Power4Georgians Plant Washington Coal-Fired Power Plant: Too High a Price for Consumers

Prepared for Georgia Watch

June 22, 2011

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Plant Washington, Power4Georgians proposed coal-fired power plant, if built, will cause a dramatic rate increase for the households and businesses drawing electricity from it. Once Plant Washington is in commercial operation, the estimated cost of electricity from the facility will be significantly higher than the general cost of electricity for the market as a whole. Plant Washington will therefore place considerable upward pressure on the price of electricity for consumers.

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Executive Summary

Plant Washington, Power4Georgians (P4G) proposed coal-fired power plant, if built, will cause a dramatic rate increase for the households and businesses drawing electricity from it. Even during difficult economic times, electric utility consumers have come to expect modest increases in their utility bills. In return they receive the promise of reliable service and energy planning from the electricity providers who run the system and set the prices. If the proposed plant is built, rate increases will no longer be modest. The plant will also cause long-term financial headaches for the electric membership cooperatives (EMC's) and others who sign on to purchase power from Plant Washington.

Customers will feel the impact of Plant Washington in the following ways:

- During the first year of operation, instead of modest 2% annual increases, residential consumers can expect to see increases in their electricity bills of 10% to 20%%, depending upon which EMC they receive electricity from.
- This represents an average increase of 16%, eight times higher than what consumers might normally expect.
- In actual dollars (for an average household using 1000 kWh per month) this is an average additional cost of \$208.00 to the household budget annually.
- Depending upon where you live, the annual increase could be as low as \$165.00 or as high as \$240.00.
- During the early years of Plant Washington's operation consumers can expect at least an additional \$50.00 annual charge to pay for the cost of new carbon regulations.
- Considering the full impact of future energy regulation, the costs of Plant Washington could raise annual prices by an estimated \$258.00 per year for the average household.

Historically, Georgia has relied on coal to meet much of its need for electricity. Coal plants have provided an affordable supply of electricity to residents and businesses. The future however will not be like the past. The financial equation for coal plants has fundamentally changed. Energy stakeholders across the country have canceled 153 new coal plants over the past four years. The financial risks leading to the cancellations are outlined in this paper. They include competition from natural gas, rising construction prices, uncertain regulations, tightening clean air requirements and coal price volatility. These challenges to coal plant economics take place at a time when the country and financial markets are moving forward with other energy options such as energy efficiency, natural gas, wind, solar and cogeneration.

The large scale cancellation of new coal plants is a red flag warning to new coal plant proponents. Credit markets and the financial community now see these investments as nonstarters. In many states estimated consumer increases were reviewed when new coal plants were proposed. New coal plants threatened to unleash unacceptably high upward pressure on the price of electricity. The new coal plant proposals were rejected.

Power4Georgians lists a second proposed coal plant on its website, Plant Ben Hill. Plant Ben Hill is not analyzed in this study as developers have yet to apply for any environmental permits. However, the plant faces the same fundamental economic and financial obstacles outlined in this paper. The rate impacts for consumers would be similar to Plant Washington as Plant Ben Hill is similar in size and design.

In the coming months, Georgia environmental administrators, members of the state judiciary, attorneys for Power4Georgians and environmental organizations will continue to debate Plant Washington's compliance with pollution laws. Will the plant safeguard the quality of Georgia's land, air and water? Is the technological design of Plant Washington suitable to meet the requirements of current law? Is Power4Georgians positioned well enough to address new ash, water and potential climate regulations?

Members of electric cooperatives, particularly members with fiduciary responsibilities, have additional, special challenges. In this economic environment, how can a coal plant be justified when inexpensive alternatives exist and are likely to continue to exist for the foreseeable future? How does one preserve the mission of affordable electricity by choosing the more expensive and riskier alternative of new coal? What is the cost benefit analysis that justifies a long-term take or pay contract or other ownership obligation to produce more expensive electricity when cheaper alternatives exist?

This report asks practical questions. Questions a family asks itself about the household budget. How much will Plant Washington cost the consumer? How will these costs appear in the monthly bill received by residential ratepayers?

The report is divided into seven sections: Background, Methodology, Disclosure, Rate Impact, Cost of Electricity, New Coal Plants Nationally and Conclusion. The Background section provides a basic project overview. Methodology and Disclosure describe how the rate impact analysis was performed. Rate Impact provides the **core findings** of the report. It describes the estimated amount consumers will pay if Plant Washington is built. Cost of Electricity offers a detailed review of the cost factors that go into the rate analysis. It is provided for readers interested in a nuts and bolts understanding of the financial issues involved with Plant Washington. Finally, New Coal Plants Nationally compares Plant Washington against a backdrop of broader national trends.

Background

Power4 Georgians (P4G) is a consortium of EMCs that is sponsoring the development of Plant Washington.¹ Plant Washington is a proposed 850 MW, supercritical, pulverized coal-fired electric generation facility to be located in Sandersville, Georgia in Washington County. According to P4G, the proposed plant will provide base load energy to meet the expanding needs of the metro Atlanta area. P4G estimates the cost of the plant at \$2.1 billion, with an approximate four year construction period once permits are granted.

P4G promises that Plant Washington will be built according to best available control technology. This includes: 1) highly efficient supercritical boilers that produce more energy with less coal than other coal plant technologies; 2) scrubbers to control sulfur dioxide emissions; 3) selective catalytic reduction to reduce nitrogen oxide emissions; 4) fabric filters to reduce particulates, and 5) sorbent injection to reduce mercury and sulfuric acid emissions. The plant is expected to produce energy at a heat rate of 8300 mmBTU/hr.

¹ P4G's application for an air permit states that Power4Georgians is a 10 member consortium. See: Power4Georgians, *Prevention of Significant Deterioration Air Permit Application*, prepared by MACTEC, January 17, 2008. On September 21, 2010, Dean Alford, project spokesperson for P4G, testified that there are six EMC's in Power4Georgians Upson, Cobb, Central Georgia, Washington, Snapping Shoals and Pataula. See: Fall-Line Alliance for A Clean Environment, et. al, Office of State Administrative Hearings, State of Georgia, PSD Air Permit, Docket No. OSAH-BNR- AQ-1031707-98 Walker, September 21, 2010, p. 947-948.

The coal from Plant Washington will come from two sources: the Powder River Basin (PRB) in eastern Montana and Wyoming and the Illinois Basin (ILB) in parts of Illinois, Indiana and Kentucky. It is anticipated that the coal will be blended according to a flexible 50/50 mix regime. Power4Georgians states: "This plant is in line with the U.S. energy independence strategy of relying less on foreign, price volatile fuels and more on stable domestic energy sources."²

P4G goes on to state that if Plant Washington is not built there will be two important consequences for the people of Georgia. "The first is that EMC's will have to pay substantially more for the wholesale power they buy from the markets – meaning members will see their electricity become more and more expensive."³ The second consequence will be a shortage of electricity in the State.

Methodology

Two major calculations form the basis of the estimated customer rate impact of a new generating plant. The first step is to calculate both the cost of energy that the plant produces, and the cost of moving electricity from the plant to the home. The second step blends the cost of energy from the new plant with the existing rate structure of each EMC. The result is a new rate passed along to the consumer in the monthly bill.

² Power4Georgians website, FAQ's (www.power4georgians.com). This Background section, and most of the information on P4G and Plant Washington, comes from either the Air Permit Application and related documents or the P4G's website. Typically, a developer would supply the public with a financial proforma and a host of supplemental material that details the financial assumptions and planned operations of the plant. Even developers that face lengthy litigation and regulatory delayys often supply such reports to enhance project and developer credibility. See for example: Black and Veatch, *Holcomb Expansion Project: Coal Technology, Selection Study Update, Final Report*, TriState Generation and Transmission Association and Sunflower Electric Power Corporation, June 18, 2010. http://www/kdheks.gov/har/sunflower/

Holcomb_Coal_Tech_Study_Final_Report.pdf. The Black and Veatch study presents the Holcomb plant as an integrated financial proposition. At best, the statements that purport to contain financial content on P4G's website and its public statements are financially disconnected, usually outdated and often unsubstantiated by qualified experts. For further examples of financial proforma see discussions in this paper related to coal plants sponsored by AMP-Ohio, Consumers Energy, East Kentucky Power Cooperative, Santee Cooper and the six additional plants covered in the Synapse Don't Get Burned report.

³ Power4Georgians website, FAQ's.

The Cost of Electricity from Plant Washington

The cost of electricity from Plant Washington, as with any generating facility, starts with the total expenses it takes to produce electricity. These expenses, charted in this paper, are separated into four broad categories: annual capital cost, fuel cost, carbon cost and operation and maintenance cost. Further, an estimate is then made for how much the plant will run, or how much useable energy it will produce. This is the capacity factor. The sum of the four expenses (typically called the fixed and variable expenses) is divided by the capacity factor. This yields the total cost of energy from the plant expressed in terms of cents per kilowatt hour. "Cents per kilowatt hour" is how the consumer receives an accounting of their energy consumption in the monthly utility bill.

The annual capital cost consists of the cost of construction of the plant (plant construction, owner costs and financing costs during construction). It also includes the interest rate obtained (by the owner) for the long-term debt to service those costs. The construction cost is amortized over a set time period consistent with the terms of the long-term financing. The qualitative issues and assumptions and quantitative rationale used in this paper are in the Capital Cost and Interest Rate sections. The final quantitative calculation can be found in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, Cost With Financing, Interest Rate, Annual Capital Cost, Lines B, C, D, and E*, respectively.

