January 12, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of	)	
	)	
SOUTH CAROLINA ELECTRIC AND	)	
GAS COMPANY	)	Docket Nos. 52-027 COL
	)	52-028 COL
(Virgil C. Summer Nuclear Station	)	
Units 2 & 3)	)	
	)	

REPLY BY SIERRA CLUB AND FRIENDS OF THE EARTH

PURSUANT TO 10 C.F.R. § 2.309(h)(2) Sierra Club ("Sierra" or "the Club") and Friends of the Earth ("FoE"), hereby reply to the Answers by the NRC Staff ("the Staff") and South Carolina Electric & Gas Company ("SCE&G" or "the Applicant") opposing our Petition to Intervene and Request for Hearing in this combined operating license application ("COLA") proceeding on the proposed Virgil C. Summer Nuclear Station, Units 2 & 3.

The Answers by the NRC Staff and SCE&G reflect pervasive failures to recognize the evident external realities of a deep and long term economic downturn coupled with sweeping changes in the energy sector away from risky and costly base- load nuclear or coal-fired power plants toward cost-effective investment in energy efficiency and renewable alternative sources of power production The rigidly obstructive positions urged by the NRC Staff and SCE&G utterly fail to recognize the duty of the NRC to

honestly and openly identify and assess these respective cost and benefit realities as required by NRC regulations and the National Environmental Policy.

Only days ago, President-Elect Obama committed the Nation to just such an alternative energy future:

> To finally spark the creation of a clean energy economy, we will double the production of alternative energy in the next three years. We will modernize more than 75% of federal buildings and improve the energy efficiency of two million American homes, saving consumers and taxpayers billions on our energy bills. In the process, we will put Americans to work in new jobs that pay well and can't be outsourced – jobs building solar panels and wind turbines; constructing fuel-efficient cars and buildings; and developing the new energy technologies that will lead to even more jobs, more savings, and a cleaner, safer planet in the bargain.

Remarks of President-Elect Barack Obama as prepared for delivery, Thursday, January 8, 2009. http://change.gov/newsroom/entry/president-elect_obama_speaks_on_the_need_for_urgent_action_on_an_american_r/

In further support of their Petition Sierra and FoE herewith submit the Supplemental Declarations of FoE member Leslie A. Minerd and FoE member and employee Thomas W. Clements, expressly authorizing FoE to represent them and their interests in this proceeding and related legal actions. While such authorization was implicit in their original declarations which asserted their interest in this matter and their associations with both Sierra and FoE, any such omission, inadvertent and immaterial as it may be, is now remedied without prejudice to any party. NRC Staff Answer, pp. 11-12. For good cause, Sierra and FoE respectfully request leave to file the attached Supplemental Declarations of Leslie A. Minerd and Thomas W. Clements.

Sierra and FoE also herewith submit the Resume of their expert declarant Nancy Brockway. Ms. Brockway expressly referred in her Declaration, filed in support of

Sierra and FoE's Petition, to her "attached resume," Brockway Declaration, p.2; which, however, was inadvertently omitted from the documents filed in this docket. While Ms. Brockway summarizes her ample qualifications in her Declaration, she, and the Petitioners Sierra and FoE, intended to submit her resume for the record to more fully evidence her qualifications by virtue of specific education, training and experience. Particularly since Ms. Brockway's expert qualifications are challenged by the NRC Staff and SCE&G, inclusion of her Resume for the record is warranted. Since her qualifications, as previously summarized, have already been challenged by the staff and Applicant,, there is no prejudice to either party from inclusion of her Resume. For good cause, Sierra and FoE respectfully request leave to file the attached Resume of Nancy Brockway.

Having clarified FoE's organizational authority to represent its members Leslie A. Minerd and Thomas W. Clements, Sierra Club and Friends of the Earth have now established their standing to participate in this proceeding on behalf of their members. NRC Staff Answer, pp. 15-16.

Sierra Club and Friends of the Earth have also met the requirement to identify the three (3) admissible contentions it seeks to adjudicate in this proceeding which challenge the sufficiency of the application and required supporting submissions by the Applicant South Carolina Electric & Gas Company:

Contention 1 (AP 1000 Deficiencies).

Contention 2 (Aircraft attacks)

Contention 3 (Need for Power, Cost of Action and Alternatives).

A contention is admissible when it meets the requirements in 10 C.F.R. §

2.309(f)(1):

> (1) A request for hearing or petition for leave to intervene must set forth with particularity the contentions sought to be raised. For each contention, the request or petition must:
>
> (i) Provide a specific statement of the issue of law or fact to be raised or controverted;
>
> (ii) Provide a brief explanation of the basis for the contention;
>
> (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
>
> (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
>
> (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue; and
>
> (vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

The purpose of the contention rule is to, "focus litigation on concrete issues and result in a clearer and more focused record for decision." 69 Fed. Reg. at 2202; *see also Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553-54 (1978); *BPI v. AEC*, 502 F.2d 424, 428 (D.C. Cir. 1974). The purpose for the basis requirements is: (1) to assure that the contention raises a matter appropriate for adjudication in a

particular proceeding; (2) to establish a sufficient foundation for the contention to warrant further inquiry into the assertion; and (3) to put other parties sufficiently on notice of the issues so that they will know generally what they will have to defend against or oppose. *Peach Bottom*, ALAB-216, 8 AEC at 20-21; *Ariz. Pub. Serv. Co., et al.* (Palo Verde Nuclear Generating Station, Units 1, 2 and 3), LBP-91-19, 33 NRC 397, 400 (1991). The three (3) contentions submitted by Sierra and FoE amply meet these requirements; raise significant safety and environmental issues supported by substantial information and expert opinion; are material to the NRC's licensing decision and should be admitted for adjudication.

