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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Docket No. 090007-EI

GULF POWER COMPANY ENVIRONMENTAL COMPLIANCE PROGRAM UPDATE

for the

Clean Air Interstate Rule
Clean Air Visibility Rule

April 1, 2009

GULF POWER

A SOUTHERN COMPANY

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1.0 EXECUTIVE SUMMARY

Since the Clean Air Act Amendments (CAAA) were passed by Congress in 1990, Gulf Power Company (Gulf Power or Gulf) has reviewed and updated its environmental compliance plan as needed on an on-going basis. The goal of this process is to identify reasonable, cost-effective compliance strategies that will minimize the impact on Gulf Power's customers while achieving environmental objectives and assuring compliance with all environmental requirements.

This document is an update of Gulf's original compliance plan approved by the Florida Public Service Commission (Commission or FPSC) in Order No. PSC-07-0721-S-EI. That plan: (a) addressed the requirements of the Clean Air Interstate Rule (CAIR), Clean Air Mercury Rule (CAMR), and the Clean Air Visibility Rule (CAVR); (b) reviewed the decision process for assuring compliance at Gulf Power; and (c) provided cost estimates for incorporating these requirements at Gulf Power. The document reviewed the specific issues, timing, alternatives, process, and costs necessary for compliance with the new federal rules and the corresponding implementation programs developed by the Florida Department of Environmental Protection (FDEP) and the Mississippi Department of Environmental Quality (MDEQ).

On June 22, 2007, the Office of Public Counsel (OPC), the Florida Industrial Power Users' Group (FIPUG) and Gulf filed a petition for approval of a stipulation regarding the substantive provisions of Gulf's compliance plan. That stipulation identified 10 specific components, Phase I, of Gulf's plan as being reasonable and prudent for implementation and set forth a process for review in connection with the three remaining components of the plan. On August 14, 2007, the Commission voted to approve the stipulation with the proviso that Gulf provide an annual status report regarding cost-effectiveness and prudence of the phases in its Plan into which the Company is moving. On September 18, 2008, the Company filed its first annual compliance plan update, which was approved by the FPSC on November 4, 2008.

Since the Commission's approval of Gulf's compliance plan in 2007, there have been a number of developments. Gulf has addressed in several of its intervening filings, as well as in the annual update, changes to schedules of approved projects, such as the addition and cancellation of Activated Carbon Injection (ACI) at Plant Daniel and other compliance plan changes. However, there have been two significant court decisions that have had and will have further impact on Gulf's compliance plan. In February 2008 the District of Columbia Court of Appeals issued an opinion vacating the Environmental Protection Agency's (EPA) CAMR. The vacatur became effective with the issuance of the court's mandate on March 14, 2008, nullifying CAMR mercury emission control obligations and monitoring requirements. In July 2008, in response to petitions brought by certain states and regulated industries challenging particular aspects of CAIR, the U.S. District Court of Appeals for the District of Colombia issued a decision vacating CAIR in its entirety and remanding it to the EPA for further action consistent with its opinion. On December 23, 2008, however, the Court altered

its July decision in response to a rehearing petition and remanded CAIR to the EPA without vacatur, thereby leaving CAIR compliance requirements in place while the EPA develops a revised rule. The Court did not impose a particular schedule by which EPA must alter CAIR but did remind EPA that they did not intend to grant an indefinite stay of the effectiveness of their decision. The States of Florida and Mississippi have EPA-approved plans to implement this rule.

This document addresses Gulf's ongoing compliance projects and the reasons Gulf plans to continue these projects. Florida and Mississippi's EPA approved CAIR implementation plans must be met. Gulf Power's compliance plan will be impacted by factors such as: implementation of these rules; the result of EPA's promulgation of a CAIR replacement rule; EPA's, FDEP's, and the MDEQ's responses to court decisions vacating CAMR; changes to existing environmental laws and regulations, the cost of emissions allowances, performance of emission control equipment; and any change in the use of coal. Based on these factors, future environmental compliance costs will continue to be incurred, and projections will be revised. The timing of the requirements and costs incurred will be a function of the compliance options selected, fuel burn, energy demand, fuel sulfur content, availability and prices for allowance purchases, natural gas prices, performance of emission control equipment, and other variables.

A capital and operations and maintenance (O&M) cost summary for Gulf's compliance plan is provided in Table 1.0-1. Detailed capital and O&M costs are provided in Section 3 of this document.

As noted in the Commission's approval of Gulf's original compliance plan, the plan will likely evolve over time, so, at present, only Phase I projects have been approved. Gulf has changed the implementation of some of those projects. This document reflects all the changes to Gulf's compliance plan since the initial plan was approved. As circumstances become clearer, it is reasonable to anticipate further changes.

Gulf Power has remained in compliance with all requirements of the CAAA and has addressed local concerns regarding potential ozone nonattainment in Pensacola and along the Gulf Coast. Implementation of the plan described in this document will help assure continued compliance; however, new ozone standards may still result in the Pensacola area being designated as non-attainment. The FDEP recently released a list of non-attainment areas for ozone to EPA that included both the Pensacola Metropolitan area and Bay County. EPA is expected to make the final designations early next year.

Beyond CAIR and CAVR, many of the future regulatory requirements, especially those needed to attain current and future ozone and fine-particulate ambient standards and reasonable progress visibility requirements, will be aimed at further nitrogen oxide (NO_X) and sulfur dioxide (SO_2) reductions. However, many of these anticipated requirements are not yet fully developed. With the vacatur of CAMR, it is anticipated that EPA will adopt a rule for maximum achievable control technology (MACT) for power plant mercury

emissions and potentially other hazardous air pollutants (HAPs). As mentioned earlier, the EPA has been ordered to promulgate a new rule addressing the issues in the D.C. Circuit Court's July 2008 CAIR decision. In addition, there are multiple state, federal and international initiatives regarding greenhouse gases (GHG), particularly carbon dioxide (CO_2), pending. If adopted, these rules could further impact Gulf's compliance plan. All of this uncertainty reinforces the need for a flexible, robust compliance plan. Accordingly, as decision dates for equipment purchases approach, and as better information relative to regulatory and economic drivers becomes available, the analysis will be updated as needed to enable the selection of the most reasonable and cost-effective compliance alternatives while maintaining future flexibility in the plan.

Table 1.0-1
Projected 2009-2018 Compliance Plan
Capital and O&M Costs by Plant

Plant	Phase I Capital Expenditures ($M)	Phase II Capital Expenditures ($M)	Phase I O&M Expenses ($M)	Phase II O&M Expenses ($M)
Crist	463	0	184	0
Daniel*	315	206	24	8
Smith	1	307	37	4
Scholz	0	0	0.2	0
TOTAL	779	513	245	12

*Costs for Gulf Power's ownership portion of Plant Daniel in Mississippi.
Note: Allowance cost projections are not included in Table 1.0-1

2.0 REGULATORY AND LEGISLATIVE UPDATE

This section provides a regulatory and legislative update and review of the CAIR, CAMR, and CAVR.

2.1 CLEAN AIR INTERSTATE RULE

In March 2005, the EPA published the final CAIR, a rule that addresses transport of SO_2 and NO_X emissions that contribute to nonattainment of the ozone and fine particulate matter National Ambient Air Quality Standards (NAAQS) in the Eastern United States. This cap and trade rule addresses power plant SO_2 and NO_X emissions that were found to contribute to non-attainment of the 8-hour ozone and fine particulate matter standards in downwind states. Twenty-eight eastern states, including Florida and Mississippi, are subject to the requirements of the rule. The rule calls for additional reductions of NO_X and SO_2 to be achieved in two phases, 2009/2010 and 2015, as shown in Table 2.1-1.

Table 2.1-1

CAIR Emission Reduction Requirements

Emissions	Phase I reduction from acid rain allocations or current emissions	Phase II reduction from current allocations or current emissions
SO_2	50% (2010)	66% (2015)
NO_X	50% (2009)	65% (2015)

On July 11, 2008, in response to petitions brought by certain states and regulated industries challenging particular aspects of CAIR, the Circuit Court of Appeals for the District of Columbia issued a decision vacating CAIR in its entirety, and remanding it to EPA for further action consistent with its opinion. In December 2008, however, the U.S. Circuit Court altered its July 2008 decision in response to a rehearing petition and remanded CAIR to the EPA without vacatur, thereby leaving CAIR compliance requirements in place while EPA develops a revised rule. The States of Florida and Mississippi have EPA-approved plans to implement this rule. Compliance with these plans will be accomplished by the installation of additional emission controls at the Company's coal-fired facilities and/or by the purchase of emission allowances. Decisions regarding Gulf's CAIR compliance strategy were made jointly with the CAMR and CAVR compliance plans due to co-benefits of proposed controls.

Gulf Power's overall compliance strategy has been developed in response to numerous federal and state regulatory requirements, many of which remain unaffected by the court's ruling. The court's decision has the potential to impact future decision making regarding capital expenditures, the installation and operation of pollution control equipment, the

purchase of emissions allowances, and the carrying cost of the existing emissions allowances. The ultimate impact of this decision, if any, cannot be determined at this time and will depend on subsequent legal action, including future EPA and State rulemaking. However, what is clear for the present is that Gulf must comply with Florida and Mississippi's EPA approved CAIR implementation plans.

2.2 CLEAN AIR MERCURY RULE

In March 2005, the EPA published the final CAMR, a cap and trade program for the reduction of mercury emissions from coal-fired power plants. The rule set caps on mercury emissions to be implemented in two phases, 2010 and 2018, and provided for an emission allowance trading market.

The final CAMR was challenged in the U.S. Court of Appeals for the District of Columbia Circuit. The petitioners alleged that the EPA was not authorized to establish a cap-and-trade program for mercury emissions and instead the EPA must establish Maximum Achievable Control Technologies (MACT) standards for coal-fired electric utility steam generating units. On February 8, 2008, the court issued an opinion vacating the CAMR. The vacatur became effective with the issuance of the court's mandate on March 14, 2008, nullifying CAMR mercury emission control obligations and monitoring requirements.

With CAMR voided, electric generating facilities are no longer required to install mercury controls to meet the CAMR emission limits and are not required to install mercury monitoring equipment to meet the January 2009 monitoring deadline. EPA is expected to initiate a rulemaking proceeding to develop MACT standards for power plants; however, this process could take multiple years to complete. The CAMR court decision does not impact state rules that may continue to be developed in Florida. In addition, it is anticipated that emission controls installed to achieve compliance with CAIR, the Acid Rain Program, ambient air quality rules, and other environmental requirements will continue to result in mercury emission reductions. Future rulemakings could require emission reductions more stringent than those required by the CAMR.