The fixed operating expenses, which vary little are discussed briefly in the Regulatory Costs section. The quantitative calculation appears in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, Operation and Maintenance (O&M), Line H.*

Next, the fuel cost of producing energy from the plant is determined. An overview of the fuel assumption is in the Fuel Cost section. The qualitative discussion reviews current and future market conditions. These conditions apply directly to the two types of coal proposed in the technical design documents for Plant Washington. The market analysis sets a projected price of coal for each type for the 2017 market, the assumed first year of plant of operation. The total annual tonnage to run the plant is subdivided into an estimated amount for each coal type. The annual tonnage for each coal type is multiplied by its respective estimated price. Total annual prices for each type are added together to express the total annual fuel

cost for the plant. The final quantity is expressed in the Fuel Section and carried forward in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, Fuel Cost, Line F.*

The cost of energy calculation is supplemented by a separate full-rate analysis that includes a cost of carbon. This reflects the likelihood that Plant Washington will be required to adopt some form of carbon mitigation protocol during the early stages of the plant life-cycle due to Congressional or regulatory actions adopted by the United States Environmental Protection Agency. The discussion of the uncertainty created by this regulatory scenario is in the Carbon Cost Section. The quantitative values assumed in this study are in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, CO2 (\$18/ton), Line G. The full-rate analysis is carried through in the Column labeled Estimate with Carbon.*

Finally, one has to estimate how much the plant will run. In industry parlance this estimate is called the capacity factor. The capacity factor represents a percentage of the total potential energy output of the plant. A plant runs at 80%, 85% or 90% of capacity, for example, based on a host of factors. The specific conditions influencing the capacity factor for the Plant are discussed in the Capacity Factor section. The full energy capacity for an 850 MW plant and the quantitative value arrived at for the Capacity Factor is in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, Plant Capacity and Capacity Factor, Line K and L, respectively.*

The Capacity Factor is applied to the maximum energy output of the plant based on the plant size. A 600 MW plant produces less energy than an 850 MW plant, for example. The Capacity Factor (Table 4, Line L) multiplied by the Plant Capacity (Table 4, Line K), creates an estimated amount of energy to be produced and used by the plant in a given year.

The Total Annual Expense for the Plant is the sum of the expense factors. In this paper a cost of energy calculation is performed with and without the carbon cost reflecting the uncertainty of future carbon regulation. Accordingly, the Total Annual Expense column is expressed both with and without the carbon impacts. These amounts are in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Cost of Plant, Total Annual Expenses and Total Annual*

Expenses without CO2, Lines I and J, respectively. Total Annual Expenses are then divided by the energy output of the plant as determined by the Capacity Factor. The total annual expense divided by the amount of energy produced equals the total cost of electricity (the busbar cost).

In this study, the busbar or cost of electricity is estimated with and without the carbon regulatory assumptions. The factors are expressed in cents per kilowatt hour. This is the method used by the EMC's to communicate energy consumption to individual households. These unit costs can be found in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Price of Electricity, Price of Electricity, Cost of Electricity w/CO2 and Price of Electricity w/o C02, Lines, A and C, respectively.*

The busbar is adjusted to reflect the generally higher rates paid by residential consumers versus industrial, commercial or other business users. For a discussion of this issue see the *Rate Impact Section: What level of increase would consumers face in 2017 if Plant Washington is not built?* The quantitative impact of this adjustment on the final rate calculation can be found in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Price of Electricity, Residential Adjustment, Lines B and D*, respectively. The busbar from the plant is adjusted a second time to reflect the bundle of transmission and administration costs necessary to alter and move the electricity from the plant to the household for use. Those costs are in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity, Transmission and Administration, Line E.*

The final adjustments added together with the cost of electricity are expressed as the Unit Price of electricity for the Plant with and without the carbon factor. The Unit Price used in Table 4 is expressed in cents per kilowatt hour. The final adjusted values can be found in *Table 4, Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant, Price of Electricity, Unit Price with CO2 and Unit Price without CO2, Lines F and G*, respectively.

The Impact of the Cost of Plant Washington on the Rates of Each EMC

This unit price is combined with each of the participating EMC's residential rate portfolio. This study uses the 2011 Winter Residential Rate Survey for each EMC

that is filed at the Georgia Public Service Commission. Using existing rates as well as the electricity cost from the new plant as calculated above, one can develop a new cost by blending in an assumed contracted amount of electricity from Plant Washington. The blending process is discussed in the *Rate Impact* section. A new rate for each EMC is derived for the first year of operation of Plant Washington. Household cost is presented as a typical home using 1000 kWh per month, a standard consumption measure used by the Georgia Public Service Commission.

In order to determine impacts on electricity rates for customers of a proposed power plant scheduled to go on line in 2017, one must make assumptions about future costs. Although other studies might use different assumptions regarding future costs, the assumptions that form the basis for the analysis contained in this report are reasonable and consistent with accepted industry standards. No matter which assumptions are made (assuming a range of reasonable assumptions), P4G must meet certain financial benchmarks if it is to receive financing, remain solvent and enlist the support of partners. It is within these financial bounds that Plant Washington will ultimately succeed or fail. Presumably reputable lending institutions or private investors render the final judgment on Plant Washington. There is no Public Service regulatory review of Plant Washington required under Georgia law. This report produces one estimate of rate impacts. The wrong approach would be to ignore or evade the question of how much the consumer will pay.

A Note on Disclosure

P4G has publicly offered very little readily useable, reliable financial information. The organization has offered no publicly available, up-to-date comprehensive financial model of Plant Washington. This lack of transparency makes it difficult for an outside analyst to form an independent assessment on the merits of Plant Washington. This report provides several examples of developers, at various stages of the process that have provided the public with comprehensive information and frequent updates. Such information is usually provided by professional experts and independently verifiable. P4G's lack of/unwillingness to provide similar information stands in stark contrast to the other plant developers' efforts toward transparency.

Due to P4G's limited and largely unreliable financial data, the rates and prices presented in this study for Plant Washington are heavily supplemented with

government data and reports, market information, data from other power plant models, independent audits, corporate filings, credit and stock analyst reports, industry and business press reports, self-reported information from cooperatives, administrative case filings, public service commission information, investor presentations and other related information. *Taken together, these sources provide sufficient data from which to calculate statistically reliable cost estimates for Plant Washington.* The source material is national, state, Georgia or EMC specific as available and appropriate. Where information is unavailable, reasonable market proxies have been established and explanatory footnotes used to support assumptions.

The data supports an approximate cost of electricity for Plant Washington. This report discusses the assumptions and issues involved in generating that price. Overall modeling and calculations are industry standard. They can be found in most any of the regulatory cases and project budgets referred to in this report. For example, the Consumers Energy's Balanced Energy Initiative in Michigan (cited in this report) provides a good example of how such a model works.

Cobb EMC's 2010 annual report reflects development expenditures for P4G upward of \$19.6 million and an open line of credit of another \$10 million.⁴ To date, there has been very little public information available to justify this expenditure. Several communities went through extended planning processes only to cancel plants. The Kentucky Public Service Commission recently voted to pass on to consumers \$154.7 million in sunk costs on a proposed coal plant that was canceled. Ohio communities are now being asked to pay their proportionate share of some \$200 million in losses plus interest for a failed coal plant sponsored by AMP-Ohio.

As the EMC members of the Power4Georgians' consortium consider whether they should continue to participate in Plant Washington, enhanced public disclosure of basic information regarding their operations would be invaluable to the public. The limited information, provided by some of the P4G affiliated EMC's through United States Department of Agriculture oversight documents and by others through

⁴ Cobb EMC, 2010 Annual Report, Section S, Notes Receivable, p. 19.

organizational websites could, with little expense and time, be supplemented with a simple presentation of clear, precise and up-to-date data. These would include, at a minimum, customer electricity consumption, uniform revenue and expense reporting, year-to-year systematic rate information and benchmark energy performance indicators.

Rate Impact

Electricity consumers have come to expect increases in their monthly bills. Most recognize the trade-off between paying more and receiving reliable service. Consumers have even accepted increases, sometimes large ones, after major outages or international incidents, for example, so long as they were accompanied by reasonable explanations.

Once Plant Washington is in commercial operation, the cost of electricity from the facility will be higher than the general cost of electricity from the market as a whole. Plant Washington's operation will therefore place significant upward pressure on the price of electricity charged to customers of every EMC that decides to buy electricity from the new generating facility.

How much individual customer bills will rise depends upon how much electricity each EMC buys from the Plant.

A. What level of increase would consumers face in 2017, if Plant Washington is not built?

When gauging the impact of a new plant on consumers' wallets it is important first to understand the expected price environment going forward. It helps to establish a standard by which increases can be considered reasonable. The Energy Information Administration (EIA) projects nationwide price increases just under 2% annually for residential electricity from 2011-2017. The longer term outlook indicates price increases of 1.6% annually for the period 2010-2035.⁵

⁴ Cobb EMC, 2010 Annual Report, Section S, Notes Receivable, p. 19.

⁵ Energy Information Administration, 2011 *Annual Energy Outlook, Residential, www.eia.gov.* During the same period nationwide the EIA projects a slight decrease in electricity prices across all classes of consumers. See: EIA, *Op Cit, Total Energy Supply Disposition and Prices.*

A recent Georgia Public Service Commission (GPSC) case suggests some of the price dynamics occurring in the region.

- On March 1, 2011 the Atlanta Journal-Constitution (AJC) reported that for the first time in 14 years Georgia Power had filed with the GPSC for a rate reduction for consumers reflecting the recent drop in the price of natural gas.⁶
- A Georgia Power official testified before the GPSC that the price of natural gas is likely to remain low through the near term and the company does not anticipate any further fuel adjustment applications until 2012. The application, noting the savings from natural gas price reductions, also documents increases in coal prices.⁷
- A national study of coal plant retirements and environmental regulations by a leading utility industry think tank projects natural gas price increases at a rate of just over 1% annually from 2010-2035.⁸

Low power prices, driven in large measure by low natural gas prices, should act to slow what have been historically relatively high rate increases in Georgia.⁹ For the purpose of this paper it is assumed that a reasonable and prudent standard for electricity rate increases for planning purposes is 2% annually.

In Georgia, as in other states, residential electricity rates are higher than those for commercial, industrial and transportation users. In 2010, Georgia's average

⁶ Margaret Newkirk, *Georgia Power asks to cut monthly bills by 64 cents*, Atlanta Journal Constitution, March 1, 2011.

⁷ Laura I. Patterson, Assistant Comptroller for Georgia Power Company, *Direct Testimony*, Docket No. 33302, Georgia Public Service Commission, pps. 2-4.

⁸ M. Celebi, F. Graves, et al., *Potential Coal Plant Retirements Under Emerging Environmental Regulations*, Brattle Group, December 8, 2010, p. 42.

⁹ Of the six EMC's under review for this study five lowered their winter rates from 2010-2011, and Pataula, the EMC in this group with the lowest residential rates of the six, remained flat. Cobb EMC has recently announced a rebate to its customers: Brandon Wilson, *Cobb EMC will credit its customers*, Marietta Daily Journal, April 26, 2011.

residential rate was 10.17 cents per kWh, while its overall rate for all users was 8.9 cents per kWh, a 14.3% difference.¹⁰

B. How much will Plant Washington cost consumers?

After all of the debate and analysis about Plant Washington, it is consumers who will ultimately foot the bill if the plant is built. The leadership of each EMC will make a decision to buy or not to buy electricity from Plant Washington. If they buy, the EMC will determine how much to buy.¹¹ The amount will be factored into the cost of electricity charged to individual members in their monthly bill.