As the Commission has stated regarding the contention-filing stage, "[t]he protestant must make a *minimal* showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate." Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168 at 33,171 (August 11, 1989). (emphasis added), citing *Connecticut Bankers Association v. Board of Governors,* 627 F.2d 245, 251 (D.C. Cir. 1980). The Commission also stated there that "the quality of the evidentiary support provided at the summary disposition stage is expected to be of a higher level than at the contention filing stage." *Id.* Thus, in their Answers, both the NRC Staff and SCE&G misapprehend these requirements, generally, where they insist on a dispositive standard of proof for a contention or its bases, rather than the appropriate pleading and basis standard appropriate at this stage of the proceeding.

Contention 1 (AP 1000 Deficiencies).

SCE&G and the Staff argue that

Contention 1 should be rejected because it challenges NRC policy regarding the conduct of COLA proceedings.

Contention 1 is a "classic" contention of omission, which may be raised by "alleging that certain necessary safety-related steps or analyses have not been taken. . . ." *Shaw AREVA MOX Services* (Mixed Oxide Fuel Fabrication Facility), LBP-07-14, 66 NRC 169, 206 (2007) ("LBP-07-14").

Contention 1 demonstrates that the Summer COLA is deficient with respect to certain specific design components, because it fails to demonstrate the fulfillment of two necessary procedural steps that must be taken before the adequacy of the Summer COLA to satisfy NRC safety and environmental regulations may be meaningful reviewed or determined with respect to those components. First, the design features listed in the contentions have not been conclusively approved in the separate design certification rulemaking proceeding that has been designated by the Commission for their resolution. *See* Final Policy Statement, Conduct of New Reactor Licensing Proceedings, 73 Fed. Reg. 20,963, 20,972-73) (April 17, 2008) ("Policy Statement"). Second, the final AP 1000 design, as certified and as potentially modified through the design certification process, has not been adopted by SCE&G. *Id.* at 20,973. Unless and until these procedural steps have been taken, SCE&G's COLA remains inadequate with respect to the design components listed in Contention 1. Therefore the contention is admissible, and may be resolved or dismissed as moot only

if and when SCE&G can demonstrate that the two procedural steps have been fulfilled. *See* LBP-07-14:

> Responding that the actions will be taken later does not defeat the contention for prematurity. Instead, it merely sets the stage for facility proponents later to bring forward, as they routinely do, a solution that allegedly cures the deficiency; they then move to dismiss the contention, triggering in turn a period during which the Petitioners can amend the original contention to challenge the solution's substance."

66 NRC at 206 (citing *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382-83 (2002).

A different panel of the ASLB recently admitted a virtually identical contention and confirmed its consistency with the Commission's Policy Statement. *Progress Energy Carolinas, Inc.* (Combined License Application for Shearon Harris Nuclear Power Plant, Units 2 & 3), LBP-08-21, 68 NRC __ (October 30, 2008) ("LBP-08-21"). The ASLB admitted the contention with respect to "the specifically identified omissions" that were delineated in the contention, referred the specific omissions raised by the contention to the Staff, and held litigation of the contention in abeyance pending completion of the design certification rulemaking. *Id.,* slip op. at 9. As the ASLB explained in admitting the contention:

> We find that Petitioners' Contention TC-1 is not a challenge to the AP1000 design review process, but rather a challenge to the Application itself.
>
> This situation has been directly contemplated by the Commission. In CLI-08-15 [an earlier decision by the Commission refusing to hold the *Shearon Harris* licensing proceeding in abeyance pending certification of the amended AP1000 design], the Commission directed Petitioner and, indirectly, this Board that if Petitioner identified specific omissions in the COLA, those omissions should be addressed in a contention to this Board which, in turn, "should refer such a contention to the staff for consideration in the design certification rulemaking, and hold that contention in abeyance, if it is otherwise admissible."

Memorandum and Order, CLI-08-15, 68 NRC __, __ (slip op. at 4) (citing to the Final Policy Statement on the Conduct of New Reactor Licensing Proceedings, 73 Fed. Reg. 20,972 (Apr. 17, 2008)). In the Commission's Final Policy Statement, they explained the process as follows:

> We believe that a contention that raises an issue on a design matter addressed in the design certification application should be resolved in the design certification rulemaking proceeding, and not the COL proceeding. Accordingly, in a COL proceeding in which the application references a docketed design certification application, the licensing board should refer such a contention to the staff for consideration in the design certification rulemaking, and hold that contention in abeyance, if it is otherwise admissible.
>
> 73 Fed. Reg. at 20,972.

Here, the contention does not challenge a design matter related to the AP1000 DCD to the extent previously certified, for if it did it would clearly be an impermissible challenge to agency regulations. Rather, Petitioner has set forth facts indicating specific omissions from the COLA that fall within the scenario contemplated by the Commission. We find both Applicant and Staff to have failed to provide information regarding whether or not the asserted omitted material was indeed omitted in the COLA, nor did either provide information indicating whether such allegedly omitted information is required to be in a COLA. Thus, we find Petitioner's asserted omissions to be uncontroverted, and therefore admissible.