2.3 CLEAN AIR VISIBILITY RULE

The Clean Air Visibility Rule (formerly called the Regional Haze Rule) was finalized in July 2005. The goal of this rule is to restore natural visibility conditions in certain areas (primarily national parks and wilderness areas) by 2064. The rule involves (1) the application of Best Available Retrofit Technology (BART) to certain sources built between 1962 and 1977, and (2) the application of any additional emissions reductions which may be deemed necessary for each designated area to achieve reasonable progress by 2018 toward the natural conditions goal. Thereafter, for each 10-year planning period, additional emissions reductions will be required to continue to demonstrate reasonable progress in each area during that period. For power plants, the CAVR allows states to determine that the CAIR satisfies BART requirements for SO_2 and NO_X. Extensive studies were performed for each

of the company's affected units to demonstrate that additional PM controls were not necessary under BART. States are currently completing implementation plans that contain strategies for BART and any other measures required to achieve the first phase of reasonable progress. The Florida Regional Haze rule, Chapter 62 Part 296.340, F.A.C., requires BART compliance as expeditiously as practicable, but not later than December 31, 2013. The Mississippi Regional Haze State Implementation Plan (SIP) has been submitted to EPA and is currently under review.

3.0 GULF'S COMPLIANCE PLAN

3.1 GULF POWER'S ELECTRIC GENERATING SYSTEM

Gulf Power owns and operates three fossil–fueled generating facilities in Northwest Florida (Plants Crist, Smith and Scholz). Gulf also owns a 50 percent undivided ownership interest in Unit 1 and Unit 2 at Mississippi Power Company's Plant Daniel. This fleet of generating units consists of ten fossil steam units, one combined cycle (CC) unit and one combustion turbine (CT). The name plate generating capacity of Gulf's generating fleet affected by CAIR and/or CAVR is 2,783 Megawatts (MW).

A summary of the Compliance Plan capital projects and associated expenditures through 2018 is provided in Table 3.1-1. The projected plant O&M expenses associated with the capital projects are included in Table 3.1-2. The cost information is provided by plant and by project.

Table 3.1-1
Compliance Plan Capital Expenditures
$ in Thousands

A B C D E F G H I J

	Prior Years**	2009
By Plant		
Plant Crist		
Mercury Monitoring		
Unit 6 SCR	5,270	14,215
Units 4-7 Scrubber	332,229	251,585
Plant Scholz		
Mercury Monitoring	556	
Plant Smith		
Unit 2 Baghouse*		
Unit 1 SNCR	7,603	696
Unit 2 SNCR	2,254	229
Mercury Monitoring	1,964	
Units 1-2 Scrubber *		
CAIR Parametric Monitor	229	
Plant Daniel		
Mercury Monitoring	7	(7)
Unit 1 SCR*		
Unit 2 SCR*		
Units 1 & 2 Scrubber		
Unit 1 SNCR		
Unit 1 Low NOx Burners	170	1,274
Unit 2 SNCR		
Unit 2 Low NOx Burners	3,265	161
By Project		
Mercury Monitoring	2,527	(7)
SCRs	5,270	14,215
Scrubbers	332,229	251,585
SNCRs	9,857	925
Baghouse		
CAIR Parametric Monitor	229	
Low Nox Burners	3,435	1,435
Annual Total	**353,547**	**268,153**

[redacted]

* Phase II projects that have not been approved for ECRC recovery
** 2006-2008 expenditures
Expenditures presented for Plant Daniel represent Gulf's ownership portion.
Allowance cost projections are not included in Table 3.1-1

Table 3.1-2
Compliance Plan Plant O&M Expenses
$ in Thousands

A B C D E F G H I J

	2008	2009
By Plant		
Plant Crist		
Mercury Monitoring		
Unit 6 SCR		
Units 4-7 Scrubber	366	1,739
Plant Scholz		
Mercury Monitoring		18
Plant Smith		
Unit 2 Baghouse*		
Unit 1 SNCR		1,700
Unit 2 SNCR		1,640
Mercury Monitoring		
Units 1-2 Scrubber*		
CAIR Parametric Monitor		
Plant Daniel		
Mercury Monitoring	145	7
Unit 1 SCR*		
Unit 2 SCR*		
Units 1&2 Scrubber		
Units 1 & 2 SNCR(s)		
Unit 1 Low NOx Burners		
Unit 2 Low NOx Burners		
Activated Carbon Injection	71	
By Project		
Mercury Monitoring	145	25
SCRs		
Scrubbers	366	1,739
SNCRs		3,340
Baghouse		
CAIR Parametric Monitor		
Low Nox Burners		
Activated Carbon Injection	71	
Annual Total	**582**	**5,104**

* Phase II projects that have not been approved for ECRC recovery
Expenses presented for Plant Daniel represent Gulf's ownership portion.
Allowance cost projections are not included in Table 3.1-2

3.2 COMPLIANCE OPTIONS

A comprehensive environmental compliance planning evaluation considers a range of options for economically meeting the energy needs of Gulf Power's customers. Gulf Power investigated four major options for environmental compliance:

- Dependence on allowance purchases
- Fuel switching
- Retrofit of environmental emission controls to existing generating units
- Retirement of existing generating units and replacement with new or purchased generation

Combinations of these options were also considered.

3.2.1 Allowance Purchase Option

The CAIR rule proposed a new cap and trade program. Cap and trade programs use a market-based approach to reduce emissions. The program sets a cap, or limit, for each pollutant such as SO_2 and NO_X, which is then divided into emission allowances that are allocated to each affected source. Sources are allowed to determine the most reasonable, cost-effective way to comply. Facilities may install environmental emission controls, use fuel switching, replace the generating units, rely on the emission allowance market, or use some combination of these options.

In addition to the already existing SO_2 (acid rain) and seasonal NO_X (ozone) allowance markets, the CAIR introduced an additional allowance market for annual NO_X.

3.2.2 Fuel Switching Option

Fuel switching refers to instances where an electric generating unit's primary fuel is changed to reduce emissions. For certain facilities, NO_X emissions can be reduced by burning high-moisture, low-Btu sub-bituminous coals, while mercury emissions can be reduced by utilizing coal lower in mercury content. In Gulf's case, fuel switching to lower sulfur coal was shown under the Acid Rain Program to be a cost effective means for reducing emissions of SO_2.

3.2.3 Retrofit Options

Retrofit options refer to additional environmental emission controls that can be installed on existing generating units. As discussed in Section 2, affected coal-fired electric generating units would be required to comply with SO_2 and NO_X limits under CAIR and CAVR, if the units are to continue to operate. These reductions may be met by installing additional SO_2, and NO_X

emission controls on existing units. Currently, the proven control technology of choice for SO_2 reduction is wet scrubbing. For NO_X removal, there are a number of proven emission controls available such as Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), and Low NO_X Burners (LNBs).

3.2.4 Retirement and Replacement Option

A retirement and replacement evaluation is used to compare retrofit compliance options to premature retirement and replacement of specific generating units in order to determine the most reasonable, cost-effective compliance option. These evaluations are performed at two levels of detail: (1) a less detailed retirement/replacement evaluation and (2) a more detailed site specific replacement evaluation. The retirement option is typically more applicable to smaller, older, less efficient coal plants that cannot financially support the addition of environmental controls. The evaluation methodology and the evaluation results are discussed in Section 3.3.4.

3.3 GULF'S EVALUATION OF COMPLIANCE OPTIONS

3.3.1 Evaluation of Allowance Purchase Option

The two existing emissions allowance markets (SO_2 and seasonal NO_X) have proven to be fundamentally driven by supply and demand. However, over time, many speculative investors have begun entering the allowance markets, particularly the SO_2 market, introducing considerable volatility and uncertainty concerning the price and availability of allowances.

The costs of compliance with the SO_2 programs represent a major portion of Gulf Power's total environmental compliance program cost. With the high price volatility, the future price and availability of allowances cannot be treated as predictable; therefore, depending solely on the market for SO_2 compliance presents a large risk for Gulf Power's customers. Additionally, should allowances not be available, Gulf Power might be forced to operate higher cost units while curtailing operation of lower cost units in order to maintain compliance.

The CAIR program introduced an additional allowance market for annual NO_X. This market was expected to emerge as soon as the states finalized their implementation plans. Indeed, EPA has populated the annual NO_X accounts. Due to the December 2008 court decision leaving CAIR intact, these allowances are necessary for continued operation after January 1, 2009. In addition, the seasonal NO_X program will be implemented in Florida and Mississippi.

Total dependence on these commodity markets for compliance would be very risky and potentially costly for Gulf Power and its customers. The market does, however, provide realistic opportunities for reducing costs through selected and limited purchases of allowances in conjunction with other options to achieve cost effective compliance.

In summary, in order for the allowance market based approach to be an appropriate solution for Gulf Power's compliance shortfall, these allowance markets must be established, reasonably stable, and have sufficient quantities of allowances available. Furthermore, to avoid short-term supply and demand volatility, these conditions must be met with sufficient lead time to allow time to pursue other options such as constructing emission controls. Given the timing of construction schedules and the compliance deadlines for the new rules, Gulf Power could not wait to see if stable allowance markets emerged. These overall uncertainties eliminated the exclusive use of an all allowance purchase option from consideration.

3.3.2 Evaluation of Fuel Switching Option

Fuel switching was shown under the Acid Rain Program to be cost effective for reducing emissions of SO_2. For certain facilities, NO_X emissions can be reduced by burning high-moisture, low-Btu sub-bituminous coals, and some coals are lower in mercury content than others. However, for the magnitude of emission reductions required by CAIR and CAVR, fuel switching is no longer a viable option.

3.3.3 Evaluation of Retrofit Options

Having determined that neither an all allowance plan nor an all fuel switching plan would be feasible or desirable, Gulf Power was left with the primary options of either retrofitting units or retiring and replacing units (and, if necessary, supplementing those options with allowance purchases or fuel switching). However, before making a comparison of retrofit and replacement options, Gulf Power first had to choose among competing retrofit options. Those selections of the best retrofit options were discussed in Gulf's original compliance plan and have not changed; therefore, they are not repeated here.