The cost of electricity from Plant Washington will place significant upward pressure on electricity prices to residential consumers. Table 1 shows the price of electricity from the plant will be between 54% and 103% more expensive than what a consumer would pay from all other sources of electricity in 2017 (See Table 4 Lines F and G, *Price of Electricity Unit Price with and without CO2*). This does not mean that the price of electricity will rise by these dramatic amounts. It does mean however, that the plant will be an unnecessarily and unacceptably expensive and risky addition to Georgia's electricity grid. The estimated cost of electricity from Plant Washington in 2017 will be way out of line with the basic cost of electricity sold to consumers in the P4G participating EMCs.

¹⁰ Energy Information Administration, *Average Price by State by Provider, 1990-2009/Total Electric Industry, www.eia.gov.* In 2009, the residential markup was 14.9%. Given that each of the EMC's participating in P4G typically have a membership base with a higher level of residential participation than the state average, for the purposes of this paper a 10% residential adjustment is used. This is an area where further disclosure would refine the analysis. (See Table 4, Lines B and D, *Price of Electricity Residential Adjustment*).

¹¹ For the purpose of this discussion it is assumed that the six EMC's currently involved with Plant Washington have chosen to purchase 20% of their electricity from the plant. Although the Plant would not be economically viable if these six EMC's were the only entities purchasing electricity at this level, the 20% scenario is chosen for both illustrative purposes and because it is unlikely for reasons of prudence and existing contractual obligations that the EMC's would buy more than this amount. Other more aggressive scenarios have been evaluated for modeling purposes, see *Table 3: 2017 Residential Price of Electricity w/o Plant Washington and w/ Plant (20%, 50%, 70% purchased by EMC's)*.



Estimated price increases for consumers are likely to occur in the following manner:

- Instead of a modest 2% annual increase, consumers can expect to see increases of 10% to 20% *in the first year of operation of Plant Washington*. This is an average increase of 16%, or over eight times higher than what consumers might normally expect (see Table 2).¹²
- In actual dollars (for an average household using 1000 kWh per month) this is, at a minimum, an additional annual cost of \$208.00 in the first year of operation of Plant Washington. Depending upon where you live, the cost could be as low as \$165.00 or as high as \$240.00. The normal increase would be on average \$23.00 annually.
- During the early years of Plant Washington's operation consumers can expect an additional charge of \$50.00 per year to pay for new carbon regulations.
- Considering the full impact of future carbon legislation, Plant Washington will raise annual prices by \$258.00, over ten times the normal rate.

¹² See Appendix I: *Normal Annual Price Increases vs. First Year Increase Plant Washington by Individual EMC* for impact of Plant Washington on rates at individual participating EMC's.



C. Why prices will rise.

Plant Washington has to sell a lot of electricity – an estimated 5.9 billion kWh's per year. This amount of electricity is almost enough to serve 100% of the annual needs of the six electric membership cooperatives that comprise the P4G consortium. These EMC's would never agree to acquire this much electricity from one source. They could not afford it, it would be bad business and incom-petent energy policy – and no member of P4G has recommended doing so.¹³

However, it is likely that most of the EMC's participating in P4G will take some electricity from the plant. If they took nothing, or only a small percentage of their needed capacity, the plant would not be financially viable. Table 3 shows what happens to the annual price of electricity to a typical household living in EMC service areas currently participating in project development. The Table assumes

¹³ A P4G spokesman has suggested almost the opposite, where Plant Washington may have an ownership structure and market base with a broad set of as yet unspecified entities including electric cooperatives and investor owned utilities. To date, P4G has not released any information suggesting any power purchase contracts or ownership arrangements or any preferred business organization plan. See: Dean Alford, *Generating Power*, Marietta Daily Journal, February 15, 2011

that the EMC might choose to use Plant Washington for 20%, 50% or 70% of its electricity needs. As Table 3 demonstrates, the more electricity purchased by the cooperative, the greater the cost to the consumer of these EMC's. This is due to the fact that the estimated cost of electricity is much higher than the overall cost of electricity from other providers.



Without Plant Washington, each cooperative would buy electricity as it does now – largely from the Oglethorpe Power Corporation (OPC). Perhaps, in the future more providers would be in the mix. The analysis in this paper is based on OPC's general business plans, the EIA's price projections, general market patterns taking shape in Georgia and other market indicators. This paper's analysis estimates that Plant Washington will produce electricity at a price far above what the market will bear in 2017. Similar analyses by utilities are the reason why 153 new coal plant proposals across the country have failed, whether due to a regulatory agency's rejecting the proposal or a utility's decision to abandon the project.¹⁴

A 2010 study conducted by researchers from Georgia Tech comparing new coal and natural gas plant economics in a specific Georgia context, reached the same

¹⁴ Beth Ward, *On lack of coal build-up, enviros tout wins, industry lists several factors*, Platts Coal Outlook, April 18, 2011.

conclusion as the 153 plant developers. The study concluded that in the current economic climate the costs of new natural gas plants were generally less expensive than coal-fired generation. Each generation type faced market risks, but 2010 plant financials in the Georgia context favored natural gas.¹⁵

Those EMC's (or investor owned utilities) that own the plant and/or purchase electricity from the plant will bear cost burdens that place significant upward pressure on the price of electricity. The actual amount of the price pressure corresponds to the amount of electricity used from the plant by an individual EMC or investor owned utility.

The Cost of Electricity from Plant Washington

The cost of electricity from Plant Washington, as with any generating facility, reflects its capital costs, annual operating and maintenance (fixed and variable) costs, fuel costs, regulatory compliance costs and its operating performance. Once the plant is operating it becomes part of the cooperative's portfolio of energy sources. These portfolios are a mix of owned generation and contracted sources (usually purchased power agreements). The cost of electricity from Plant Washington is blended with the cost of each cooperatives current "market basket" of energy and generation choices. The result is a new price of electricity for consumers. The cost of Plant Washington is ultimately passed through from the plant and its owner to the EMC and finally to the consumer in a monthly bill as a cents per kWh use charge. This paper uses a standard household electricity consumption model of 1000 kWh per month.

The following section takes an in-depth look at the plants vital financial elements. These vital elements form the basis for this reports estimate of the price of electricity from Plant Washington and the subsequent rate impact calculations.

¹⁵ Seth Borin, Todd Levin and Valerie M. Thomas, *Estimates of the Cost of New Electricity Generation in The South*, Working Paper # 54, Georgia Institute of Technology, Ivan Allen College School of Public Policy, March 26, 2010, p. 16.

A. Capital Cost

The greatest impact on the price of electricity from a coal plant stems from construction and financing costs. In 2008 when P4G announced its plans it estimated the cost of construction for Plant Washington, an 850 MW supercritical coal plant, at \$2.1 billion (\$2353/kW). P4G continues to rely on this estimate.¹⁶

A 2008 report by Synapse Energy Economics provided numerous examples of coal plants of similar type and size to Plant Washington that were priced either through market competition or based on professional, publicly available studies.¹⁷ Each of the examples made clear that the price provided by P4G was much lower than what the plant could actually be built for under current market conditions.¹⁸ The Synapse study estimated the construction cost of Plant Washington conservatively at \$3000/kW, a calculation that did not include financing costs.

Since the publication of the Synapse study, additional market information on the cost of coal plants has become available. One of the plants referred to in the study, the Karn-Weadock 830 MW coal plant in Michigan, was sponsored by Consumers Energy in Michigan. The sponsor provided a June 15, 2009 updated cost estimate of the plant of \$2.97 billion without financing or \$3589/kW and \$3.577 billion with financing or \$4310/kW.¹⁹ Plans for the plant have subsequently been canceled.²⁰

¹⁶ Dean Alford, *Generating Power*, Marietta Daily Journal, February 15, 2011.

¹⁷ Synapse Energy Economics, Inc., *The Risks of Plant Washington*, December 2, 2008. See: Construction Cost Discussion: pps. 6-10.

¹⁸ Many project developers whether explicitly required by law or not supply detailed financial analyses for public consumption. They also tend to update the information to maintain interest in the project and as part of the solicitation of contractual partners and the formation of community alliances. See for example: Consumer Energy's, *Balanced Energy Initiative*. The details of various coal plant financial scenarios and other energy alternatives are available on the Michigan Public Service Commission Website under Dockets: U-15290 and 16191, or from the company.

¹⁹ Consumer Energy Company, *BEI Electric Generation Alternatives Analysis, Table 5 – Coal Technology Summary Analysis, Levelized Cost of Advanced Supercritical Pulverized Coal Plant,* June 15, 2009.

²⁰ For a discussion of the plant economics and projected rate impacts see: TR Rose Associates, *The Proposed Consumers Energy Karn-Weadock Coal Plant: An Unreasonable Price for an Unnecessary Plant*, April 8, 2010.

The Synapse report also looked at the AMP-Ohio Meigs County in-process plant and noted it was subject to rising construction price risk. In December 2009 the plant was cancelled due to rising construction costs. Subsequent litigation on the matter reveals that the final price from the builder for this new coal fired plant in December 2009 was in the range of \$3700/ kW without financing costs.²¹

One plant not discussed in the Synapse report was the J.K. Smith 278 MW coalfired facility proposed by the East Kentucky Power Cooperative. The original 2007 estimate for the plant was \$660 million. By 2010, new cost estimates by the cooperative reached \$900 million, or \$3327/kW.²² During a three year public debate on the plant several factors emerged to weaken the viability of the proposal. Construction costs increased, expected demand failed to materialize and the cooperative's already weak credit position deteriorated.²³ Furthermore in February 2008 the federal agency responsible for financing rural electrification projects initiated a moratorium on all new coal-fired power plants.²⁴ In November 2010 the sponsor canceled the plant.

From 2007 to the present 153 proposed coal plants have been canceled. The Edison Electric Institute, a utility information resource and trade association, monitors financial performance of the industry. Its most recent report showed no new coal fired power plant announcements in 2010.²⁵ The combination of persistently high

 ²¹ American Municipal Power, Inc. v. Bechtel Power Corporation, Complaint, Civil Action: 2:11-cv-131, United States District Court, Southern District Ohio, Eastern Division, February 11, 2011.
 Final plant costs with financing were never published. At the time of the announced cancellation of the plant AMP-Ohio announced that the builder had demanded a 37% increase in construction costs.
 ²² Power-Gen, *Planned coal-fired power plant in Kentucky gets a second look*, June 25, 2010.
 ²³ For a discussion of many of the challenges facing the plant see: TR Rose Associates, *The Right Decision for Changing Times*, April 7, 2009 as well as TR Rose Associates, *The Growing Unsustainable Debt Burden of the East Kentucky Power Cooperative: A Case Study in Debt Mismanagement*, September 14, 2009 and TR Rose Associates, DSEIS Coal Assumptions Smith Plant, May 19, 2010.