Id., slip op. at 8-9 (emphasis added). The ASLB's reasoning is equally applicable in this case. The "scenario contemplated by the Commission" is that COLAs may not receive final approval until the designs on which they rely have been certified and adopted or modified by the COL applicants. 73 Fed. Reg. at 20,972-73. A COLA that references un-certified design elements is therefore deficient as a matter of law with respect to its omission of information regarding the certification of those components. While it may be appropriate to hold the contention in abeyance pending the completion of the certification process or adoption of a modified design by SCE&G, it is not appropriate to dismiss the contention.

Nothing about the Contention challenges SCE&G's right to submit a COLA that references an un-approved design certification application, however. What the contention *does* challenge is the adequacy of such a COLA to support a meaningful licensing review and meet the requirements for the issuance of a license. As the Policy Statement makes clear, a COLA may not be issued unless and until the certification rule for the underlying design has been issued. 73 Fed. Reg. at 20,973. The only exception to this requirement is where "the applicant requests that the entire application be treated as a 'custom' design,'" a circumstance that does not exist here. *Id.*

Contention 2 (Aircraft attacks)

With respect to this contention Sierra and FoE rely on the authority and arguments previously submitted in their Petition to Intervene and Request for Hearing.

Contention 3 (Need for Power, Cost of Action and Alternatives).

In this contention Sierra and FoE challenge the adequacy of SCE&G's submissions in its Environmental Report ("ER") respecting the need for power reflected in the load forecasts for the service territory to be served by the proposed plant- the benefit of the proposed action- as well as the costs of the proposed plant and its energy output, and the availability of cost effective, feasible alternatives including energy efficiency or demand side management measures as well as alternative energy production sources. In support of this contention Sierra and FoE cite extensively to the deficient elements of the ER, to authoritative extrinsic facts in other sources regarding the issues including other sources involving the Applicant and its South Carolina territory and regarding its

proposed plant and alternatives. In addition, this contention is extensively supported by the expert opinion evidence of former electric utility regulator and expert consultant Nancy Brockway.

The NRC Staff and SCE&G attacks on the admissibility of this contention rest principally on an unfounded attack on the qualifications of energy expert Nancy Brockway along with an inappropriate argument going to the merits of the material issues in dispute. On both counts these attacks must be rejected and the Need for Power, Plant Costs and Alternatives Contention should be admitted for further inquiry and adjudication.

Former New Hampshire Public Utilities Commissioner and energy resources expert consultant Nancy Brockway has over twenty-five (25) years experience in the regulation of electric utilities including the regulatory review and response to utility resource planning proposals and the regulatory response to nuclear power plant cost recovery issues. Ms. Brockway has extensive experience in demand side management or energy efficiency programs applicable to electric utilities as well as the review of the forecast need for generating capacity and the alternatives for meeting energy supply needs. She has provided expert testimony in more than thirty (30) utility regulatory proceedings, including, most recently, before the South Carolina Public Service Commission on the need for power, costs, and alternatives to the proposed V.C Summer Nuclear Station, Units 2 and 3, which is the subject of this proceeding. Ms. Brockway's qualifications to offer this Board expert opinion evidence addressing the issues raised by this contention are extensive.

Even while attacking her expert qualifications the NRC Staff is forced to acknowledge Ms. Brockway's evident relevant expertise: "The Staff concedes that Petitioners demonstrate Ms. Brockway's general *familiarity* with various issues involved in utilities regulation . . ." NRC Staff Answer at p. 51; "The Staff concedes that, for the purposes of contention admissibility, Ms. Brockway's stated experience would allow her to provide an opinion, on a more general level, as to the relative effectiveness of various modes of energy efficiency, for example, or modeling methods for various alternative generating sources. NRC Staff Answer at p. 51. Such half-concessions compel the obvious conclusion that Ms. Brockway is, indeed, qualified. Her Declaration and Resume clearly establish her expert qualifications on these subjects by virtue of her demonstrated "knowledge, skill, experience, training, or education," in these areas of "specialized knowledge" well sufficient to "assist the trier of fact," in adjudicating these issues. Rule 702, Federal Rules of Evidence. Ms. Brockway's expert opinion evidence should be accepted in support of the respective elements of the proposed contention.

Beyond their challenges to our expert's qualifications the NRC staff and SCE&G would have this Board prematurely adjudicate the merits of Petitioners' contention rather than merely passing on its admissibility. That said let us turn to the principal attacks on the contention.

To accept the limited scope of consideration for need for power and alternatives they urge, SCE&G and the NRC Staff would have the Commission reverse its decision of September 23, 2003 , in which the Commission ruled that it must continue to consider the need for the proposed plant and alternatives to the proposed plant as part of the review

under the National Environmental Policy Act of 1969 (NEPA). 68 Fed. Reg. 55905. Together, they have thrown up virtually every conceivable notion to urge that Petitioners' contentions as to need and alternatives be rejected. Individually and cumulatively, their arguments overreach, as discussed below. If the Petitions for Intervention are rejected on this basis, it would amount to a retreat from the Commission's decision to reject the petition of the Nuclear Energy Institute (NEI) seeking amendments to the Commission rules to eliminate the need and alternatives consideration from the Commission's NEPA compliance.