3.3.4 Evaluation of Retrofit versus Replacement Options

Selection between retrofit and replacement options is based upon a financial assessment of which option ultimately is expected to be the most reasonable, cost effective alternative for Gulf's customers. The analyses examines the relative cost of dispatching the System (a) with the retrofit technology in place and (b) with having retired the unit without making the retrofit and instead, replacing it with new or purchased capacity. The analyses included all Gulf Power units that would require environmental controls under Phase I of CAIR and are anticipated under CAVR.

This analysis is run at both a less detailed level (Phase I) and using a more detailed methodology (Phase II). The basic methodology is the same for both types of analyses, but the Phase I analysis employs some simplifying but more stringent assumptions. The Phase I level analysis uses a lower-cost replacement alternative than is used in the more detailed Phase II methodology (essentially peaking capacity with energy priced at the Southern electric system's marginal cost of energy instead of an equivalent amount of CC capacity replacing the unit that would be

retired). Consequently, if a retrofit option passes the more stringent Phase I level analysis, it will pass the more detailed Phase II analysis that uses a higher cost, site-specific replacement option. The employment of this Phase I methodology allows a quick, yet more stringent evaluation of financial viability and is an excellent indicator of which retrofit options need a more detailed evaluation. The Phase II evaluation focuses on a comparison of continued unit operation with replacement by a CC. The detailed evaluation also includes more refined production cost modeling and cost implications to the transmission system. Changes in production cost, capital, and other fixed costs are captured in the comparison analysis to help determine the most economical option.

Phase I Methodology

The Phase I economic analysis creates a comparison of the costs over a period from the current year until the planned retirement date for each unit at which a retrofit is being contemplated. The costs of operating the retrofitted unit, its affect on system dispatch costs, and the need to purchase allowances to meet any remaining emission shortfalls (all of which are characterized as "Incremental Costs") are compared to the cost of a generic peaking unit and System replacement energy costs. To calculate those associated energy costs, Gulf assumes energy purchases from the Southern electric system at the System incremental cost. The costs associated with capacity to replace a unit and the associated energy costs are characterized as "Avoided Cost," as these are the costs that are avoided by operating the retrofitted unit.

The analysis compares the net present value (NPV) on a $/kW basis of the two cost streams over the period analyzed to determine which has the lower cost on a net present value basis. The difference between the Avoided Cost associated with replacement and the Incremental Costs of operating the retrofitted unit is characterized as "the overall net contribution of continued operation." If the replacement option cost was lower than the retrofit option cost, then this value would be negative. The control schedules are based on potential CAIR, CAVR and ozone non-attainment requirements.

Avoided Cost

Avoided cost includes capacity and energy costs. These costs are properly characterized as benefits, as they are the costs avoided due to operating the retrofitted unit. The avoidance of these costs is a benefit to Gulf Power and its customers.

Capacity costs are the costs of a peaking generator used for system reliability to meet peak loads. These costs for the replacement option in the Phase I analysis are based on a peaking capacity price forecast that assumed short-term purchases from the market until 2014 and the economic carrying cost of a self-build combustion turbine thereafter.

Energy costs in the Phase I analysis are developed using the Strategist® model. Strategist® is a production cost model commonly employed throughout both the Southern electric system and

the utility industry. The avoided energy cost for each retrofitted unit is calculated by determining the average energy purchase costs during the hours the retrofitted unit operated each year. This methodology simplifies avoided energy cost calculations for use in Phase I potential retirement candidates.

Incremental Costs

Incremental costs include fuel, O&M, capital, and emission allowance costs (NO_X, SO_2, and CO_2) necessary for continued operation of the retrofitted facility. Mercury allowances were not included in the Strategist® model due to the vacatur of CAMR. Further, given that CAIR's vacatur was stayed by the Court, NO_X and SO_2 allowance costs necessary to comply were included.

The fuel and allowance price assumptions are based on Southern Company forecasts developed by polling external and internal subject matter experts. Southern Company provides primarily near term projections based on its experience with the short term markets and relies primarily on an external consultant for its long term forecast. The Strategist® model is then provided total annual fuel and emissions costs based on the economic operation of the retrofitted unit for the base case and the two CO_2 sensitivities for the remaining life of the unit. O&M costs for the retrofitted unit include labor, materials, overheads, and engineering and support services. Four-year projections of the retrofitted unit's incremental O&M costs were developed. The O&M costs of the retrofitted unit over its remaining life are calculated using a moving average of the projections for the first 4 years and escalating the resulting value for inflation.

The incremental capital costs for the remaining life of the retrofitted unit were based on capital expenditures projected for each retrofitted generating unit. These projected capital expenditures were necessary to keep the units running through the analysis period at the current level of operation. Future capital expenditures for environmental controls were also included.

Sensitivities

Gulf's September 2008 CAIR/CAMR/CAVR Compliance Plan update included the results of a Phase I base case analysis and two sensitivities that were developed around uncertainty in CO_2 legislation. These planning sensitivities were developed in order to capture variations in the operating environments that would affect the retirement dates of the units. The sensitivities were developed by Southern Company based on input from subject matter experts within Southern Company. The sensitivities were based on \$10/Ton CO_2 and \$20/Ton CO_2 (2008\$) starting in 2015 escalating at 5% above inflation. The Phase I analysis has not been updated since the September 2008 filing because Gulf's economic analyses have not been finalized using the updated 2009 planning assumptions.

Summary of Study Results

Tables 3.3-3 through 3.3-8 summarize the results of the September 2008 Phase I analysis. The tables illustrate costs and benefits of continued operation of each of the units with environmental controls over the remaining life of each unit for the base case and both CO_2 sensitivities. Assumptions for the timing and installation of environmental controls are listed at the bottom of the table. A description of each line item included in the evaluation is also included on Table 3.3-9.

In most reasonable sensitivities analyzed for Gulf's units with proposed retrofit projects, continuing to operate the existing unit with the retrofit option has a NPV lower than the cost to replace the unit. Under higher CO_2 penalties ($20/Ton) and moderate fuel prices, the evaluation indicates it would be cost effective to replace the units by 2020; however, under those conditions, the higher demand and higher related price for natural gas that would result would likely provide enough economic margin to continue to operate the coal units. Customers will also continue to benefit from the value of diversity in future fuel costs with the retrofit of existing coal units instead of Gulf increasing its reliance on gas.

The September 2008 Phase I level results indicate there is a savings shown by continuing to operate each generating unit as opposed to replacing it with new or purchased capacity and System energy purchases for both the base case (No CO_2) and $10 CO_2 sensitivity. By adding the net contribution values for the base case shown in Tables 3.3-3 through 3.3-8, the savings for Plants Crist and Daniel are $1.9 billion and $1.2 billion, respectively, under the No CO_2 case, and $1.3 billion and $0.9 billion, respectively, under the $10 CO_2 sensitivity. Under the extreme $20 CO_2 sensitivity, which does not recognize a corresponding increase in natural gas prices, Crist Units 4 through 6 and Daniel Units 1 and 2 are indicated to retire by 2020. Crist Unit 7 remains economic even under the most severe CO_2 sensitivity.

Phase II Methodology

The Phase II analysis focuses on a comparison of continued operation with retrofits to replacement by a combined cycle unit. This evaluation also includes more refined production cost modeling and cost implications to the transmission system. Changes in production cost, capital, and other fixed costs are captured in the comparison analysis to help determine the most economical option. In the September 2008 Phase II analysis the System production costs were generated with the Strategist® model using a thirty-year period (2008 – 2037) with the updated 2008 Energy Ventures Analysis, Inc (EVA) published forecasts for allowances and the Southern Company 2009 Fuel Forecast Update. Fixed costs associated with the continued operation of the existing generating units were based on projections of annual O&M and the NPV of the revenue requirements associated with incremental capital investment necessary to keep the unit operational over the 30-year evaluation period. Replacement, installation capital, fixed O&M, and continue to operate capital, are site specific costs developed by Southern Company Engineering and Construction Services. Replacement capacity costs are expressed as a credit of

Engineering and Construction Services. Replacement capacity costs are expressed as a credit of CC capacity cost for all replacement MWs that exceed the amount being replaced. The NPV of the difference between replacement cost and unit operational cost is calculated to determine the overall net contribution. The annual cost difference is present-valued and accumulated to determine if there is an economic retirement date. The units analyzed and the dates utilized in the retirement detailed analyses were determined based on the units impacted by the CAIR and CAVR control deadlines and time required for replacement combined cycles to be built. These control deadlines are based on potential CAIR, CAVR, and ozone non-attainment requirements.

As in the Phase I analysis, the September 2008 Phase II analysis incorporated the base case and two planning sensitivities that were developed around uncertainty in CO_2 legislation. These planning sensitivities were developed by Southern Company based on input from subject matter experts both externally and internally within Southern Company. The sensitivities were based on \$10/Ton CO_2 and \$20/Ton CO_2 (2008\$) starting in 2015 escalating at 5% above inflation. The units analyzed in Phase II are Crist Units 4 through 6 and Daniel Units 1 and 2. The Phase II analysis has not been updated since the September 2008 filing because Gulf's economic analyses have not been finalized using the updated 2009 planning assumptions.

Plant Crist Units 4 through 6

The purpose of this evaluation was to determine the economic benefits of retiring Plant Crist Units 4 through 6 in May of 2014 and replacing the units with the lowest cost option. The evaluation also included estimates of transmission cost implications and dismantlement costs associated with a potential retirement. It was assumed in this study that the replacement combined cycle unit would be placed on the Plant Crist site. The evaluation retired and replaced Crist Units 4 through 6 with one 2x1 G series CC in June of 2014, avoiding the Crist 6 SCR installation in the fall of 2012.

Crist 7 was excluded from this evaluation due to the large economic value indicated in the Phase I evaluation. Since Crist 7 already has an SCR and is scheduled to have a scrubber operational in 2009, nearly all of its environmental retrofit costs are either spent or committed. At this point in the construction of the Plant Crist scrubber, eliminating Crist Units 4 through 6 from the project scope would not result in significant, if any, cost savings. For this reason, all of the remaining cost of the Crist scrubber was allocated to Crist Unit 7. Even with this allocation, Crist Unit 7 remains the most economic choice to be controlled.