²⁴ See Interest Rate Section for extended discussion on RUS moratorium decision and implications for rural cooperatives and Plant Washington.

²⁵ Edison Electric Institute, Construction Q4 – 2010, Final Update, Table VII, Announced Capacity by Fuel Type, www.eei.org/whatwedo/DataAnalysis/IndusFinanAnalysis/Documents/ Q4 2010 Construction.pdf

construction prices and recent low power prices (driven by declining natural gas prices) has worked to curtail investment fundamentals in any new coal plants.

A recent industry update on power plant costs indicates "that a portfolio of power plants that cost \$100 billion in 2000 would, on average, cost \$215 billion today."²⁶ The same industry analysis looking forward sees continued sluggishness for coal plant projects and gradual increases in the growth of construction prices.

Some analysts estimate a near and mid-term rebound in the rate of heavy capital construction price increases on the global markets in the wake of the March 11, 2011 earthquake and tsunami in Japan. Those projections are based, in part, on the view that steel prices have already risen 89% since 2009.²⁷

Using the 2009 Karn-Weadock plant as a base price, this study estimates that Plant Washington's 850 MW plant would cost \$3.58 billion with financing in current dollars. It is estimated that Plant Washington would start construction in 2013-2014 and begin commercial operation in 2017-2018. For the purpose of this analysis the conservatively estimated cost of the plant with financing for the 2013-2014 market (assuming a 2% annual increase) is \$3.9 billion, almost double P4G's \$2.1 billion estimate. (See Table 4, Line C, Plant Cost With Financing).

The likelihood of rising construction prices fed, in part by renewed economic activity in Japan and Asia going into 2013 supports an upper end estimate in excess of \$4 billion for Plant Washington. If Plant Washington fails to meet its scheduled start of construction date the cost is likely to continue to rise.

B. Setting an Interest Rate for Plant Washington

For the purpose of this study it is difficult to establish a credible interest rate for Plant Washington. The primary credit strength of the participating EMC's is their independent rate setting authority. Rates for EMC's are not regulated by the State

²⁶ IHSCERA, *Power Plant Construction Costs: Recovery Paused as Costs Go Flat Once More*, December 21, 2010.

²⁷ Jennifer Zajac, *EPA regulations expected to drive up emissions control costs, utility bills*, SNL, April 1, 2011.

of Georgia. Plant Washington is also exempt from the State of Georgia's regulatory oversight for new construction of a generation facility because of its EMC sponsorship. The board of directors of the P4G's EMC's set the rates. Some EMC's have reporting and oversight requirements from the federal Rural Utility Services that are a function of borrowing agreements. Other EMC's like Cobb and Snapping Shoals currently have no outstanding indebtedness to the Rural Utility Services and therefore are exempt from its reporting and oversight requirements.²⁸ This credit strength is offset, however, by market and regulatory realities.

Each EMC that may take an ownership position in Plant Washington is organized under federal and state statutes and has historically received most, if not all, of its past borrowing through the United States Department of Agriculture (USDA), Rural Utility Services, its various predecessor agencies and bureaus, and the network of financial institutions established to assist the rural electrification network.²⁹ The financial organization of each cooperative is specifically designed to satisfy the credit needs of the USDA and/or the credit institutions that support its programs. These lending institutions have a specified set of credit protocols and standards.

In February 2008 the RUS under the Bush administration announced a moratorium on new coal plant investment. Until further notice, the agency would no longer provide low cost financing to rural electric cooperatives for the development of new coal fired power plants. The announcement drew public attention and the following article appeared in the March 13, 2008 Washington Post:

²⁸ For a succinct statement on relative EMC autonomy on rate setting and RUS oversight with specific reference to current status of Snapping Shoals EMC and Cobb EMC see: Oglethorpe Power Corporation, *2010 10K Annual Report*, March 18, 2011, pps. 12-13.

²⁹ For a very general description of the statutory basis, credit structure of EMC's as well as an understanding of their annual financial reporting requirements see: United States Department of Agriculture, Rural Utilities Service, *2008 Statistical Report: Rural Electric Borrowers*, Informational Publications 201-1.

Though the last loan for a generating plant was made in 2006, rural cooperatives have applied for \$1.2 billion in loans to cover all or part of four more coal-fired plants, including controversial ones in eastern Kentucky and southern Illinois. Two other cooperatives recently shelved their projects and withdrew their RUS loan applications. And last month the RUS informed the Southern Montana Electric Generation and Transmission Cooperative that the agency was rejecting its application for a coal plant loan, citing new agency policy, rising construction costs and the lack of customers for much of the proposed plant's output....

The RUS administrator, James M. Andrew, said in the letter that it "is not funding loans for new base load generators until the Agency and the Office of Management and Budget can develop a subsidy rate to reflect the risks associated with the construction of new base load generation plants."

An RUS spokesman would not say when the OMB closed the lending window for baseload plants; the agency gave no hint of the policy change until its letter to Southern Montana Electric on February 19.

The agency also conceded yesterday that it had not considered potential costs that could result from climate-change legislation that most commercial banks, utilities and other businesses consider when considering energy projects. "Since there is no clear consensus on what emission standards will be enacted and associated costs, attempting to make decisions on loans absent a factual base is speculative at best," Andrew said.

.....A budget expert who asked not to be identified to protect his relationship with clients noted that the RUS was also glossing over the difficulty of passing costs along. Power generation co-ops are separate from distribution co-ops, which in the past have forced some generators into bankruptcy, rather than pass along higher costs.³⁰

RUS, the federal agency that provides financial support and supervision for each of the EMC's (and has done so since the 1930's), no longer offers financing for coal

³⁰ Steven Mufson, *Government Suspends Lending for Coal Plants: Risks Cited to Economy, Environment*, Washington Post, March 13, 2008. See also. Karl Puckett, *Rural Utilities explains funding pullout and Coal-fired plant projects feel heat from rising costs*; environmental costs, Great Fall Tribune, March 4 and 13, 2008.

fired power plants. Typically, RUS loans range from a 3% - 5% interest rate for 30 years, although different programs have different interest rates.³¹ The below market interest rates serve as a federal subsidy to support the provision of affordable electricity to the nation's rural areas.

The difficulty of establishing a reasonable interest rate for modeling purposes is rooted in the same dilemma faced by RUS. The agency could not deploy federal resources because the risks associated with financing coal plants were so numerous and complex that any final rate simply reflected assumptions that were too "speculative" to cover the actual financial risk.³² This broad caveat needs to be understood however it should not preclude a public discussion of the issues.

If RUS will not fund coal plants, then where could P4G secure several billion dollars in financing for a coal plant? One could assume that P4G could approach one or several Industrial Development Agencies in the state. These local economic development agencies issue bonds that could serve as a source of funds for the project. There are very few comparable new coal plant projects funded with tax exempt bonds. It is therefore difficult to derive a broad cross section of interest rates and profile of similarly situated organizations. Two significant projects, one in Ohio (the AMP-Ohio project discussed above) and one in South Carolina were

³¹ Rural cooperatives also typically finance 100% of the cost of the plant under RUS programs. This financing method is markedly different than how an investor owned utility or merchant operator finances a project through the capital markets. Publicly traded corporations use a combination of debt and equity that is available to them through the capital markets. These finance mechanisms are designed to provide a risk adjusted return to investors. The RUS is a public finance tool designed to serve public interest goals established by Congress.

³² A recent analysis by the EIA employs a 3 percentage point adjustment to its coal plant modeling. The EIA views this addition not as a "financing cost", but as a quantitative way to represent "the implicit hurdle being added to GHG-intensive projects to account for the possibility they may eventually have to purchase allowances or invest in other GHG emission-reducing projects that offset their emissions." The result of this EIA 2011 modeling is that coal plants are more expensive to build than any kind of natural gas facility. Wind generation is also competitive with coal in this analysis, *in any region*. See: http://www.eia.doe.gov/oiaf/aeo/pdf/

²⁰¹⁶levelized_costs_AEO2011.pdf. The modeling outcomes can be found in Table 1 *Estimate of Levelized Cost of New Generation Resources, 2016*, and Table 2: *Regional Variation in Levelized Cost of New Generation Resources, 2016*.

proposed and canceled by sponsors due to rising costs, regulatory uncertainty and other factors.³³

The Prairie State Energy project, a supercritical coal fired power plant in Illinois, is funded primarily by tax-exempt bonds issued largely by quasi-public organizations. The organizations have their own independent credit ratings and rate setting capabilities. The bonds are underwritten principally by several hundred municipal electric systems in Midwest states. They are supported with hundreds of millions of dollars in federal interest subsidies over the 30-year life of the bonds from the Build America Bonds program.³⁴ The largest affiliated issuer, AMP Ohio enjoys an interest rate of 5.9% on its latest issuance in September 2010.³⁵

Unlike organizations involved with the Prairie State consortium however, none of the EMC's in P4G possess their own independent credit ratings from a recognized rating agency. The Prairie State consortium has the implicit backing of multiple state and local governments.³⁶ Cobb EMC and the other members of P4G, on the other hand, do not have an independent financial rating. Constituting 14.5% of Oglethorpe's revenue base, Cobb EMC is an integral support to Oglethorpe's current A rating from Standard and Poors.³⁷

³³ Allyson Bird, *Santee Cooper will pursue Pee Dee coal plant*, The Post Courier, August 24, 2009.

³⁴ Synapse Energy Economics, *Phasing Out Federal Coal Subsidies*, April 13, 2010.

³⁵ AMP-Ohio, *Official Statement, Prairie State Energy Campus Project Revenue Bonds,* September 29, 2010.

³⁶ Each of the bond issuers is a legally and technically separate entity from respective state governments. Yet, each provides critical public finance tools for state governments as they pursue energy and broader economic development projects to benefit their respective state economies. For example, Former Illinois Governor Blagojevich announced and campaigned for the project with Peabody Energy officials (see: Peabody Energy, *Governor, Prairie State Rally 'Home Team'*, Conveyor, Volume 1, Issue 1, May 2005). Build America Bonds are federal subsidies, but they would be difficult to access without state government support. For a discussion of how local government interests are tied to similar projects see: TR Rose Associates, *AMP Ohio Contract Analysis, (Meigs County Coal Plant)*, February 10, 2010, pps. 12-13.