In its September 23, 2003 ruling, 68 FR 59905, the Commission rejected NEI's request that the NRC amend its regulations "to remove requirements that applicants and licensees analyze, and the NRC evaluate, alternative energy sources and the need for power with respect to the siting, construction, and operation of nuclear power plants." In short, the Commission stated that it was denying the petition because

> the NRC must continue to consider alternative energy sources and the need for power to fulfill its responsibilities under the National Environmental Policy Act of 1969, as amended (NEPA).[1]

SCE&G and the NRC Staff give lip service to this ruling, but adoption of their arguments against admission of Petitioners' specific need and alternatives contentions would render that ruling meaningless. Wherever the ruling or other precedent included qualitative language, the opponents of Petitioners' request to intervene would have the Board interpret that language in a distorted or extreme fashion,

[1] 68 FR 59905.

against the Petitioners. Wherever the contention contains qualitative assertions, and regardless of the content of those assertions or their support in the record, opponents claim variously that the assertion is made by a non-expert, that the assertion is conclusory, that the assertion lacks sufficient documentation, or that the assertion is immaterial, or all of these. They do so ignoring arguably similar qualities in the Applicant's ER. Opponents' arguments raise the question whether in their opinion any showing would be sufficient to constitute a valid contention, even at this stage in the proceedings.

Petitioners argue that the Applicant's Environmental Report (ER) fails generally to adequately discuss the impacts of the proposed action and alternatives in proportion to their significance. [Petition at 24] As to need for the plant, Petitioners address two aspects of the Application.

Petitioners first argue that the Applicant's load forecast is out of date and fails to account for the extraordinary economic reversals beginning in 2008, which will dampen load significantly.

> SCE&G's need-for-power evaluation as filed with this Commission is unresponsive in forecasting a major source of uncertainty, that is, the current economic downturn. For this reason alone, it is unreliable and overstates the timing of the need for additional generation of any kind…. The major reason that SCE&G's load forecasts are unreliable is that they fail to take into account the likely impact of the recent economic downturn in the United States and in South Carolina.
>
> [Brockway Declaration at ¶¶ 10, 17]

Petitioners also argue that the Applicant failed to assess its demand side management (DSM) alternatives in a balanced, systematic and comprehensive manner. [Brockway Declaration at 8]:

> SCE&G …dismisses the possibility of alternatives to building two new nuclear generating plants, and undervalues the alternatives. In particular, SCE&G does not take demand side management … seriously, and overstates the risks associated with such resources, even as it understates the uncertainties associated with its chosen resource plan. As a result, SCE&G's resource plan is flawed and does not support its conclusion that Summer Units 2 and 3 represent the least cost and most reliable plan to provide resources for its customers…With respect to demand side management, SCE&G utterly dismisses the potential for DSM to produce resource benefits for customers and reduce the need or push off the timing of desirable generation additions….In its Environmental Report, SCE&G's discussion of demand side management …names what it calls conservation programs and load management programs, whereas the conservation programs are not well-designed and will not achieve significant efficiency as currently designed (regardless of budget).

0. [Brockway Declaration at ¶¶ 34-36].

Opponents' many arguments do not alter the fundamental merits of this declaration. First, to dispense with a red herring raised here and elsewhere in the Opponents' replies, the fact that the ER has pages of discussion on a topic does not rebut a declaration that the Application dismisses a particular resource. Similarly, the fact that the Applicant has reviewed and discarded various alternatives does not rebut a declaration that the Applicant has not considered those alternatives in a "balanced, systematic, and comprehensive manner."

Opponents make much of the fact that load forecasts contain uncertainty. They fail to comprehend the level of uncertainty in the Applicant's forecast of customer needs for power. Indeed, they fail to appreciate the sea change in the core economic drivers of

load that has occurred since mid-2008. On December 1, 2008, the National Bureau of Economic Research announced that the United States had officially entered a recession beginning in December 2007.[2] Signs of the crisis are everywhere around us. Housing prices have plummeted, and foreclosures are at record highs. Retail sales plunged this recent holiday season, as a result of the recession.[3] Even high-end vendors such as BMW (which has major U.S. production facilities in South Carolina) are experiencing huge sales declines. The BMW Group in the U.S. reported that its November sales were down 26.8 percent over November 2007. The BMW Group also reported its year-to-date sales volume down 6.8 percent, compared to the same period of 2007.[4]

The Federal Reserve Bank in Dallas summed up the grim news that anyone with access to a newspaper or a television is well aware of:

> **Thirteen Months into a Deepening Recession**
> Data released in recent weeks reflect an economy in a deepening recession, confirmed by the National Bureau of Economic Research on Dec. 1 when it declared that the current recession began in December 2007. The economic outlook deteriorated again in November. Recent employment reports have been abysmal, and real growth in the fourth quarter is expected to contract significantly. Meanwhile, the credit market has shown some signs of improvement, and inflation is quickly moderating.[5]

These data and analyses are consistent with those contained in the Brockway Declaration, at ¶¶ 18-25. Petition opponents downplay the seriousness of the

[2] National Economic Outlook, December 22, 2008, available at http://www.dallasfed.org/research/update-us/index.cfm.

[3] AFP: US holiday season retail sales plunge amid recession (December 26, 2008).