Transmission and Dismantlement Cost Assumptions

1
2
3
4
5

[redacted]

1

2. [redacted]

Partial dismantlement cost estimates for Crist Units 4 through 6 were based on a 2008 study. The results of that study indicated that for Crist Units 4 through 6 the projected cost is $5.5 million in 2008$.

Results

An economic evaluation of the CC replacement option was performed to compare customer costs over a thirty-year period from 2008-2037. The CC replacement option was compared back to the cost of continuing operation of Crist 4 through 6 with the SCR installed on Crist 6.

Table 3.3-1 summarizes the additional fuel (System Production Cost), capital, and O&M costs for the CC replacement options for the September 2008 base case and two sensitivity cases. It shows that the No CO_2 and $10 CO_2 cases would result in a total cost to the customer of $936.6 million and $643.4 million, respectively, if Crist Units 4 through 6 were replaced with a combined cycle unit. Under the higher $20 CO_2 penalty and the current fuel forecast, the evaluation indicated there would be a total cost to the customer of $376.9 million, if Crist Units 4 through 6 were replaced with a combined cycle unit. Under such a high CO_2 penalty, the higher demand and related higher price for natural gas that would result would likely provide an even greater economic margin to continue to operate the coal units.

Table 3.3-1
Net Replacement Costs – Crist Units 4 through 6

[redacted]

Plant Daniel Units 1 and 2

The purpose of this evaluation was to determine the economic benefits of retiring Plant Daniel Units 1 and 2 in December of 2014 and replacing the units with the lowest cost option. The evaluation also included estimates of transmission cost implications and site closure costs associated with a potential retirement. It was assumed in this study that the replacement CC would be placed on the Plant Daniel site. The evaluation retired and replaced Daniel Units 1 and 2 with two 2x1 G series CC's in January of 2015, avoiding the Daniel Units 1 and 2 SCRs in the fall of 2014 and the spring of 2015, respectively, and the fall 2013 Scrubber installation.

Transmission and Site Closure Cost Assumptions

1
2
3
4
5
6
7
8

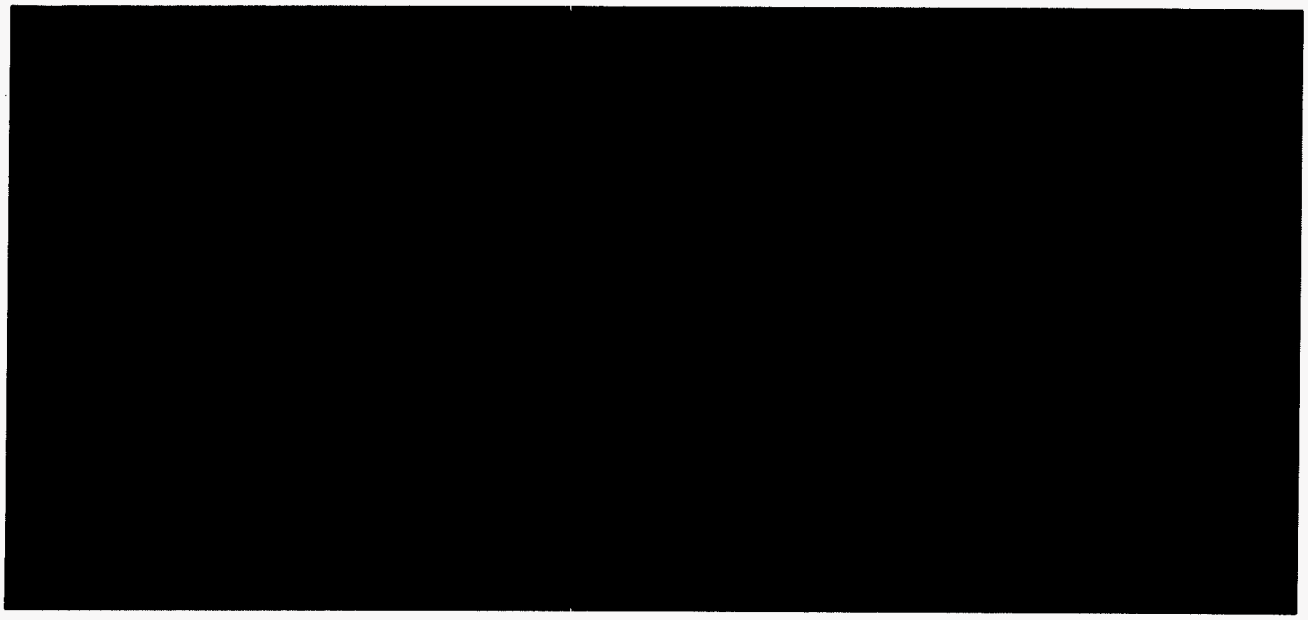
[redacted]

Site closure cost estimates for Daniel Units 1 and 2 were based on a 2008 study. The results of that study indicated that for Daniel Units 1 and 2, the projected cost is $33.2 million in 2008$, which included the closure of the ash pond.

Results

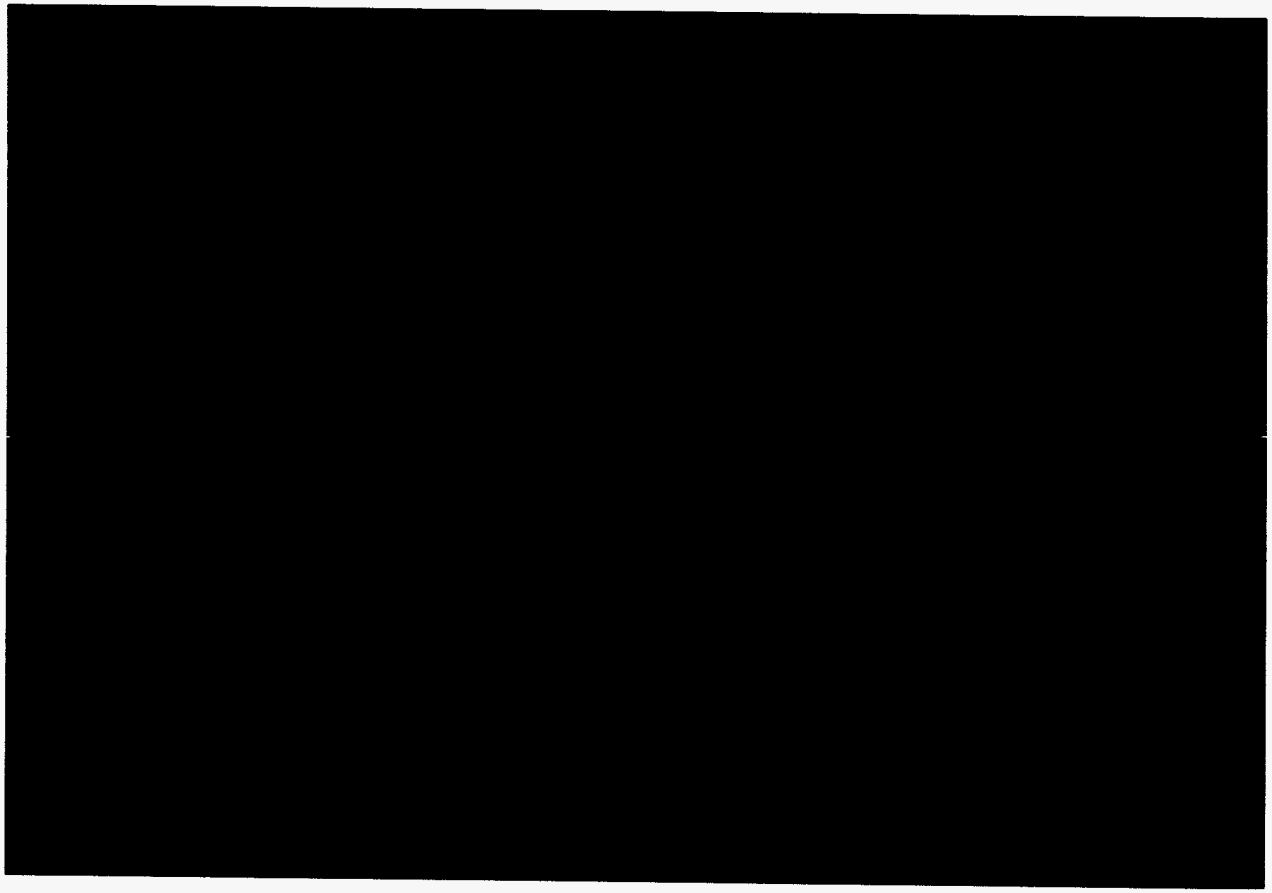
Table 3.3.2 summarizes the additional fuel (System Production Cost), capital, and O&M costs for the CC replacement options for the September 2008 base case and two scenarios analyzed. It showed that for the No CO_2 and $10 CO_2 cases there would be a total cost to Gulf's customers of $669.2 million and $365.0 million, respectively, to replace Daniel Units 1 and 2. Under the higher $20 CO_2 penalty, and the current fuel forecast, the evaluation indicated there would be a total cost to Gulf's customers of $50.4 million to replace Daniel Units 1 and 2. Under such a high CO_2 penalty, the higher demand and higher related price for natural gas that would result would likely provide an even greater economic margin to continue to operate the coal units.

