate/documents/pdf/epa_assessing_benefits.pdf at 144.

[13] Economic Development Research Group (EDRG), *Focus on Energy Evaluation, Economic Development Benefits: CY09 Economic Impacts*, report to Public Service Commission of Wisconsin, March 2, 2010.

lower cost of living, which in turn increased the attractiveness of the state as a place to live and work.[14] Graph 2 shows estimates of the impacts of energy efficiency and renewable energy programs on jobs.

Graph 2: REMI Model Estimates of Employment Impacts for Focus on Wisconsin Programs



Economic Development Research Group (EDRG), *Focus on Energy Evaluation, Economic Development Benefits: CY09 Economic Impacts*, report to Public Service Commission of Wisconsin, March 2, 2010.

Similar information on the economic impacts of SCE&G's energy resource plans would help the Company evaluate, estimate and describe the economic consequences of its resource options.

In conclusion, SCE&G's 2011 integrated resource plan lacks the depth of analysis necessary to demonstrate that the Company will meet demand in an economic and reliable manner. The Company should consider all resources, both on the supply and demand side. A proper analysis of alternative resource mixes would result in a preferred resource portfolio that reflects, among other things, increased energy efficiency in the long-term (a least-cost system resource) and reduced coal-fired generation, in light of environmental compliance costs and forecasted excess reserve margins.

Respectfully submitted this 15th day of April, 2011.

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[14] *Id.*

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