[4] http://www.bimmerfile.com/2008/12/02/bmw-usa-sales-down-36-for-november/.

[5] Federal Reserve Bank of Dallas, http://www.dallasfed.org/research/update-us/index.cfm.

harsh economic news, in an effort to downplay the likely impact of the economic reversals on the Applicant's load forecast. The seriousness of the economic upheaval, and its consequent impact on any load forecast made before the September 2008 collapses on Wall Street, cannot be brushed aside. As the Brockway Declaration states:

> The SCE&G approach to its long term load forecast is naïve in light of the structural differences between the current economic crisis and ordinary downturns in the business cycle. The prospects for load growth to return in time to require the Company's investment in new generation on its present schedule are uncertain at best.
> [Brockway Declaration at 12].

Perhaps because they pretend the country and the State of South Carolina are not experiencing a grave and nearly unprecedented economic crisis, Petition opponents mischaracterize the reason Brockway takes issue with the Applicant's use of an outdated forecast based on a straight-line mechanistic application of pre-2008 loads and economic trends. They misunderstand Brockway's reliance on "changes which took place in the last two years."[6] It is precisely the break in the erstwhile economic and load trends that requires any reasonable load forecaster to revise its forecast, starting with today's economic conditions and reasonable econometric forecasts based on such conditions. Petitioners argue that acceptance of the Applicant's out-dated forecast unreasonably stretches the boundaries of responsible forecasting. A decision to proceed with two units based on such a forecast is not a reasonable approach to anticipating and fulfilling the need for power.

[6] Staff Response to Petition, at p. 49.

If Opponents' requirements for Petitioners' critiques of the Applicant's outdated load forecast are adopted, then there is no meaning left to the Commission's determination that it will continue to explore need for power in its review of the Environmental Report. Staff counsel speculates that "if this downturn follows the course of most economic downturns, the economy could be enjoying sustained positive growth well before 2016…"[7] The contention before the Commission is precisely that this downturn is not like "most economic downturns." If the load is reduced from earlier forecasts because of the economic crisis, as Petitioners argue it will be, the result will be to overstate the benefit[8] of building two new 1150 mW nuclear generators, and thus preclude proper consideration of the environmental impacts of such construction and operation.[9] Petitioners deserve an opportunity to make this case before the Commission.

As to Petitioners' characterization of Applicant's discussion of demand side management, Opponents similarly mischaracterize Petitioners' arguments, and having created a straw man, proceed to dismantle it, without taking Petitioners' assertions seriously. In addition, the Opponents mistakenly argue that the DSM resources pointed to by Petitioners yet dismissed by the Applicant do not "materially affect the alternatives analysis…" [10]

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[7] Staff Response to Petition, at p. 50.

[8] *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 145
(2004) (*citing Hughes River Watershed Conservancy*, 81 F.3d at 446).

[9] SCE&G Response to Petition, at 58.

[10] Staff Response to Petition, at 61.

For example, the Brockway Declaration argues that the Applicant "utterly dismissed" the potential benefits of DSM. The quoted language refers to the potential for benefits beyond the meager effects of demand-side management and equipment standards regulation already included in the SCE&G load forecast. The problem is not that SCE&G spent pages of text in the ER on the presumed topic of DSM.[11] The problem is that SCE&G found every reason to be skeptical of the potential of DSM, and made no real effort to determine how much customer need could be met with DSM. As a result, SCE&G seriously underestimated its incremental DSM potential, and unreasonably overestimated the amount of future resources that would need to be met by generation.

Another example of the opponent's approach is Staff's argument at p. 57 to the effect that the limited effectiveness of energy efficiency in South Carolina might be the explanation for the historically limited DSM activity in South Carolina. Here, counsel for Staff is making what amounts to a final argument on the evidence, rather than showing the insufficiency of the declaration of Petitioners' expert.

Staff's view of the requirements of specificity and documentation would require that all Declarations be in the form of pre-filed testimony. For example, a hearing will test whether Commissioner Brockway's opinion that SCE&G's DSM programs are not "well-designed" and "will not achieve significant efficiency as currently designed."[12] A hearing will similarly provide Staff an opportunity to explore the bases for Brockway's opinion that

[11] Staff chides Petitioners for not addressing the SCE&G discussion of DSM in chapter 8 of the ER, as well as in chapter 9, on which Petitioners focus. Staff Response to Petition, at 55.. Applicant's discussion in Chapter 8 is a summary of material presented at more length in chapter 9 and does not add to the merits of Applicant's treatment of DSM.

[12] Staff Response to Petition at p. 55, citing Brockway Declaration at ¶ 33..

South Carolina's residential air conditioning load could be significantly reduced on peak by demand reduction programs such as those run by other utilities with similar service area characteristics and climates as those in South Carolina. [3]1

In the same vein of making every assumption against the assertions in the Petition and accompanying Declaration, without independent support for such interpretations, on p.60 Staff argues for an interpretation of the 5% energy reduction recommendation of the South Carolina Climate, Energy and Commerce Committee (CECAC), cited by Brockway. Staff argues that the CECAC 5% energy reduction recommendation should be understood to include the historic demand reduction already included in the Applicant's ER forecast. Putting aside that this interpretation mixes apples (energy reductions) with oranges (peak load reduction), this interpretation finds no justification in the text of the CECAC Report. The Brockway interpretation of the CECAC recommendation is reasonable, given one of the purposes of the CECAC report to outline ways South Carolina could go further in addressing greenhouse gases than would occur under its current path. See, e.g., the discussion of energy efficiency recommendations in Appendix G, available at http://www.scclimatechange.us/ewebeditpro/items/O60F19057.pdf; with its identification of an "energy" goal, not a "peak load goal," together with the incentives for incremental utility actions,. See also Appendix H, available at http://www.scclimatechange.us/ewebeditpro/items/O60F19063.pdf, which makes clear the GHG emissions reduction purpose of the CECAC report, a goal not accomplished by mere demand response.