Table 3.3-2 Net Replacement Costs – Daniel Units 1 and 2



TRADE SECRET – PROTECTED

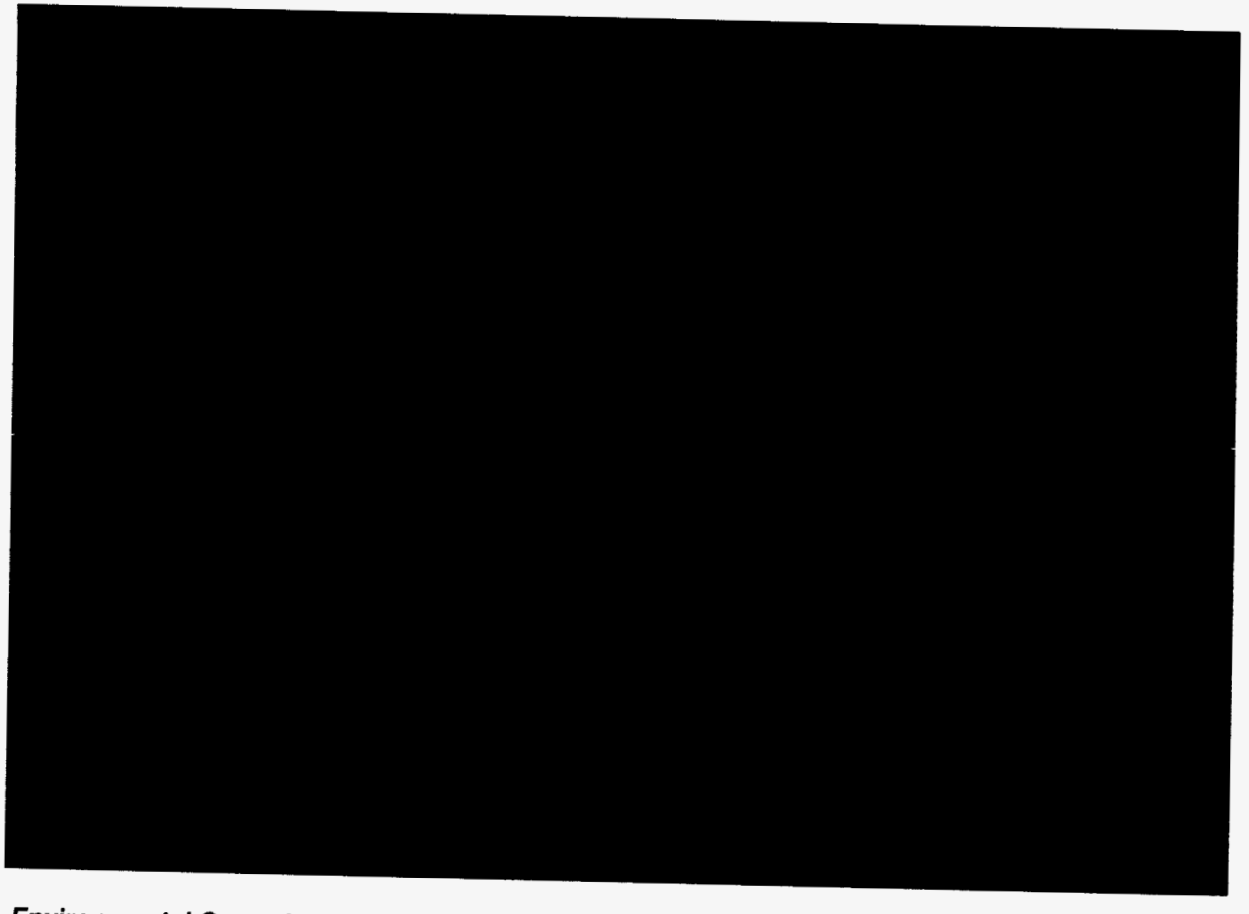
Table 3.3-3
Phase I Economic Viability Study – Crist Unit 4



Environmental Controls		
Scrubber		2009
SCR		N/A

TRADE SECRET – PROTECTED

Table 3.3-4
Phase I Economic Viability Study – Crist Unit 5



Environmental Controls
Scrubber
SCR

2009
N/A

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Table 3.3-5
Phase I Economic Viability Study – Crist Unit 6

[redacted]

Environmental Controls
Scrubber 2009
SCR 2012

A B C D

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Table 3.3-6
Phase I Economic Viability Study – Crist Unit 7

[redacted]

Environmental Controls
Scrubber
SCR

2009
Existing

A B C D

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Table 3.3-7
Phase I Economic Viability Study – Daniel Unit 1

[redacted]

Environmental Controls
Scrubber 2013
SCR 2014

A B C D

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Table 3.3-8
Phase I Economic Viability Study – Daniel Unit 2

1	[redacted]	
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21		
	Environmental Controls	
	Scrubber	2013
	SCR	2015

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Table 3.3-9
Phase I Economic Viability Study – Evaluation Description

Economic Screening Analysis
NPV of Study Period in 2008 $/kW

Generating Unit	*Description*
Avoided Cost Based Benefits	
Energy	The value of System lambda (marginal energy costs) during the hours the unit is running
Avoided Capacity Benefit	The projected value of peaking capacity based on the long term cost of a new CT
Avoided Cost Benefits	Total Avoided Costs
Incremental Costs	
Fuel	The fuel cost to operate the existing unit
SO_2	The cost of SO_2 emissions based on SO_2 allowance costs and unit emissions
NOx	The cost of NO_x emissions based on NO_x allowance costs and unit emissions
CO_2	The cost of CO_2 emissions based on CO_2 penalties and unit emissions
Hg	The cost of Hg emissions based on Hg allowance costs and unit emissions
O&M	The fixed and variable O&M costs (including environmental) to operate the unit
Capital Expenditures	The capital necessary to continue to operate and meet environmental compliance
Total	Total Incremental Costs
Net Contribution	Avoided Cost Benefits minus Incremental Costs
MW Capacity	Average Net Generating Capacity
Net Contribution in Thousands of Dollars	Net Contribution in Thousands of Dollars
Economic Retirement Date	Year that maximum accumulated net contribution occurs

4.0 PLANT-BY-PLANT COMPLIANCE PLAN

4.1 Plant Crist

Plant Crist is a four-unit, coal-fired electric generating facility located just north of Pensacola, Florida. Three older natural gas and oil-fired units at the site have been retired. Units 4 and 5 each have a nameplate rating of 93.7 MW and Units 6 and 7 have nameplate ratings of 369 MW and 578 MW, respectively. All four units were affected under the Acid Rain Program, and the plant has operated on low-sulfur coals since the 1990s to lower SO_2 emissions. All four units are equipped with low-NO_X burner systems. Plant Crist Units 4, 5 and 6 have SNCR systems, while Crist Unit 7 is equipped with a SCR system.

For compliance with CAIR and later with CAVR and potential NAAQS, Plant Crist needs significant SO_2 and NO_X reductions. Gulf Power forecasts that without additional emission controls Plant Crist would exceed allowance allocations for SO_2 and NO_X. Only a few technologies have demonstrated the ability to provide the needed emission reductions at the commercial scale required for Plant Crist.

For CAIR requirements at Plant Crist, a thorough assessment was conducted to compare the retrofit controls versus retirement and replacement options for compliance. As noted under Section 3.2, fuel switching or exclusive reliance on allowance purchases were eliminated as viable options for Gulf Power. Retrofit options, as well as retirement and replacement options, are each reviewed below specifically for Plant Crist.

4.1.1 Plant Crist Retrofit Options

Plant Crist Units 4 through 7 Flue Gas Desulphurization Scrubber Project

Very high levels of SO_2 emission reductions can be achieved by flue gas desulphurization. There are no other commercially available options for SO_2 emission reductions at the level needed to assure compliance with CAIR and CAVR and address the significant local concerns in the Pensacola area.

A scrubber was the only SO_2 compliance option for Crist Units 6 and 7, and because of their size and emissions, these units were the best, most cost-effective candidates for SO_2 scrubbing and mercury removal. Gulf's plan focuses on placing this scrubber on the largest Gulf Power generating units first and delaying emission controls and costs on other smaller units and plants. Installing additional ductwork and boiler controls to include Crist Units 4 and 5 was also cost-effective and increased incremental SO_2 and mercury emission reductions. The Crist scrubber project is projected to reduce SO_2 emissions by approximately 50,000 tons per year. With these reductions, Gulf Power will be able to reasonably manage compliance with its SO_2 allowance bank and some market purchases of allowances as required.

In terms of timing, the Crist scrubber was needed for Phase I CAIR compliance in 2010. Even if the CAIR rule had been vacated, Gulf Power anticipated that the Crist Scrubber project would still be needed for Crist Units 6 and 7 to comply with CAVR by 2013. Given that the Crist Scrubber project was still needed for CAVR compliance, regardless of the resolution of CAIR and the new rule that EPA promulgates, the issue Gulf faced was whether or not to defer the Crist Scrubber project for several years. During 2008, Gulf determined that the Crist Scrubber project should proceed for a variety of reasons. First, over $175 million of equipment had already been ordered. Second, significant construction had already occurred, and the construction workforce had been fully mobilized; deferral would have significantly increased the total project costs. The project was approximately 55% complete at the end of 2008. Demobilization would have meant the potential loss of personnel already on site. Deferral for three years until 2012 to meet 2013 CAVR requirements would have increased the project construction cost by approximately $53 million. The associated increase in AFUDC, which Gulf would seek for recovery, would have been at least $45 million. Thus, deferral would have cost around $100 million. Third it was also reasonable to anticipate that EPA and/or FDEP would act again to address the same issues in the replacement to the CAIR rule when it is developed. If they do, the scrubber project would continue to be the best, most cost-effective means of limiting SO_2 and mercury emissions, with Gulf potentially facing increased costs in order to meet accelerated in- service dates.

Plant Crist Unit 6 SCR Project

The Plant Crist Unit 7 SCR became operational in 2005, significantly reducing emissions of NO_X from the plant. This project was called for under an agreement with the FDEP. The agreement also called for additional NO_X reductions at Plant Crist Units 4 through 6 up to and including a SCR for Unit 6. Additional NO_X reductions are needed at Plant Crist, and only SCR technology will provide the additional increment needed. The SCR on Unit 6 will be important for Pensacola to achieve attainment with the new 8-hour ozone standard and addresses significant local pressures to continue NO_X reductions from the plant. In addition, the Crist Unit 6 SCR was also needed for CAIR and CAMR compliance. While CAMR compliance is no longer required, CAIR requirements still remain applicable. The Crist Unit 6 SCR will still be needed to satisfy FDEP requirements, the new 8-hour ozone standard, and local pressure to reduce NO_X emissions. Gulf has deferred the in-service date for the Crist Unit 6 SCR from 2010 to 2012.

4.1.2 Plant Crist Comparison of Retrofit versus Retirement and Replacement

The initial selection between retrofit and retire/replacement options for Plant Crist was based upon a financial assessment and analysis to determine the most reasonable, least cost option for Gulf Power and its customers. The analysis examined the relative cost of dispatching the Gulf system (a) with the retrofit technology in place and (b) with having retired the Crist unit(s) without making the retrofit and instead, replacing it with capacity from another generation source.