³⁷ Standard and Poor's, *Oglethorpe Power Corp., Georgia CP, Joint Criteria, Rural Electric Cooperative*, November 1, 2010. See also: OPC, 4th Quarter and Year End 2010 Investor Briefing, March 31, 2011.

From a financial perspective the largest EMC participating in P4G is Cobb EMC.³⁸ According to its 2010 Annual Report the organization has \$395 million in outstanding long term debt at interest rates ranging from 3.25% to 7.40%.³⁹ Cobb EMC's lenders are primarily financial institutions affiliated with the rural lending financial network.⁴⁰ These lenders support rural electrification and telecommunication lending and are heavily reliant on the financial leverage provided by the USDA and the federal treasury. Plant Washington will require borrowing upward of \$4 billion – an amount ten times the current borrowing capacity of Cobb EMC. Even if Cobb EMC took only a 10% ownership stake it would double its outstanding long term debt, and consolidate an extraordinary level of financial risk, in one new coal-fired plant.⁴¹

In addition, unlike the Prairie State project, it is likely that the P4G project will enlist the support of one or more Georgia Industrial Development groups. These groups have a broad portfolio of projects, and offer little more than conduit financing. Unless the State of Georgia or Cobb County, each with AAA ratings or OPC with its A rating steps in with their credit strength (or some combination of rated cooperatives and investor owned utilities) this financing will stand or fall on the EMC ratepayers.

The Municipal Securities Rulemaking Board (MSRB) maintains rules and operates market transparency systems for investor and other stakeholders involved with municipal bonds.⁴² MSRB maintains a database of recent market transactions in the bond market. A search of the MSRB database shows that over the past three years

³⁸ P4G appears to have no capital asset base of its own.

³⁹ Cobb EMC 2010 Annual Report, p. 21.

⁴⁰ Cobb's 2010 Annual Report and Full Financials show \$410 million in Mortgage Notes owed to the National Rural Utilities Cooperatives Finance Corporation (p. 21). NRUCFC is described on its website as a member-owned, nonprofit cooperative. It was organized in 1969 to raise funds from the capital market to support the loan programs for electric cooperatives offered by the Rural Utility Service.

⁴¹ Cobb EMC and others participating with P4G are integral to the business operation of Oglethorpe Power Corporation. Under some scenarios the new ownership structure related to Plant Washington, particularly the assumption of high levels of non-USDA debt by the participating EMC's on a risky coal plant, could become a factor in OPC's overall credit rating.
⁴² www.msrb.org/About-MSRB.aspx

several Georgia-based industrial development and housing development nonenergy and non-coal fired generation bond transactions with relatively high risks were purchased on the market at interest rates in the 10% to 12% range.⁴³

A recent heavily qualified statement by P4G implies that other ownership arrangements could include significant buy-in from large investor owned utilities.⁴⁴ P4G's public statement used the name of Duke Energy and Southern Company. Thus far, there have been no signed agreements or public expressions of interest by either company in Plant Washington. Southern has expressed concerns with the economic viability of its coal fleet,⁴⁵ reduced its coal and increased its natural gas purchases,⁴⁶ announced retirements of existing coal plants and its new CEO's corporate vision does not include new supercritical coal fired generation.⁴⁷ Duke has announced existing coal plant retirements,⁴⁸ faces impairments on its remaining coal fleet⁴⁹ and grapples with a scandal ridden, costly new integrated gasification combined cycle (IGCC) plant under construction in Indiana.⁵⁰ Energy Futures Holding, a credit challenged owner of generation assets that heavily invested in coal fired generation in Texas, holds debt at 11.5%.⁵¹

⁴³ Municipal Securities Rulemaking Board (EMMA), Muni Search, State of Georgia, Date of Issuance: 01/01/2008-05/10/2011, Interest Rate: 8.5% - 20%.

⁴⁴ Alford, Op Cit.

⁴⁵ Kathleen Hart, *Southern CEO tells Congress, EPA rules put reliability, affordability at risk*, SNL Coal, April 15, 2011.

⁴⁶ Chad Hewitt, Southern Company, *Utility Perspective on the Future of Coal*, Coaltrans, February 3, 2010.

 ⁴⁷ Jennifer Zajac, *Tom Fanning, chairman, president, CEO of Southern*, SNL Coal Daily Report, January 28, 2011. Company representatives have also recently offered a very clear picture of their preference for natural gas new generation over coal. See: Coal and Energy Report, March 10, 2011.
 ⁴⁸ Jesse Gilbert and Michael Niven, *Upcoming, recent coal fired power unit retirements*, SNL, February 22, 2011.

 ⁴⁹ See discussion of asset impairments: Duke Energy Corporation, 2009 and 2010 10 K Filings, February 26, 2010 and February 25, 2011 respectively, pps. 106-107 (2009) and 144-145 (2010).
 ⁵⁰ Michael Lustig, *Duke proposes lower cost cap for Edwardsport plant*, SNL, March 10, 2011.
 ⁵¹ Energy Future Holdings, *EFH Co. Q1 2011 – Investor Call*, Slide 16, April 29, 2011.

The legal entanglements of Dwight Brown, former CEO and President of Cobb EMC,⁵² may also cause a potential Industrial Development Agency or other prospective lenders to require 'extra diligence'. Public lenders often require a systematic disclosure of information concerning the parties involved in an investigation. Lenders, particularly public lenders conduct their own integrity reviews.⁵³ The outcome of such reviews by public authorities charged with stewardship of public dollars can be disqualification. It can also mean additional conditions placed on Cobb EMC's (or related entities) bond inducement or transaction terms (such as insurance, higher counsel fees, points, interest rates). Independent of the specific allegations related to Mr. Brown, the allegations reflect upon the internal control and board governance of the cooperative.⁵⁴

Similarly, additional diligence may be required to provide greater transparency regarding the agreement among and between the EMC's and P4G. While P4G describes itself as a "consortium" of electric cooperatives, it appears from Cobb EMC's 2010 Annual Report that Cobb EMC has already paid \$8.5 million towards the cost of Plant Washington. Cobb EMC also holds outstanding notes from P4G of another \$11.1 million. A Letter of Credit Agreement between the parties now appears to serve as a financial resource for P4G.⁵⁵

⁵² Mr. Brown was indicted on charges of theft and racketeering, see: Brandon Wilson, *EMC's Brown indicted of theft and racketeering*, Marietta Daily Journal, January 7, 2011. The indictment was dismissed on March 22, 2011. The District Attorney has asked the Supreme Court to hear an appeal regarding the indictment, Brandon Wilson, *ADA appeals tossing of Brown's indictment*, Marietta Daily Journal, April 22, 2011.

⁵³ See for example: New York/New Jersey Port Authority, *A Guide to Procurement at the Port Authority of NY and NJ*, PA 3764A Contractor's Integrity Provisions (Bids) and PA3764B Contractors Integrity Provisions (RFP), www. panynj.gov/business-opportunities/pdf/guide-toprocurement/.pdf

⁵⁴ Cobb EMC's 2010 Audit Report and Full Financials, p. 31 discloses the existence of a grand jury proceeding and litigation related to several matters including fraudulent concealment, Shea v. Cobb EMC. The audit expresses no opinion about either matter. Financial due diligence of a potential lender reviewing a potential transaction involving several billion dollars would almost certainly probe the matter. The auditor letter also makes clear that the audit report and full financials is limited in scope, and excludes tests of EMC's internal control systems for financial reporting (see: McNair, McLemore E, Middlebrooks and Co., LLP, *Report Independent Accountants*, July 26, 2010). ⁵⁵ Cobb EMC 2010 Annual Report, Section 5. Notes Receivable, p. 19.

In addition to the Brown issues, two Cobb EMC ratepayers recently requested an investigation by the Federal Energy Regulatory Commission of matters related to the governance and financial conduct of Cobb officials. The complaint cited matters included in the indictment and other financial transactions, some related to Plant Washington that may already have had a negative impact on consumer rates.⁵⁶

Taking these factors into account makes establishing an interest rate for this project problematic. The coal plant alone is highly risky, so risky, that the RUS, the federal agency principally responsible for the financing of EMC's for the past seventy years, has imposed a moratorium on the funding of coal fired power plants. The credit profiles of the members of P4G do not suggest they have a track record of obtaining large dollar loans with non-USDA, private sector lenders. P4G has no known assets beyond the revenue of its affiliated EMC's, a relationship which is at best, not transparent. The EMC's are not rated by any third party, so there has been no formal outside vetting of the organizations. The Cobb legal proceedings only further complicate matters.

For the purpose of constructing a financial model however, one can settle on a number fully aware that it is for illustration purposes only. A 9.5% interest rate is used to reflect the normally strong revenue base of utilities and independent rate setting authority of the EMC's (See Table 4, Line D, *Plant Cost Interest Rate*). These strengths are offset by the considerable weakness of coal plant economics, the limited credit history of the EMC's with financial lending outside the USDA/RUS financial family and the integrity challenges facing the development partnership.

Furthermore, should this project find a suitable lender, the risk profile on this project could force the interest rate on this project up to 12%. Such an interest rate would place further upward pressure on the cost of electricity produced by the plant.

⁵⁶ Letter from William R. Mapes, Jr. to Kimberly D. Bose, Federal Energy Regulatory Commission, re: Cobb Electric Membership Corporation, Docket Nos. ER 01-1860-000-001.002 + 003: Cooperative Energy Inc. Docket Nos. EROS-371-000.001+002; W.T. Nelson III.

C. Regulatory Costs

Plant Washington, like any coal plant, would be a significant source of numerous pollutants. Project developers must submit and receive approval from regulatory agencies regarding the plant's detailed plans to curb emissions. The regulatory processes have their basis in federal and state law designed to protect public health and the environment. The process ends with courts or administrative agencies granting or denying construction and operating permits. A successful permit sets expected emissions levels for the plant. These levels will be used to judge whether the operating plant is meeting the terms and conditions of its permit. The technologies and operating processes utilized by the plant developer to treat toxic emissions have an impact on both the capital and operating budgets of the plant. It is from this complex set of scientific, public health, legal, technological, financial, energy and political decision making that pollution control estimates are generated regarding the coal plant.

Plant Washington is required to obtain the following permits⁵⁷ in order to move forward:

- Air quality permit;58
- Solid waste handling permit;⁵⁹
- Water discharge permit;⁶⁰

⁵⁷ For a complete understanding of the permitting process for Plant Washington as well as the current status of individual permit applications see: http://green-law.org/PlantWashington
⁵⁸ For a description of the law, process, developer application and environmental concerns related to the plant see: letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Jac Capp, Georgia Department of Natural Resources, Environmental Protection Division, October 27, 2009 and letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Heather Abrams, Georgia Department of Natural Resources, Environmental Law Center to February 22, 2008, both available at Green-law website.