[13] Cf. Staff Response to Petition at p. 57, citing Brockway Declaration at ¶ 35-36.

Similarly distorting Petitioner's argument, Staff at pp. 60-61of its Answer faults the Brockway Declaration discussion of achievable additional energy requirement reductions via DSM because it focuses only on SCE&G's contribution to DSM. This argument makes the unreasonable and unnecessary assumption that Santee Cooper could not also achieve comparable reductions to energy requirements as recommended in the CECAC report and as Brockway opines are readily achievable. NRC Staff's erroneous application of the likely percentages of DSM achievement only to SCE&G produces a much smaller percentage of the total plant energy output that would be replaced by DSM (at a much lower cost) than is warranted by a more objective reading of the Brockway Declaration.

NRC Staff then uses this lower number in a supposedly rhetorical question meant to establish that the additional DSM would not materially affect the alternatives analysis: "…where is the other 91% of the baseload generation capacity coming from?"[14] Even if the question were corrected to read "where is the other 84% of the baseload generation capacity coming from?", the question reveals an erroneous understanding of the power planning process. As the Brockway Declaration states, no single alternative should be expected or required to meet all the Applicant's needs by itself:

> …all possible alternatives must be identified, and alternate scenarios, consisting of various mixes of resources and timing of resources,

[14] Staff Response to Petition, at 61.

must be modeled to examine their net present value, given a variety of input assumptions. [5]1

Staff does not make clear what it would consider a significant contribution to anticipated resource needs. When put together with the other alternatives that Petitioners cite, the DSM resources available to the Applicant (at a considerably lower cost than that of the proposed units) would make a significant contribution to the utility's resource needs.

As with the opposition to Petitioners' DSM contentions, SCE&G and NRC Staff mischaracterize Petitioners' assertions, raise and dispute points not made by Petitioners, and argue for conclusions that should be tested on the evidence, not based merely on the ER as filed and the statements of the Opponents' lawyers in a legal pleading. These parties also place undue weight on the Applicant's claim that it needs "baseload generation" and only baseload generation. Opponents of the Petition also fail to analyze the reasonableness of any of the alternatives discussed by Petitioners in the context proposed: consideration of a modular plan for new resources, comprised of a number of options, and allowing the Applicant to determine its reasonably likely load requirements net of these options, before making the commitment of billions of dollars to one option.

SCE&G dismisses the offshore wind alternative described in the Brockway Declaration at ¶¶ 61-67, citing among other things its ER discussion of problems with *onshore* wind power.[16] Staff recites the justifications given in the ER for rejecting the

[15] Brockway Declaration at ¶ 56.

[16] SCE&G Response to Petition, at p. 64, citing ER, at 9.2-8.

wind option, without explaining why the recitation does not show the presence of a material factual dispute.[17] That the Applicant listed a number of alleged barriers to inclusion of the wind option in its portfolio of resources does not make the Applicant's decision reasonable.

Similarly, SCE&G and NRC Staff write off Petitioners' arguments that solar power should be considered as an alternative to the building of the two units, reciting the reasons the Applicant rejected the option as if they disposed of the contention. Staff attorneys argue in this procedural filing as if Commissioner Brockway's views are irrelevant on what types of information help support the argument for solar.[18]

More importantly, the Opponents of the Petition argue that the Applicant's purpose for the units is limited to supplying baseload power, and that neither wind nor solar are baseload forms of power.[19] *Ipso facto,* they argue, Applicant did not need to include them in its modeling, according to SCE&G and NRC Staff. Opponents rely on the argument that the utility's determination of its needs should be accorded great weight,[20] and that the Applicant has determined that it needs "baseload" power. The NRC visited the topic of the owner's preferences in its decision denying the NEI application for

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[17] Staff Response to Petition, at pp. 64-65.

[18] Staff complains, at p. 69, that Petitioners' only support for its assertions on the economics of solar is "an undated, unidentified projection from the U.S. Department of Energy Solar Energies Technology Program." The projection is part of a presentation made in May, 2008, which can be downloaded at http://www.earthday.net/files/doe.ppt, a citation that was obtained for the purpose of this filing simply by "googling" the title of the document.

[19] See, e.g., SCE&G Response to Petition, at p 66; Staff Response to Petition at p.70 .