This analysis was run at both a less detailed level (Phase I) and using a more detailed methodology (Phase II). The basic methodology was the same for both types of analyses, but the Phase I analysis employed some simplifying but more stringent assumptions. For Phase I, the costs of operating the retrofitted units and its affect on system dispatch costs and the need to purchase allowances to meet any remaining emissions (all of which are characterized as "incremental costs") were compared to the cost of a generic peaking unit and associated energy costs. The September 2008 Phase I level results indicated there is a savings shown by continuing to operate each generating unit as opposed to replacing it with new or purchased capacity and System energy purchases for both the base case (No CO_2) and \$10 CO_2 sensitivity. The projected NPV cost savings or benefit to Gulf and its customers for Gulf's Environmental compliance plan for Plant Crist ranged from \$0.8 billion - \$1.9 billion over the period 2008 through the affected units' planned retirement dates.

The Phase II analysis focused on a comparison of continued operation with unit replacement by a combined cycle and included Crist Units 4, 5, and 6. This evaluation also included more refined production cost modeling and cost implications to the transmission system. Changes in production cost, capital and other fixed costs were captured in the comparison analysis to help determine the most economical option. The September 2008 Phase II results showed that the No CO_2 and \$10 CO_2 cases would result in a total cost to the customer of \$936.6 million and \$643.4 million, respectively, if Plant Crist Units 4, 5, and 6 were retired and replaced with a new combined cycle unit. Under the higher \$20 CO_2 penalty and the 2008 fuel forecast the evaluation indicated it would be a total cost to the customer of \$376.9 million if Plant Crist Units 4, 5, and 6 were retired and replaced with a new combined cycle unit. Under such a high CO_2 penalty, the higher demand and higher related price for natural gas that would result would likely provide an even greater economic margin to continue to operate the coal units.

4.1.3 Plant Crist Emission Monitoring Requirements

Mercury continuous emission monitoring systems for Plant Crist Units 4 through 7 and the common scrubber stack were included as part of Gulf's original CAIR, CAMR and CAVR compliance plan approved by the Commission. The Plant Crist Units 4 through 7 mercury monitors that were previously scheduled to be placed in service during 2008 have been removed from the current projection. These monitors are no longer required because EPA approved Gulf's petition for an extension of the deadline for installation of mercury monitors at Plant Crist until after the scrubber is completed. The granting of this petition eliminated the need for the plant to install four mercury monitors that would only be needed from January 1, 2009 until the completion of the scrubber later in 2009. With CAMR voided, electric generating facilities are no longer required to install mercury monitoring equipment to meet the January 2009 monitoring deadline. In response to the CAMR vacatur, Gulf has delayed further mercury monitoring capital costs until at least 2010.

4.1.4 Conclusions for Plant Crist

Based on this assessment, the retrofit of Crist Units 4 through 7 with a single flue gas desulphurization scrubber and the addition of a SCR on Unit 6 are the best options for compliance with CAIR, CAVR, the new 8-hour ozone standard, potential mercury regulation and a potential fine particulate NAAQS. These are the only technologies that offer the necessary emission reductions for SO_2 and NO_X and when used together, the scrubber and the SCRs on Units 6 and 7 will capture mercury. The scrubber is anticipated to be required as part of the CAVR "reasonable progress program." Further fuel switching will not reduce emissions to the required level. Allowance purchases are too uncertain and risky as a sole compliance option, especially for annual NO_X. The September 2008 Phase II analysis indicated that retirement and replacement of the units with a combined cycle unit is not economically feasible relative to retrofit of the existing units under all the CO_2 compliance cost scenarios analyzed.

4.2 Plant Daniel

Gulf Power's ownership interest at Plant Daniel is associated with two coal-fired electric generating units that each have a nameplate rating of 548.2 MW. Gulf Power and Mississippi Power Company each own 50 percent of Daniel Units 1 and 2. The plant is operated by Mississippi Power employees. The facility is located just north of Pascagoula, Mississippi, with direct transmission access across Alabama and into Florida. Both coal-fired units were affected under the Acid Rain Program and have operated on low-sulfur coals since the 1990s to lower SO_2 emissions. These New Source Performance Standards (NSPS) units are relatively low NO_X emitters, and as a result, Gulf and Mississippi Power have been able to delay installation of controls and associated costs required under the Acid Rain Program.

For compliance with CAIR and later with CAVR, Plant Daniel Units 1 and 2 need significant SO_2 and NO_X reductions. Only a few technologies have demonstrated the ability to provide the needed emission reductions at the commercial scale required for the coal units at Plant Daniel. In light of the CAIR and CAMR developments, some of the proposed Plant Daniel projects have been canceled or deferred.

For CAIR and CAVR requirements at Plant Daniel Units 1 and 2, an assessment was conducted to compare retrofit controls versus retirement and replacement options for compliance. As noted under Section 3.2, further fuel switching and complete reliance on allowance purchases were eliminated as viable options for all of Gulf Power's units, including its share of Plant Daniel Units 1 and 2. Retrofit options, as well as and retirement and replacement options, are each reviewed below specifically for Plant Daniel.

4.2.1 Plant Daniel Retrofit Options

Plant Daniel Unit 1 and Unit 2 Flue Gas Desulfurization Scrubber Project

Very high levels of SO_2 emission reductions can be achieved by flue gas desulfurization. There are no other commercially available options for SO_2 emission reductions at the level needed to assure compliance with CAIR and CAVR.

The Daniel scrubber project continues to be an effective means of reducing SO_2 and mercury emissions. It is still anticipated that this scrubber project may be required for CAVR compliance, even if it is not required for compliance with CAIR or potential mercury regulation. These large, co-owned units are the most efficient units owned by Gulf Power. A wet scrubber has been determined to be the only viable SO_2 retrofit compliance option for Plant Daniel.

The Daniel scrubber project is projected to reduce Gulf's SO_2 emissions by approximately 14,000 tons per year (Gulf Power ownership share). With these reductions, Gulf Power will be able to reasonably manage compliance using its SO_2 allowance bank and some market purchases of allowances as required. The scrubber is currently scheduled for completion in 2013, but its timing will continue to remain flexible based on the status of environmental regulations. For CAIR, the scrubber would minimize the reliance on a very volatile SO_2 allowance market and assure compliance for Plant Daniel Units 1 and 2.

Plant Daniel NO_X Reduction Projects

Additional NO_X controls were scheduled for Plant Daniel Units 1 and 2 under the Phase I CAIR annual and seasonal NO_X cap and trade allowance programs. The Daniel Unit 1 and 2 Low NO_X burners were planned for Phase I CAIR annual and seasonal NO_X cap and trade allowance programs. The Daniel Unit 2 Low NO_X burners were installed during 2008. The Daniel Unit 1 Low NO_X burner project that was originally scheduled to be placed in-service during 2009 had been delayed during 2008, pending the outcome of the CAIR decision. Now that the CAIR rule has been remanded to EPA and remains in effect, the Low NO_x burner project at Daniel Unit 1 has been rescheduled to be placed in-service during 2010.

Plant Daniel Units 1 and 2 were previously scheduled to receive SNCR retrofits in 2011 and 2012, respectively. Expenditures for these projects were projected to begin in 2009. Plant Daniel planned to operate the SNCRs until the SCRs were placed in-service. The SNCR projects have since been removed from the compliance schedule, and the SCR installation has been accelerated by two years. The Plant Daniel Units 1 and 2 SCRs are planned for operation in 2014 and 2015, respectively, to help meet the requirements of CAIR and 8-hour ozone nonattainment. The SCR projects have been accelerated based on the new 8-hour ozone standard that Gulf anticipates will require these controls in an earlier time period than previously planned.

These SCRs, along with the Unit 1 and 2 scrubber, also provide a co-benefit of significantly reducing mercury emissions. The schedule for these proposed SCRs remains flexible and will be continuously re-evaluated. While CAMR compliance is no longer required, CAIR requirements still remain applicable. The Daniel SCRs will also be needed to achieve attainment with the new 8-hour ozone standard.

Plant Daniel Activated Carbon Injection

During 2007, capital expenditures for Activated Carbon Injection systems at Plant Daniel were added to Gulf's compliance plan. The ACI projects were scheduled to be placed in-service by January 1, 2010 in anticipation of CAMR Phase I. The projects were added due to concerns that the mercury allowance market would not develop in time to ensure compliance during the first year of Phase I.

Based on the vacatur of the CAMR ruling, the ACI projects have been removed from the compliance schedule and budget projections. The need for ACI at Plant Daniel will be reexamined as new mercury regulation emerges.

4.2.2 Plant Daniel Comparison of Retrofit versus Retirement and Replacement

Selection between retrofit and retirement/replacement options for Plant Daniel was based upon a financial assessment and analysis to determine the least cost option for Gulf Power and its customers. The analysis examined the relative cost of (a) completing the retrofit project and operating the retrofitted unit with (b) retiring the Daniel units without making the retrofit and instead, replacing them with capacity from another generation source.

This analysis was run at both a less detailed level (Phase I) and using a more detailed methodology (Phase II). The basic methodology was the same for both types of analyses, but the Phase I analysis employed some simplifying but more stringent assumptions. For Phase I, the costs of operating the retrofitted units and its affect on system dispatch costs and the need to purchase allowances to meet any remaining emissions (all of which are characterized as "incremental costs") were compared to the cost of a generic peaking unit and associated energy costs. The September 2008 Phase I level results indicated there was a savings shown by continuing to operate each generating unit as opposed to replacing it with new or purchased capacity and System energy purchases for both the base case (No CO_2) and $10 CO_2 sensitivity. The projected NPV cost savings or benefit to Gulf and its customers for Gulf's Environmental compliance plan for Plant Daniel ranged from $0.6 billion - $1.2 billion over the period 2008 through the affected units' planned retirement dates.

The Phase II analysis focused on a comparison of continued operation with unit replacement by a combined cycle. This evaluation also included more refined production cost modeling and cost implications to the transmission system. Changes in production cost, capital and other fixed costs were captured in the comparison analysis to help determine the most economical option. The September 2008 Phase II results showed that for the No CO_2 and

$10 CO_2 cases there would be a total cost to Gulf's customers of $669.2 million and $365.0 million, respectively, if Plant Daniel Units 1 and 2 were replaced instead of being retrofitted. Under the higher $20 CO_2 penalty and the 2008 fuel forecast, the evaluation indicated there would be a total cost to Gulf's customers of $50.4 million, if Plant Daniel Units 1 and 2 were replaced instead of being retrofitted. Under such a high CO_2 penalty, the higher demand and higher related price for natural gas that would result would likely provide an even greater economic margin to continue to operate the coal units.