⁵⁹ See letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Jennifer R. Kaduck, Chief Land Protection Branch, Environmental Protection Division, October 27, 2009.

⁶⁰ See letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Jennifer R. Kaduck, Chief Land Protection Branch, Environmental Protection Division, October 27, 2009.

- Groundwater permit;⁶¹
- Surface Water Withdrawal Permit⁶²

In addition to the existing permits referenced directly above, the United States Environmental Protection Agency (EPA) is in the process of crafting regulations will provide new protocols for the handling of coal ash. The outcome of the regulatory process will have an impact on the cost of plant operations for Plant Washington.⁶³

The operating and maintenance expense assumptions for this study, including operational cost assumptions for pollution compliance are taken from Consumers Energy Karn Weadock power plant proposal.⁶⁴ Additional costs have been added for coal ash compliance. (See Table 4, Line H, *Plant Cost O&M*)

D. Carbon Costs

During the past five years, an intense, far-reaching public debate has been held over goals, standards and action plans to curtail carbon dioxide emissions. This debate has produced a series of state and regional initiatives, global summits, private sector research and demonstration projects and numerous bills in Congress. It has not resulted in the passage of final federal energy legislation. The nature of the debate, which continues despite Congressional inaction, has produced uncertainty in the financial community that has played a major role in stopping

⁶¹ See letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Kevin Farrell, Georgia Environmental Protection Division, Watershed Protection Bureau, October 27, 2009.

⁶² See letter from Justine Thompson, Executive Director, Green Law, and Brian Gist, Senior Attorney, Southern Environmental Law Center to Kevin Farrell, Georgia Environmental Protection Division, Watershed Protection Bureau, October 27, 2009.

⁶³ These issues are monitored by utility industry and environmental organizations. See for example: the Utility Solid Waste Activities Group (www.uswag.org) and earthjustice.org. Each website has an ongoing description of regulatory and public opinion discussion including discussions of cost implications of new regulatory scenarios.

⁶⁴ Consumer Energy Company, BEI Electric Generation Alternatives Analysis, Table 5, - Coal Technology Summary, Levelized Cost of Advanced Supercritical Pulverized Coal Plant, June 15, 2009.

investment in new coal-fired generation.⁶⁵ The EPA has moved forward with plans to regulate greenhouse gases. These efforts have also met with Congressional resistance.⁶⁶ Recent attempts to block the EPA from regulating greenhouse gases have failed.⁶⁷ A recent report by Synapse Energy Economics summarizes the current status of financial risk from carbon legislation related to climate concerns:

In the absence of a comprehensive federal policy, efforts to address the climate issues will persist, albeit in a variety of forums. The multiple threats of EPA regulation, litigation (nuisance and plant by plant), and diverse state policies could very well create a strong demand for coordinated federal legislation. However, it is clear that the absence of federal legislation has not brought efforts to formulate policies addressing greenhouse gas emissions to a halt, and it is equally clear that these policies will affect the costs of operating resources with high levels of greenhouse gas emissions. Regulation of greenhouse gases, reflecting either the direct cost of reducing emissions or the cost of purchasing emissions allowances. Though it is certain that emission-related costs will increase, the nature, magnitude and timing of the cost increases are uncertain and thus introduce financial risk into decisions to invest in long-lived capital-intensive resources that use carbon-based fuels.⁶⁸

This paper assumes that the impact of carbon legislation would result in a CO2 cost of \$18 per ton within the first five years of operation of the plant.⁶⁹ (See Table 4, Line G, *Plant Cost CO2*)

⁶⁵ Merrill Jones Barradale, *The Logic of Carbon Risk from the Investor's Perspective: The Expected Carbon Payment*, USAEEE-IAEE WP 09-037, December 2009.

⁶⁶ Keith Chu, *Senate rejects amendments to sidetrack greenhouse gas rules*, Platts Coal Trader, April 7, 2011.

⁶⁷ Jeff Zeleny, *President Adopts a Measured Course to Recapture the Middle*, New York Times, April 9, 2010.

⁶⁸ Synapse Energy Economics, 2011 Carbon Price Forecast, February 11, 2011. p. 6.

⁶⁹ For a longer discussion on the issue of carbon legislation and its specific application to Plant Washington see: Synapse Energy Economics, *Risks of Plant Washington*, December 2, 2009.

E. Coal Prices

The P4G website carries the following statement regarding coal prices: "Coal is a bargain now and will be in the future." The website goes on to quote May 2008 prices for coal, oil and natural gas. The website does not reflect recent dramatic changes in the price of natural gas, or fundamental market shifts that are placing upward price pressure on the two types of coal P4G plans to use for Plant Washington.

Plant Washington will burn coal transported into Georgia from unspecified mines in the ILB and PRB.⁷⁰ The Plant will burn an estimated 3.8 million tons per year⁷¹ in an approximate 50%/50% blend of the two coals.

The two regions from which coal for Plant Washington will be provided are also the two most active coal producing regions in the country right now, a trend likely to continue for several decades.⁷² These production trends are driven in large measure by the fact that Central Appalachian coal, the coal source closest to Plant Washington in geographic miles, is declining in its annual coal production. Due to a combination of market dynamics, Central Appalachian coal is no longer seen as a singularly reliable source of fuel for coal-fired generation.⁷³ For instance, growing amounts of annual tonnage from the region are being targeted for sale in export markets. In addition, intensified mining efforts in the PRB, and the ILB, are also aimed at coal outlets in these new and newly expanded markets, as well as seeking to backfill the nation's coal fired generation that no longer finds Central Appalachian coal viable.⁷⁴

⁷⁰ Power4Georgians, *Plant Washington Prevention of Significant Deterioration Air Permit Application*, Prepared by MACTEC, January 17, 2008.

⁷¹ Power4 Georgians, *Air Permit (Op Cit)*, Form 2.06, Manufacturing and Operational Data, Productive Input Factors, SCPC Boiler, Date of Application: 1/17/08.

⁷² John Drexler, Senior Vice President and CFO, *Arch Coal: BMO Capital Markets 2011 Global Mining and Minerals Conference*, February 2011, Slide 18.

⁷³ Bob Matyi, *Duke Officials consider coal price volatility*, Platts Coal Trader, February 22, 2011.

⁷⁴ Drexler, Arch Coal, *Op Cit*, Slides 14, 16, 17, 21.

The loss of Central Appalachian coal, rise of coal exports from all coal producing regions in the country and use of PRB and ILB as backfill for existing domestic power plants will increase demand in these regions. Rising demand will increase prices. These production pressures have led Peabody Energy, the nation's largest coal producer with holdings in both regions to project upward price potential by 2014 in the PRB of \$36 per ton (without transportation costs), and \$71.00 per ton in the ILB. Those pricing scenarios constitute 52% and 26% annual increases in the price of coal from the respective regions.⁷⁵ Peabody has also projected significant upward price pressure in the PRB from new efforts to export coal off the west coast.⁷⁶ There are similar market expectations for increased upward price volatility in the Illinois Basin in the coming years.⁷⁷

While market evidence suggests that the Peabody presentation is at the upper limits of price scenarios, most knowledgeable professionals involved with United States coal production were concerned with price volatility prior to 2008.⁷⁸ Current views of the PRB from 2011-2014 suggest some initial moderation in pricing, followed by continued upward pressure.⁷⁹ Price pressures in the ILB may be more

⁷⁵ Christina A. Morrow, Vice President, Investor Relations, Peabody Energy, *Jeffries 6th Annual Global Industrial and A&D Conference*, August 10, 2010.

⁷⁶ Peter Gartrell and John Miller, *Peabody projections show lucrative Chinese market for PRB coal*, Platts Coal Trader, December 6, 2010.

⁷⁷ Barry Caswell, *Foresight Energy Looks to add up to 8 longwalls to Illinois Basin*, SNL, November 8, 2010. See also: Will Fitzgerald, *Duke Official: Eastern Utilities look toward Illinois Basin as Appalachia coal prices rise*, SNL, February 2, 2011.

⁷⁸ Doyle Trading Consulting, *2007 Coal Trading Handbook*, See: Chapter 21 for overview statement on volatility. The entire volume is dedicated to a discussion of management of coal price volatility.

⁷⁹ Modest price increases for 2011, rising more quickly through 2012-2013 can be found in most market monitors. For example: One market monitor projects growth in the higher quality Powder River Basin coal (PRB 8800) through 2013 of 20% from \$13.20 per ton to 15.80 per ton, see: Coal Price Reports, PRB 8800, March 21, 2011. Platts Coal Outlook, *Weekly Price Survey ,Traditional Physical Market*, March 18, 2011 is showing more modest growth levels for PRB 8800 – \$13.65 per ton in 2011 to \$14.65 in 2013 or about 3.6% annual growth. Arch Coal is reporting \$13.52 per ton 2011 prices for a combined PRB 8800/8400 portfolio, and \$13.99 for 2012. Cloud Peak is flat on combined portfolio in its 2010 10K. The company projects contract prices for PRB 8800 in 2011 at \$14.40. To determine the actual delivered cost of coal to the project a transportation factor in the range of \$30.00-\$40.00 per ton must be added.

pronounced as efforts to export more coal into lucrative new markets are stepped up. 80

This analysis supports delivered coal prices of \$65.00 per ton for Powder River Basin coal and \$75.00 per ton for Illinois Basin coal by 2017. (See: Table 4, Line F, Plant Cost Fuel Cost)

Market analysis and comment by coal producers,⁸¹ utilities⁸² and the EIA⁸³ all indicate that even a small rise in coal exports could cause dramatic increases in the price of delivered coal. In 2009, United States coal producers exported 59.1 million tons of coal. In 2010, market activity jumped to 81.7 million tons. These markets provide lucrative alternatives to domestic electricity sales and are expected to remain critical to coal producer revenues for the foreseeable future. Reflecting this more aggressive scenario, delivered coal prices could be higher by 2017. This higher end analysis supports delivered prices in the ILB at \$85.00 per ton and PRB at \$75.00.