[20] See, e.g., SCE&G Response to Petition, at p. 50, 2003 Rulemaking Petition Denial, 68 Fed. Reg. at 55,909, citing (*quoting Hydro Res., Inc.*, CLI-01-4, 53 NRC 31, 55 (2001) (*citing Citizens Against Burlington*, 938 F.2d at 197, *cert. denied*, 502 U.S. 994 (1991)). See also Staff Response to Petition at p. 66.

elimination of the need portion of the NEPA review. The Commission did affirm that "ordinarily" it will give substantial weight to "a properly-supported statement of

purpose and need by an applicant and/or sponsor of a proposed project in determining the scope of alternatives to be considered by the NRC."[21] However, the Commission cautioned that an applicant "will not be permitted to narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered,'' citing *City of New York* v. *Department of Transportation,* 715 F.2d 732, 743

(1983).[22] As the Commission also reaffirmed:

> alternatives to the construction of a nuclear power plant must be considered before the environmental impacts of construction are realized.[23]

Contrary to suggestions by Opponents of Petitioners, this is not one of those situations that may exist, in which the Applicant will "be able to establish, consistent with NEPA and current judicial precedents, a narrow statement of purpose and need for the project sufficient to justify excluding from the EIS a consideration of non-nuclear alternative energy sources."[24] Rather, eliminating all non-baseload alternatives from consideration arbitrarily narrows SCE&G's objective in building the two units at issue in this case.

Baseload generation is a form of generation that runs nearly continuously, with a very high load factor. As the Applicant's ER describes:

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[21] Ruling Denying Rulemaking Petition, 68 Fed. Reg. 55905 (September 23, 2008), at 55909.

[22] *Id., at* 55910 – 55911.

[23] *Id, at 5510.*

[24] *Id.*

> Baseload capacity is… the most expensive to build, takes the most time to start up and shut down, and is the least expensive to operate for extended periods of time. Peaking units are … the least expensive to build, can be quickly started or stopped, and are the most expensive to operate for extended periods. Characteristics of intermediate capacity fall between the other two.[25]

Note that intermittent sources of generation would constitute a fourth form of generation.[26] Also, DSM resources can meet peak load needs and energy needs, or both, depending on the DSM resource in question.

While neither the ER nor the Opponents discuss the underlying question of "why baseload only?" in any depth, one can see from the Applicant's definitions of the forms of generation that the primary driver of the choice of capacity type is economics. Arguing from the definition in the ER, one can see that a power planner, *ceteris parabus,* would select the mix of capacity based on which mix fit the expected load duration curve in the least expensive way. It is unreasonable to decide "ex ante" that two large baseload units are needed. Need in generation planning is a function not only of the load curve but of the resulting economics. It is elementary that if relative economics were not an issue, the Applicant could "conceivably" build 100 peakers of 221 mW each. While this example is an extreme, and readily recognized by anyone knowledgeable in power planning as unreasonable, by the same token it is unreasonable to determine that a load forecast calling for 2000 mW on peak requires that all of this be provided in the form of baseload capacity.

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[25] ER at 8.1-5.

[26] See, e.g., Federal Energy Regulatory Commission, Pro Forma Open Access Transmission Tariff, Schedule 9.

The Applicant itself recognized that baseload was not its only objective in new resources, since it used various forms of scenario modeling to determine what mix of generation forms, sizes, and on-line dates to choose.[27] However, it did not properly reflect the alternatives to its proposed central station baseload generation plant.

It is uncontested that the Applicant did not model the wind and solar non-baseload options in any comprehensive way in conducting its environmental assessment.[28] The Applicant (somewhat stingily) expressed a view in agreement with Petitioners in its ER, to the effect that even though individual alternatives might not be sufficient on their own to provide the capacity that the two proposed units would provide, "…it is conceivable that a mix of alternatives might be cost effective…"[29]

However, the ER does not adequately address alternatives to the proposed two-unit central station generation units because it arbitrarily limited the scope of scenario modeling of alternatives. Despite this acknowledgment, the Applicant did not reflect wind or solar in a reasonable way, limiting the models it ran (so far as it describes them) to scenarios with no solar at all, and very little wind (50 mW)[30] compared to what is

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[27] E.R. at 9.2.2.12.

[28] This is acknowledged by Staff in its Response at p.62, referencing the ER at 9.2-20 . Staff goes on to suggest that non-baseload generation need not have been modeled at all, citing *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-03-30, 58 NRC 454, 479 (2003) (stating, "'[A]n agency's consideration of alternatives is sufficient if it considers an appropriate range of alternatives, even if it does not consider every available alternative'"). The debate here, then, is over what is appropriate in light of the Applicant's reasonable objectives.

[29] E.R. at 9.2.2.12.

[30] *Id.* Note that the Applicant apparently did not model off-shore wind at all, since its critique of the scenario discussed here references "land-use" and "noise" impacts which would not apply to off-shore wind.

available, such as the 1000 mW of offshore wind that Commissioner Brockway describes in her Declaration, at ¶¶ 63-67.

Finally, the failure to consider a more modular approach to adding resources, as discussed below, renders the ER inadequate to capture the relevant considerations in choosing a resource acquisition objective.

The ER is based on an inadequate review of alternatives to the proposed two-unit central station generating plant. Above, Petitioners discuss the insufficiency of the Opponents arguments regarding load forecast, demand side management resources, and alternative generation resources. The inadequacy of the ER stems also from its failure to consider alternatives in a sensible fashion and to take into account the likely costs of the plants. That is, rather than decide *ex ante* that baseload generation is needed, take an outdated load forecast for several years hence, exclude alternative resource options, underestimate the costs and impacts of construction, and determine to build two large generating units, SCE&G should model and analyze scenarios in which a modular approach is taken to meeting anticipated future resource needs.