4.2.3 Plant Daniel Emission Monitoring Requirements

Based on the 2008 CAMR vacatur, the Daniel mercury monitors have been removed from the compliance schedule and the budget. This decision will be reexamined as new mercury regulation emerges.

4.2.4 Conclusions for Plant Daniel

Based on this assessment, the retrofit of Daniel Units 1 and 2 with a flue gas desulphurization scrubber, the installation of low-NO_X combustion controls, and the addition of SCRs on both units are the best options for compliance with CAIR, CAVR, and the 8-hour ozone standard at Plant Daniel. These technologies offer the necessary emission reductions for SO_2, NO_X, and when used together, the scrubber and the SCRs will also capture mercury. The scrubber may also be required as part of the CAVR "reasonable progress program." Fuel switching will not reduce emissions to the required level. Allowance purchases are too uncertain and risky as a sole compliance option, especially for annual NO_X. The Phase II analysis indicated that retirement and replacement of the units with a combined cycle unit is not economically feasible relative to retrofit of the existing units under all of the CO_2 compliance cost scenarios analyzed.

4.3 Plant Smith

Plant Smith includes two coal-fired electric generating units (Unit 1 and Unit 2) along with an oil-fired combustion turbine and a natural gas-fired combined cycle unit. The facility is located just north of Panama City, Florida. Plant Smith Unit 1 has a nameplate rating of 149.6 MW, and Unit 2 has a nameplate rating of 190.4 MW. Both coal-fired units were affected under the Acid Rain Program, and the plant has operated on low-sulfur coals since the 1990s to lower SO_2 emissions. Both units are also equipped with low-NO_X combustion systems. Unit 1 has special low-NO_X burner tips, and Unit 2 has low-NO_X burners and separated overfired air.

For compliance with CAIR, the new 8-hour ozone standard, and later with CAVR, Plant Smith needs significant SO_2 and NO_X reductions. Only a few technologies have demonstrated the ability to provide the needed emission reductions at the commercial scale required for Plant Smith.

For CAIR and CAVR requirements at Plant Smith, an assessment was conducted to compare retrofit controls versus retirement and replacement options for compliance. As noted under Section 3.2 fuel switching and exclusive reliance on allowance purchases were eliminated as viable options for Gulf Power. Retrofit options and retirement and replacement options are each reviewed below specifically for Plant Smith.

4.3.1 Plant Smith Retrofit Options

Plant Smith SNCR and NO_X Reduction Projects

Installation of SNCRs for Plant Smith Units 1 and 2 are needed for Phase I CAIR compliance in 2009. In addition to CAIR compliance, the SNCRs are needed to assist in maintaining local compliance with the more stringent 8-hour ozone standard. The Smith Unit 2 SNCR was placed in-service in the fall of 2008, and the Smith Unit 1 SNCR will be placed in-service during the spring of 2009.

Plant Smith Units 1 and 2 Flue Gas Desulfurization Scrubber Project

The Plant Smith scrubber project has been included in the Gulf Power environmental compliance plan because the requirements of CAVR will likely lead to a scrubber being required for Plant Smith Units 1 and 2. This decision is based upon anticipated CAVR command and control requirements. In addition, the scrubber will provide the added benefit of reducing mercury emissions. The scrubber project is currently planned for operation in 2017. This schedule and decisions about the Plant Smith scrubber remain very flexible. This scrubber would offer the same benefits as the scrubbers previously discussed for Plants Crist and Daniel.

Plant Smith Unit 2 Baghouse

The Plant Smith Unit 2 baghouse project has been included in the Gulf Power Environmental compliance plan because potential mercury regulation will likely lead to additional controls being required for Plant Smith. The baghouse project is currently planned for operation in 2018. The schedule and decisions about the Plant Smith Unit 2 baghouse remain very flexible.

4.3.2 Plant Smith Comparison of Retrofit versus Retirement and Replacement

Gulf's March 2007 CAIR/CAMR/CAVR compliance plan included results of an economic analysis that was performed to assess the costs over a period from 2006 until the current planned retirement date for the two coal-fired Plant Smith units. The costs of operating the retrofitted units and its affect on system dispatch costs and the need to purchase allowances to meet any remaining emission limits (all of which are characterized as "incremental costs") were compared to the cost of a generic peaking unit and associated energy costs. The results

of the analysis indicated there was a savings associated with retrofitting and continuing to operate each generating unit at Plant Smith, as opposed to replacing the generation.

The Plant Smith economic analysis has not been updated because Gulf has not made any changes to the Plant Smith compliance strategy, other than delaying completion of the mercury monitor installation. In addition, the majority of the expenditures for Phase I environmental projects at Plant Smith were incurred prior to 2009. An updated analysis will be performed before Gulf moves forward with the Plant Smith scrubber and baghouse projects. Both of these projects are included in Phase II of Gulf's compliance plan which has not yet been approved for ECRC recovery.

4.3.3 Plant Smith Emission Monitoring Requirements

CAIR required the installation of a parametric emission monitoring system on the Plant Smith combustion turbine during 2007. Gulf will continue to incur future maintenance expenses to ensure accurate accounting of emissions. In response to the CAMR vacatur, Gulf has delayed further mercury monitoring capital costs until at least 2010.

4.3.4 Conclusions for Plant Smith

The retrofit of Smith Units 1 and 2 with SNCR, a flue gas desulfurization scrubber, and a baghouse are the best options for compliance with CAIR, CAVR, and potential mercury regulation at Plant Smith. These technologies offer the necessary emission reductions for SO_2 and NO_X. The Smith Unit 2 SNCR was placed in-service in the fall of 2008 and the Smith Unit 1 SNCR will be placed in-service during the spring of 2009. The Plant Smith mercury monitoring project has been delayed until at least 2010. The schedule and decisions regarding the Plant Smith scrubber and baghouse, Phase II projects, remain very flexible. These projects are included in Gulf's compliance plan for future review and approval.

Fuel switching will not reduce emissions to the required level. Allowance purchases are too uncertain and risky as a sole compliance option, especially for annual NO_X. Retirement and replacement of the units is not economic relative to retrofit of the existing units. The scrubber may also be required as part of the CAVR "reasonable progress program."

4.4 Plant Scholz

Plant Scholz consists of two coal-fired electric generating units that each have a nameplate rating of 49 MW. The facility is located in Jackson County, Florida. Both units were affected under the Acid Rain Program, and the plant has operated on low-sulfur coals since the 1990s to lower SO_2 emissions. Because these units are small and older, NO_X averaging was used to achieve compliance with the NO_X requirements under the Acid Rain Program without the installation of emission control equipment.

For CAIR and CAVR requirements at Plant Scholz, a thorough assessment was conducted to compare retrofit controls versus retirement and replacement options for compliance. As noted under Section 3.2, fuel switching and exclusive reliance on allowance purchases were eliminated as viable options for Gulf Power. Because this small plant is nearing retirement, significant investments in capital equipment to reduce emissions cannot be justified economically. The plant will utilize Company-wide allowance trading options to comply up until the Scholz units are retired, repowered, or replaced.

4.4.1 Plant Scholz Emission Monitoring Requirements

The Scholz mercury emission monitoring system was being installed during February of 2008 when the court issued an opinion vacating the CAMR. Gulf completed the Scholz installation but postponed certification of the system due to pending regulatory uncertainty regarding quality assurance and reference testing protocols required for certification. Gulf's 2009 ECRC budget projection includes general O&M expenses for the Plant Scholz mercury monitor.

4.4.2 Conclusions for Plant Scholz

For CAIR and CAVR requirements at Plant Scholz, a thorough assessment was conducted to compare the various options for compliance. Fuel switching, allowance purchases, and emission control retrofit versus retirement and replacement were all evaluated as options for compliance. The plant will utilize Company-wide allowance trading options to comply until it is retired, repowered, or replaced.

4.5 GULF'S ALLOWANCE PURCHASES

Although the retrofit installations set forth in Gulf's compliance plan significantly reduce emissions, they will not result in Gulf achieving CAIR compliance levels without the purchase of some emission allowances. Thus, Gulf's environmental compliance plan calls for the purchase of allowances. The emission allowances Gulf Power projects it needs to purchase, along with estimated costs, are shown in Table 4.5-1. The purchase of allowances in conjunction with the retrofit projects comprises the most reasonable, cost-effective means for Gulf to meet CAIR and CAVR requirements.

Gulf's SO_2 allowance purchases are intended to address: a) the projected shortfalls in 2009 (Acid Rain Program) and 2010-2013 (CAIR) and b) create a buffer of allowances in the event actual emissions varied materially from projections. At this time, Gulf has a projected SO_2 allowance bank of pre-2010 allowances to be carried forward into 2010, the first year of CAIR compliance for SO_2. Gulf projects a need to purchase CAIR annual and seasonal NOx allowances beginning this year.

Table 4.5-1
Gulf Power Allowance Projection and Costs
(2009-2017)

Annual Emissions in Excess of Allocations

	2009	2010	2011	2012	2013	2014	2015	2016	2017
SO_2	15,178	9,903	7,720	5,038	4,812	0	0	0	0
Seasonal NO_X	2,287	2,016	2,029	1,075	1,032	897	808	732	704
Annual NO_X	4,993	5,439	4,563	3,183	2,622	2,360	1,322	1,045	916
		A	B	C	D	E	F	G	H

Cost of Emissions in Excess of Allocations ($ in thousands)*

	2009	2010	2011	2012	2013	2014	2015	2016	2017
1 SO_2	$8,832	[redacted]							
2 Seasonal NO_X	$1,372								
3 Annual NO_X	$21,176								
4 Total Cost	$31,380								

* Projected cost is at forecasted prices of the spot market in a given year; forecast includes pending transactions and commitments to purchase. No costs for SO_2 are projected beginning in 2010 due to banked SO_2 allowances.

FCR-21 Run

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5.0 POTENTIAL NEW ENVIRONMENTAL REGULATIONS

5.1 New 8-Hour Ozone Standard

In 2004-2005, the EPA revoked an ozone standard that was based on one-hour ozone levels and published two sets of final rules for implementation of a new, more stringent ozone standard based on eight-hour average levels. State implementation plans, including new emission control regulations necessary to bring ozone nonattainment areas into attainment, were required for most nonattainment areas by June 2007. In June 2007, EPA again proposed revisions to the current ozone standard.

In March 2008, the EPA finalized its revisions to the eight-hour ozone standard, increasing its stringency. The EPA plans to designate nonattainment areas based on the new standard by 2010, and new nonattainment areas within Gulf Power's service territory are expected.