F. Capacity Factor

The capacity factor of a power plant measures the amount of actual electricity it sells versus the amount it could sell if the plant was used at full capacity. The number is expressed as a percentage (80%, 85% capacity). According to its developers Plant Washington will run at 85% capacity. Many factors have an

⁸⁰ Platts Coal Outlook, *Op Cit*, is projecting relatively flat prices through 2012. Analysts are looking at contracting increases and some producers are projecting revenue improvements: see Patriot Coal, 2010 Form 10K, driven by larger exports. Currently, Coal Price Reports (*Op Cit*) is carrying Illinois Basin delivered coal at \$60.00 per ton; while Energy Information Administration, Spot Price, survey is showing \$47.75, www.eia.gov/cneaf/coal/page/coalnews/coalmar.html, June 4, 2011. Platts is carrying ILB coal with energy content from BTU 10500-11800 (depending on sulfur content) ranging in price from \$38.40-\$52.90 per ton in 2012 mine mouth, Platts Coal Outlook, *Weekly Price Survey, Traditional Physical Market, week of June 3, 2011*, June 6, 2011. For Georgia, add \$6 per ton for transportation and \$4-5/ton for handling.

⁸¹ Drexler, Arch Coal, Op Cit, Slide 15.

⁸² Barry Caswell, *Duke Energy official: Volatile coal prices ahead*, SNL Daily Coal Report, May 5, 2011.

⁸³ Energy Information Administration, U.S. Coal Supply and Demand: 2008 Review, April 14, 2008.

impact on whether or not a plant actually sells the electricity it was built to produce – actual demand, outages, accidents, new technology, competition, age, location, contractual arrangements, heat rates and prices. During the planning process the stated capacity factor helps to establish revenue assumptions, and, for the purposes of this paper, is critical to understanding how much consumers are charged.

Is the 85% capacity factor offered by P4G reliable? Historically, most new coal plants assume an 85% capacity factor. This is based on the historical experience of new plants that usually draw from an objective forward-looking energy forecast and an analysis of price signals that demonstrate an adequate rate of return can be earned to support the plant.⁸⁴

P4G estimates a 4% growth scenario as part of its project assumptions.⁸⁵ P4G offers no supportive professional studies or analytical data to support such a growth scenario. The long term energy outlook for the Southeast region published by the Energy Information Administration places the reference case residential growth outlook at 0.7% annually and high growth residential outlook at 1.1% annually for the period 2009-2035.⁸⁶

Over the past two years natural gas plants have displaced coal-fired generation at levels that have reduced coals national market share. Capacity factors of coal plants have suffered.⁸⁷ This is true at the national level and Georgia Power has

⁸⁴ No formal electricity forecast or financial proformas are publicly available for Plant Washington. The relevant electricity utilization, forecasting studies or financial budgets normally part of a business plan for a new plant cannot therefore be evaluated.

⁸⁵ See Alford Air Permit Deposition, Op Cit, p. 948.

⁸⁶ United States Energy Information Administration, *Annual Energy Outlook 2011, Electric Power Sector, Electric Power Projections for EMM Region, SERC Reliability/Southeastern, Residential Electricity.* It is also worthy of note that on P4G's website it carries a chart attributed to Oglethorpe Power Corporation that shows an approximate capacity deficit of 10,000 MW. A similar chart can be found in Oglethorpe Power Corporation, *Fourth Quarter and Year End 2010, Investor* Briefing, March 21, 2011, slide 15. This recent chart of unmet capacity between member forecast requirements and identified resources in 2017 places the need at approximately 1,000-2,000 MW, or between 80% and 90% less than the P4G website.

⁸⁷ For a recent investor treatment of this trend see: Bernstein Commodities and Power, *No Light for Dark Spreads: How the Ruinous Economics of Coal-Fired Power Plants Affect the Markets for Coal and Gas*, February 18,2011.

indicated that natural gas prices are causing rate impacts in Georgia. Oglethorpe Power Corporation's Scherer and Wansley units have had an average capacity factor of 73% over the past three years, with significant fluctuation at both plants.⁸⁸

A recent filing by Georgia Power at the GPSC highlights, within the state's economic context, why the 85% capacity factor for a new coal plant may be hard to attain. The company has recently filed for a rate decrease for its customers due to a significant drop in natural gas prices. The application for the rate reduction contains the following discussion of natural gas and coal prices through 2012⁸⁹:

...The forecasted price of natural gas generation is projected to decrease by 20% per Mwh, resulting in savings, assuming the FCR-21 test period order, in excess of \$157 million compared to FCR-21 costs. In addition, low natural gas prices are projected to result in a 6% decline per Mwh in the cost of purchased power..."

After noting that the company has secured much of its coal supply under contract, thus limiting any exposure to current and short-term market price volatility, Georgia Power continues:

The cost of coal generation included in the proposed FCR-22 rates is forecasted to increase by approximately 4% on a per Mwh basis, resulting in \$114 million additional fuel costs compared with FCR-21...."

Georgia Power does not expect to revisit its fuel recovery rates with the commission until 2012. The fact that natural gas generation is cheaper now, and will continue to be cheaper for the foreseeable future, should continue the trend of diminished use of coal plants as a source of generation. The less a coal plant is used, the lower its capacity utilization.

There is a consensus in the industry that natural gas prices are likely to remain low for the foreseeable future.⁹⁰ Power prices are likely to remain low as well. The

⁸⁸ Oglethorpe Power Corporation, 2010 10K Annual Filing, March 18, 2011, p. 28.

⁸⁹ Laura I. Patterson, Assistant Comptroller of Georgia Power Company, *Fuel Cost Recovery Application*, GPSC Docket 33302, March 1, 2011, pps. 3-4.

⁹⁰ Metin Celebi, Frank Graves, Gunjan Bethla and Lucas Brennan, *Potential Coal Plant Retirements Under Emerging Environmental Regulations*, Brattle Group, December 8, 2010.

question for regulators of the state's energy markets then becomes how long will they support fuel based rate increases for coal when an obvious, lower priced alternative exists? When future investment decisions are being made, why would a regulator support an investment in coal if the future of coal is one of upward spiraling fuel and regulatory costs?

From the standpoint of an electric membership cooperative stakeholder: how does one choose coal when cheaper alternatives exist and still preserve affordable electricity to customers? What justification is there for entering into 'take or pay contracts', or other binding ownership obligations to purchase more expensive electricity, when less expensive alternatives are available on the market, and likely to be so for the foreseeable future?

The model in this paper supports an 80% capacity factor (See: Table 4, Line L, *Plant Cost Capacity Factor*). It is, however, very likely that the plant could miss this critical performance benchmark.

G. Transmission/Distribution and Other Costs

In addition to the cost of electricity created at the plant level (the busbar cost), consumers also pay for the cost to deliver electricity from the plant to their homes in their monthly bill. They cover expenses involved with the transmission, wiring, transfer station and technology needed to convert electric current into a usable household product. There is almost no easily accessible, publicly available information from the electric cooperatives or State Public Service Commission.⁹¹ And, transmission and other costs are not broken down as part of the monthly billings from EMC's to their consumers. Similarly, P4G has provided no analytically useable information on this topic either.

⁹¹ The Georgia Public Service Commission website provides the public with an Electric Rate Calculator that assists residential rate payers of Georgia Power with their bill calculations. This model seems to include the cost of electricity and delivery in the core rate charge. Separate charges in addition to the core rate are plainly identified in the calculator for certain state mandated fees and taxes. Similarly, the published Residential Rate Survey appears to do the same offering an aggregate rate for each provider, but with no written definition of the actual costs included in the rates. There are no separate discussions in the few EMC reports that are publicly available.

This lack of information does not prevent a reasonable estimate from being made. Oglethorpe Power Corporation (OPC) supplies most of the electricity to the EMC's under current agreements. OPC charged 5.67 cents per kWh for electricity in 2009. It is anticipated that the company will charge between 5.9 and 7.2 cents per kwh over the next five years (through 2015).⁹² For the P4G members, the rates of electricity to consumers range from 8.6 to 12.1 cents per kwW. This suggests a range of transmission and other current costs between 3 cents and 6.43 cents per kWh.⁹³ For the purposes of this study, the price of those same "basket of costs" in 2017 averages approximately 5.5 cents per kWh (See Table 4, Line E, *Price of Electricity Transmission and Administration*. These are added to the busbar cost for transmission and other charges.

	<u>Item</u>	Estimate Without Carbon	Estimate With Carbon				
Plant Costs							
А.	Construction Start	2013	2013				
B.	Cost of Plant (\$kw)	\$4,588	\$4,588				
С.	Cost With Financing (\$ billion)	\$3.9	\$3.9				
D.	Interest Rate/30 yrs.	9.5%	9.5%				
E.	Annual Capital Cost (\$ Million)	\$393.50	\$393.50				
F.	Fuel Cost (\$ Mil)	\$266.00	\$266.00				
G.	CO2 (\$Mil) – (\$18/ton)		\$112.55				
H.	O & M (\$Million)	\$109.10	\$109.10				
I.	Total Annual Expenses with CO2		\$881.15				
J.	Total Annual Expenses without CO2	\$768.60					
К.	Capacity GWH	7446	7446				
L.	Capacity Factor (80%)	5956	5956				
Price of Electricity							
А.	Cost of Electricity w/ C02 (cents/kWh)		14.79				
В.	Residential Adjustment (cents/kWh)		16.27				
C.	Cost Electricity w/o CO2 (cents/kWh)	12.90					
D.	Residential Adjustment	14.19					
Е	Transmission/Administration (cents/kWh)	5.50	5.50				
F.	Unit Price w CO2 (cents/kWh)		21.77				
G.	Unit Price w/o CO2 (cents/kWh)	19.69					

Table 4: 2017 Plant Washington: Estimated Plant Costs and Cost of Electricity from Plant

⁹² Standard and Poors, Oglethorpe Power Corporation, Georgia CP, Joint Criteria, Rural Electric Cooperatives, November 1, 2010.

⁹³ Borin, Levin and Thomas, Georgia Institute of Technology (Op Cit) p.4. The researchers isolate the non-busbar costs in the cost of electricity charged to consumers at 4 cents per kWh in Georgia in 2010.

Table 4, Plant Costs, represents the estimated cost and performance benchmarks for operating Plant Washington during its first full year of operation (2017). The costs are presented with a double bottom line – one reflecting the plant if there is carbon regulation enacted and implemented and one budget scenario without those costs. Table 4, Price of Electricity derives a per cents/kWh cost of electricity for Plant Washington. The cents per kWh measure is the method used to bill consumers in their monthly bill. The chart takes the plant costs electricity (busbar cost) and adjusts it for the normal residential charge and then adds the cost of transmission and administration and other factors. The final figure, also presented as a double bottom line, reflects the price of electricity with and without the existence of a regulatory price on carbon emissions.