To adequately assess such a modular approach, the Applicant should construct various scenarios for modeling that reflect (a) a post-financial-crisis forecast of energy and peak requirements, (b) all reasonable generation options even if not baseload, ©) the impacts on ability to obtain adequate electricity given rate impacts of (d) an updated and more realistic estimate of the costs of construction of the two AP1000s. A key benefit of the modular approach, which should be reflected in such an assessment, is the

opportunity a modular approach would provide the Applicant to avert making a commitment to two large central station plants of an uncertain design whose costs are at least equal to the utility's net worth.

NRC Staff and SCE&G argue that any talk of the probable costs of the plant is immaterial. A reasonable cost estimate is essential to adequate consideration of the project against alternatives. Staff and SCE&G argue that some alternatives are too costly in comparison with the project proposed. CITE. If alternatives can be excluded because they do not compare favorably with the proposed project on costs, such a comparison is meaningless without at least a reasonable estimate of project costs. Applicant might as well have simply chosen the lowest published estimate of costs, under the standard for materiality that Staff and SCE&G advance.

With respect to the human environment, NRC Staff dismisses the idea that inability to pay for adequate electricity would constitute an adverse impact on the human environment.[31] Staff and SCE&G argue that there is no environmentally preferable alternative to the project, but that argument assumes the very issues to be decided in the NEPA review.

Staff argues that "counting rate increases in addition to overall construction costs would result in double-counting of costs." [32] But this argument makes no sense. Rate increases are not counted "in addition to overall construction costs," but rather as the expected impact of the incurrence of such construction costs. It is true that Petitioners point to the adverse impact on the utility's finances of a commitment to a project so costly that it amounts to "bidding the

[31] E.g., Staff Response to Petition, at p. 79.
[32] *Id.*

company."[33] But this observation is along the way to the point that the "business decision" of the Applicant[34] has impacts on the human environment that are not adequately considered. Considering only the Applicant's underestimated cost for the plants, the Applicant expects rates to increase 40% as a result of construction. *A fortiori* rates will be considerably higher as the estimate is adjusted to a higher, more reasonable level.

Commissioner Brockway, with over 25 years experience in state utility regulation, including many years representing consumers (and particularly low-income and other vulnerable consumers) on rate issues before state regulators, opined that even a 40% rate increase would constitute rate shock, and produce hardship for many, "especially those of lower incomes and marginal profitability."[35] This proposition is so self-evident, at any rate, that it is the Applicant, not Petitioners, that should be providing documentary support for the argument that such impacts are not "significantly adverse."[36]

SCE&G and the Staff both argue based on a recent Licensing Board decision that a cost-benefit analysis of the project is not required where the Applicant's alternatives analysis indicates that there is an environmentally preferable alternative.[37] There is no dispute that building any 1,117 mW central station generation units will have environmental impacts that must be considered. In addition to impacts on the natural

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[33] Petition at ¶¶ 45-46.
[34] Cf. Staff Response to Petition at p. 71.
[35] Petition at ¶ 44. Note Brockway's reference to "profitability," which brings into the analysis the question of the ability of businesses to stay open and continue offering employment, at least at anticipated levels, in South Carolina if such high rate increases are incurred.
[36] Staff Response to Petition at p. 81. The Applicant, in its Response to Petition, does not address the opinion set forth in the Declaration to the effect that the rate increases would have adverse consequences, limiting itself to arguing that these are immaterial.
[3737] SCE&G Response to Petition at p. 73, and Staff Response to Petition at p. 72. citing LBP-08-21, slip op. at 25.

environment, and as discussed above, the shear cost of such investments, as reflected in rates, will produce adverse impacts on the human environment.

The alternatives dismissed by the Applicant have low environmental footprints. DSM actually reduces energy use, and thus generation emissions. The load management component of DSM also helps to avert the need for construction and its impacts. Wind, especially the off-shore wind cited by Petitioners, produces no emissions. Solar power produces no emissions.

Thus, there are reasons to believe an alternative, modular plan (reflecting an updated demand forecast, reasonable DSM assumptions, and inclusion of wind, solar and purchased power opportunities) is environmentally preferable without analyzing a reasonable set of such scenarios. The only way to know if this is so is to conduct a reasonable number of scenario analyses, modeling various combinations of alternatives and reflecting reasonable assumptions about load forecasts and the costs of the alternatives (including the proposed project), and look at the result. This is the job of the Applicant. Petitioners should not be put in a position of having to conduct the adequate analysis in order to raise the contention that the Applicant has not done so.

As the Brockway Declaration and cited supporting evidence makes clear the proposal described by South Carolina Electric & Gas in its ER does not meet the NEPA standards. Until the costs and risks of the proposed Summer reactors and the alternatives are fairly and completely presented, the NRC staff will not be able to complete its EIS. The Petitioners' contention should be admitted.

CONCLUSION

The Petitioners Sierra Club and Friends of the Earth request that their petition to intervene and request for hearing be granted. The foregoing contentions should be admitted because they clearly satisfy all of the Commission's requirements in 10 C.F.R. § 2.309.

Respectfully submitted this 12th day of January 2009.

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CERTIFICATE OF SERVICE

I hereby certify that copies of this REPLY BY SIERRA CLUB AND FRIENDS OF THE EARTH was served on the following via the EIE system:

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This is the 12th day of January 2009.

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