State implementation plans will be developed for these areas by 2013. These SIPs will prescribe emission control measures designed to bring areas into attainment. Although designation of a number of new nonattainment areas is anticipated, specific designations and any subsequent SIP control measures will be based in part on air quality measurements to be made in the future. The ultimate outcome of this matter cannot be determined at this time and will depend on subsequent legal action and/or future nonattainment designations and regulatory plans. Potential nonattainment counties under the new standard are shown below.

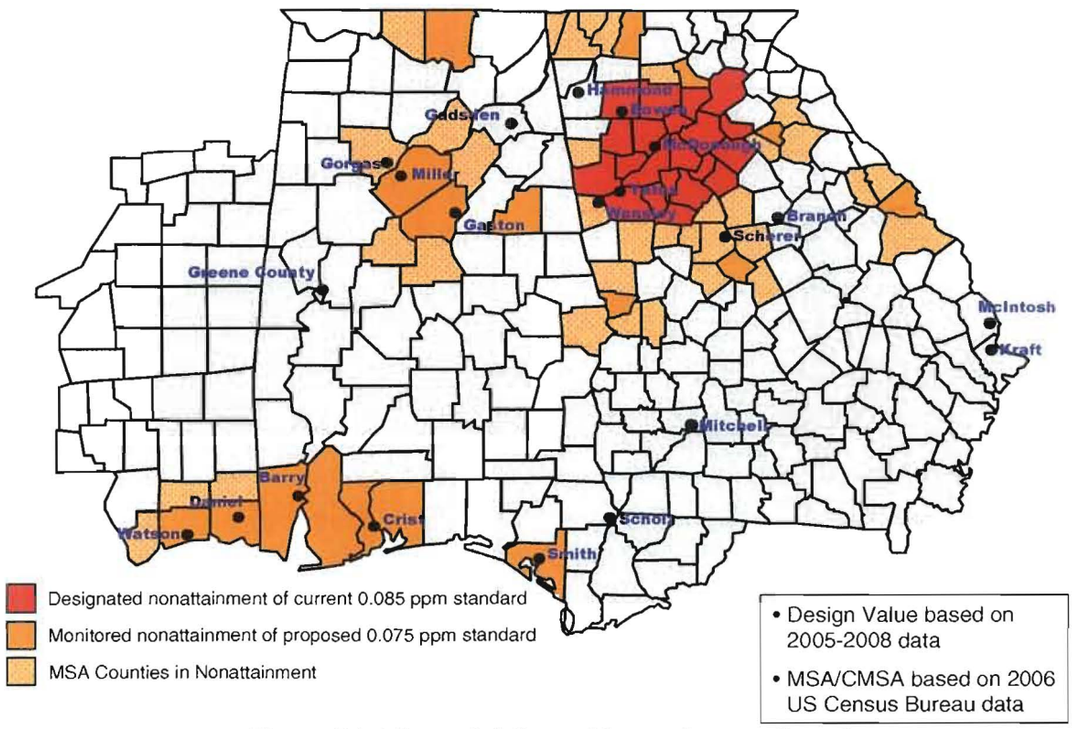

Figure 5.1-1 Potential Ozone Nonattainment Counties

The control strategy for further reducing emissions of ozone will be affected by the strategy implemented for compliance with the CAIR as discussed in Section 2.1.

5.2 New Fine Particulate Standard

During 2005, the EPA's fine particulate matter nonattainment designations became effective for several areas within Southern Company's service area in Alabama and Georgia. State plans for addressing the nonattainment designations under the existing standard were due by April 2008 and could require further reductions in SO_2 and NO_X emissions from power plants. In September 2006, the EPA published a final rule which increased the stringency of the 24-hour fine particulate matter air quality standard. The state-recommended nonattainment areas are shown on the map below; actual EPA designations of areas which fail to meet this newly revised standard were issued in December 2008. The ultimate outcome of this matter depends on the development and submittal of the required state plans and resolution of pending legal challenges and, therefore, cannot be determined at this time.

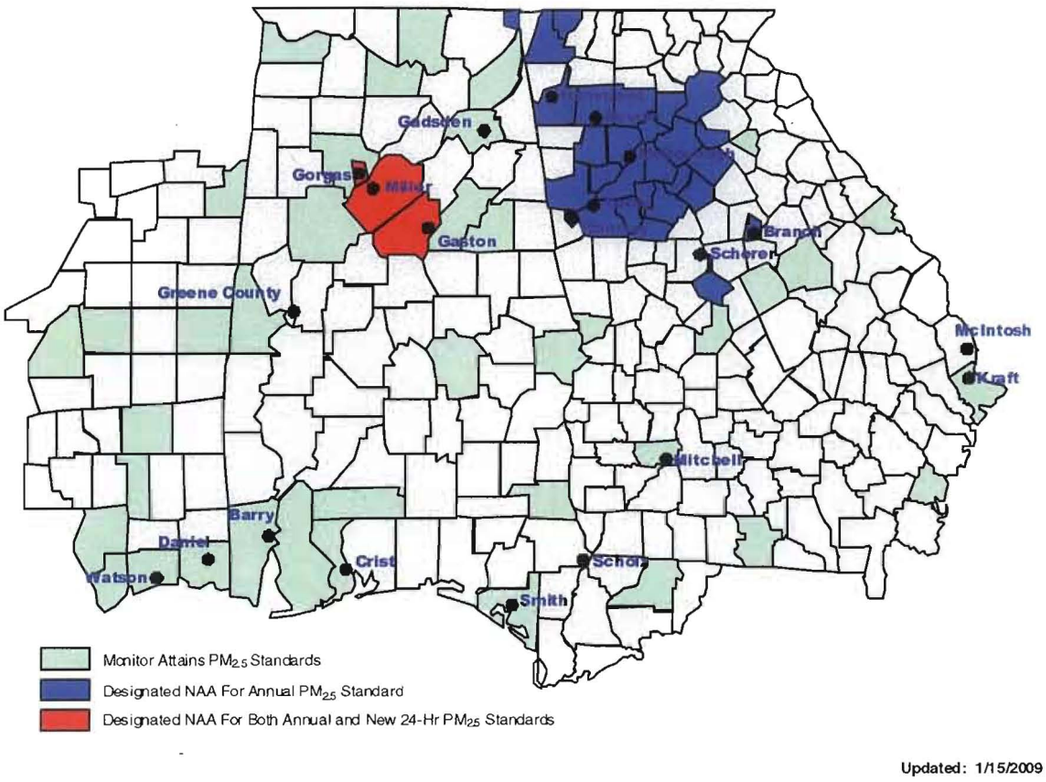

Figure 5.2-1 Nonattainment Areas for Annual PM-2.5 and EPA-Recommended Nonattainment Areas for 24-Hr PM2.5

5.3 Global Climate Issues

Federal legislative proposals that would impose mandatory requirements related to greenhouse gas emissions and renewable energy standards continue to be strongly considered in Congress, and the reduction of greenhouse gas emissions has been identified as a high priority by the current Administration. The ultimate outcome of these proposals cannot be determined at this time; however, mandatory restrictions on the Company's greenhouse gas emissions could result in significant additional compliance costs that could affect future unit retirement and replacement decisions and results of operations, cash flows, and financial condition if such costs are not recovered through regulated rates.

In April 2007, the U.S. Supreme Court ruled that EPA has authority under the Clean Air Act to regulate greenhouse gas emissions from new motor vehicles. The EPA is currently developing its response to this decision. Regulatory decisions that will follow from this response may have implications for both new and existing stationary sources, such as power plants. The ultimate outcome of these rulemaking activities cannot be determined at this time; however, as with the current legislative proposals, mandatory restrictions on the Company's greenhouse gas emissions could result in significant additional compliance costs for electric utilities including Gulf Power.

On June 25, 2008, Florida's Governor signed comprehensive energy-related legislation that includes authorization for the FDEP to adopt rules for a cap-and-trade regulatory program to address greenhouse gas emissions from electric utilities, conditioned upon their ratification by the legislature no sooner than the 2010 legislative session. This legislation also authorizes the Florida PSC to adopt a renewable portfolio standard for public utilities, subject to legislative ratification. The impact of this and any similar legislation on the Company will depend on the future development, adoption, legislative ratification, implementation, and potential legal challenges to rules governing greenhouse gas emissions and mandates regarding the use of renewable energy, and the ultimate outcome cannot be determined at this time.

International climate change negotiations under the United Nations Framework Convention on Climate Change also continue. Current efforts focus on a potential successor to the Kyoto Protocol for the post 2012 timeframe, with a conclusion to this round of negotiations targeted for the end of 2009. The outcome and impact of the international negotiations cannot be determined at this time.

6.0 SUMMARY OF GULF'S COMPLIANCE PLAN

Gulf Power's environmental compliance plan reflects a comprehensive assessment of requirements Gulf and its customers face in meeting CAIR, CAVR and potential mercury, SO_2 and NO_X regulations. CAIR will require significant reductions in SO_2 and NO_X. CAVR may also require the installation of command and control retrofit equipment at certain facilities. In assessing the most cost-effective means of meeting these significant regulatory requirements, Gulf Power considered four primary compliance options: fuel switching, purchase of allowances, retrofit installations, and retirement and replacement of existing units. Fuel switching alone could not meet the requirements of these programs. Given the uncertainty of emerging allowance markets, it was highly questionable whether mature stable allowance markets would emerge in time for an all allowance purchase option to be implemented. There was a fundamental question of whether sufficient allowances would even be available. In addition, given the historic volatility in existing allowance markets, the potential cost of an all-allowance option could be significant. Therefore, risks regarding availability and costs of allowances resulted in an unacceptable level of risk for an all-allowance compliance approach for Gulf and its customers. As a result, Gulf assessed the best means of meeting plant-by-plant emission requirements through retrofit measures supplemented by allowance purchases and compared those options to retiring and replacing existing units. That analysis led to the selection of Gulf Power's environmental compliance plan set forth in Tables 3.1-1 and 3.1-2. Gulf Power's environmental compliance plan, which is based upon analytically sound technical and economic evaluations of alternatives, is the most reasonable, cost effective compliance plan available to Gulf and its customers under current planning assumptions. Gulf Power's environmental compliance plan assures environmental compliance and preserves flexibility for dealing with ever changing requirements and assumptions.