A. Plant Cancellations

In 2007 the utility and coal industry proposed 150 new coal plants to replace old existing plants and prepare for anticipated economic growth.⁹⁴ Industry analysts assumed at the time that many of the 150 new coal plants would not make it through the planning process, but by 2010-2015 they expected a renaissance of newly added coal plants to be in full swing.⁹⁵ By the end of 2009, 126 coal plants were cancelled or postponed, in large measure due to rising costs, regulatory uncertainty, diminished demand, coal price volatility and public opposition. To date, 153 new coal plants have been canceled or abandoned.

The December 2008 Synapse Energy Economics study of Plant Washington reviewed six regulatory decisions in which new coal plant proposals were rejected.⁹⁶ The decisions reveal that regulators, like federal RUS administrators, were unwilling to pass along the high construction costs of coal plants to consumers. In addition, they were unwilling to pass along the uncertainty related to future regulation and coal price volatility onto consumers.

New Coal Fired Generation Nationally

 ⁹⁴ NETL, Tracking New Coal-Fired Power Plants: Coal's Resurgence in Electric Power, May 1, 2007
 ⁹⁵ Doyle Trading Consultants, The Coal Trading Handbook: An Insider's Guide to Coal Trading and the Coal Industry, 2007 Edition, p. 3-4.

⁹⁶ Synapse Energy Economics (Plant Washington) Op Cit, pps. 4-6.

All of the proposed, then canceled plants were part of local public discussions leading up to the final decision to withdraw the plant from consideration. A number of the public discussions considered the issue of rate impacts directly either in rate proceedings or in public dialogue.

- In 2008, during proceedings to consider the Sutherland coal plant in Marshalltown, Iowa opponents of the plant submitted as part of their testimony a rate impact analysis of the new coal plant. The rate estimation projected the cost of electricity from the new plant at 16 cents per kWh.⁹⁷ The utility challenged the accuracy of the analysis but offered no alternative. During the proceeding construction costs for the plant rose considerably. The Iowa Utility Board's final decision placed a cap on the construction costs of the plant in order to mitigate rate impacts. The utility, rather than accept the cap on costs and its rate increase, withdrew its application and cancelled the plant.⁹⁸
- In April 2010, during public discussions of the Karn-Weadock Plant in Michigan, the Sierra Club published a report on the potential rate impacts of the plant.⁹⁹ The analysis estimated that rates would increase for average households by 9% to 11% per year, rather than the normal increases of 4.5% consumers had been experiencing. In June 2010, the company withdrew the plant from consideration and has subsequently canceled plans for it.¹⁰⁰
- In 2007, Michigan Citizens for the Environment commissioned a study of the proposed Wolverine coal plant. The study projected that the total cost to consumers of electricity from the new coal plant, including carbon regulation, to consumers would be in the 17 to 18 cents per kWh range. The new coal plant could force an increase in customer rates between 60 and 80 percent in

⁹⁷ Tom Sanzillo, TR Rose Associates, *Direct Testimony*, Iowa Utility Board, Docket RPU-0801, July 2008.

⁹⁸ Alliant Energy Services, *Interstate Power and Light announces cancellation of Sutherland plant*, March 5, 2009.

⁹⁹ TR Rose Associates, *The Proposed Consumers Energy Karn-Weadock Plant: An Unreasonable Price for An Unnecessary Plant*, April 8, 2010.

¹⁰⁰ Consumers Energy, Consumers Energy, Principal Subsidiary of CMS Energy, Announces It is deferring Development of Clean Coal Plant in Michigan, May 27, 2010.

the first year of the plant.¹⁰¹ The study was rejected by the Wolverine Cooperative. In 2010 the State of Michigan rejected the coal plants. In its letter denying the cooperatives air permit the state environmental agency took the unprecedented step of commenting on the rate increase: "In addition, the MPSC (Michigan Public Service Commission) estimated that building Wolverine's proposed coal plant would increase the rates of its customers by approximately 60 percent to over 20 cents per kilowatt hour. This would make the electric rates the highest in the nation after Hawaii."¹⁰²

• In Kentucky, during the course of public discussions on the J.K. Smith coalfired power plant, a coalition of organizations commissioned a paper on the financial condition of the electric cooperative sponsoring the coal plant.¹⁰³ The paper, which analyzed the credit conditions of the cooperative, also contained an abbreviated rate impact analysis. The rate analysis showed how rising construction and other plant related costs would push up the price of electricity of the plant and ultimately be passed on to consumers already burdened by recent increases. In December 2010, the sponsor withdrew the plant and the Kentucky Public Service Commission approved an Order covering the arrangement.¹⁰⁴

In other instances several plant developers—both regulated and unregulated moved forward with plants which, when ultimately canceled, led to substantial costs being incurred and passed onto consumers. The East Kentucky Power Cooperative's recent withdrawal of the coal-fired J.K. Smith Plant was accompanied by an order by the Kentucky Public Service Commission that allowed it to pass through to consumers \$157.4 million in sunk costs related to the plant to consumers.¹⁰⁵ This PSC reached this decision even after an audit of the

 ¹⁰¹ TR Rose Associates, *Wolverine 600 MW Power Plant*, December 18, 2007, p. 5-6.
 ¹⁰² Letter from: G. Vinson Hellig, Chief, Air Quality Division, Department of Natural Resources and Environment to Brian Warner, Chairman, Wolverine Supply Cooperative, May 21, 2010.
 ¹⁰³ TR Rose Associates, The Right Decision for Changing Times, Appendix IV: Estimating the Cost of Electricity from the Smith Plant and its Impact on the Cost of Electricity Paid by EKPC Customers, April 7, 2009.

¹⁰⁴ Matthew Bandyk, Kentucky OK's cancellation of East Kentucky Power coal plant, SNL Coal Daily, February 28, 2011.

¹⁰⁵ Ibid

electric cooperative showed that its decision making process in the selection of the plant was fundamentally flawed, the process was biased in favor of the coal plant and that no other alternatives were seriously considered by the staff or board of directors of the cooperative.¹⁰⁶

Similarly, AMP Ohio cancelled its plans for a 960 MW coal fired power in November 2009.¹⁰⁷ Based on published reports, the local governments (municipal electric systems) that signed contracts with AMP appear to be liable under a 'take or pay' agreement for \$200 million for costs incurred.¹⁰⁸ The project sponsor is suing Bechtel Power Corporation, the project contractor, to recover some of the \$200 million.¹⁰⁹ How the final costs are distributed among the original 81 participating local municipalities has not been determined.

B. Completed plants and plants in progress

Other plants that have gone forward and have experienced construction cost increases are also projecting or passing through significant rate increases to consumers beyond those originally estimated by the plant's owners.

• In South Dakota construction cost overruns in the WyGen III plant resulted in the company asking for a 20% increase to electricity rates.¹¹⁰ After citizen's expressed opposition to the proposed increases state regulators reduced the level of the increase.

¹⁰⁶ Liberty Consulting Group, Inc., Focused Management and Operations Audit of East Kentucky Power Cooperative, Inc, Final Report, Prepared for the Kentucky Public Service Commission, April 20, 2010.

¹⁰⁷ AMP-Ohio, AMP-Ohio gives up on plans for coal fired power plant: Company says it wants to use natural gas instead, Columbus Dispatch, November 25, 2009.

 ¹⁰⁸ Mickey Powell, AMP, City abandons plant plan, Martinsville Bulletin, November 26, 2009.
 ¹⁰⁹ American Municipal Power, Inc. v. Bechtel Power Corporation, Complaint, Civil Action: 2:11 cv-131, United States District Court, Southern District Ohio, Eastern Division, February 11, 2011.
 See also: Mickey Powell, Advisor: City needs cost report, Martinsville Bulletin, January 11, 2010.
 ¹¹⁰ Barbara Soderlin, Generating Controversy, Rapid City Journal, March 28, 2010 and BHP granted interim 20 percent rate increase, March 9, 2010. See also: New Coal Plant Goes on Line Near Gillette, Associated Press, April 1, 2010.

- In Wisconsin, WeEnergies initially received a 40% rate increase for a new coal plant.¹¹¹ Subsequent citizen opposition led to a reduction in the originally requested increase amount.
- The Prairie State Energy project, a 1,582 MW, plant in Illinois, currently under construction with agreements to service consumers in multiple states was originally estimated to cost \$2.99 billion to build. In 2010, project sponsors announced that construction costs had increased by 30% and that a new fixed price contract was put in place for \$3.99 billion.¹¹² One published report stated that the new price of electricity from the plant had increased by 30% above original estimates.¹¹³ The project has also experienced additional operational changes that may require the purchase of a second mine when only one was originally anticipated. In addition the Prairie State group has purchased a second ashfill because its first purchase came with permitted capacity from Illinois state environmental officials that proved erroneous.¹¹⁴ The actual cost impacts of these changes are unclear.

Conclusion

If Plant Washington is built it will cause upward pressure on electricity prices. Among the reasons driving the plant's high cost are increasing construction costs, rising regulatory costs, volatile coal prices and cheaper, more readily available competitive energy sources. By mid 2011, 153 new coal plant proposals have been canceled across the nation and many utilities are now announcing retirements of existing coal plants. Few new coal plant proposals are moving forward. Those that have proceeded with construction face significant cost increases. When plant developers have continued to pursue new coal plant proposals, hoping conditions would improve they have often canceled plant construction, thus leaving consumers with large bills for development costs but also with no new electricity resources. Fundamentally, lack of investment in new coal plants is a result of current economic conditions in which coal plant finances do not work.

¹¹¹ Nikki Younk, We Energies Rate Hike, Iron Mountain News, December 16, 2009.

¹¹² Prairie State Generating Company, *Press Release*, July 23, 2010 and American Municipal Power, *Official Statement*, September 28, 2010.

¹¹³ Michael Hawthorne, Clean Coal, Costly Nightmare, Chicago Tribune, July 12, 2010.

¹¹⁴ AMP-Ohio, Official Statement, Prairie State Energy Campus Project Revenue Bonds, September 29, 2010.

This study shows that the cost of electricity will rise considerably when and if Plant Washington ever goes on line. Consumers in the EMC's that purchase electricity from the plant can be expected to see price increases at least eight times the normal rates. Consumers will feel the impact in the following ways:

- During the first year, instead of modest annual increases, residential consumers can expect to see increases in their electricity bills of 10% to 20%%, depending upon where they live.
- This represents an average increase of 16%, eight times higher than what consumers might normally expect.
- In actual dollars (for an average household using 1000 kWh per month) this is an average additional cost of \$208.00 to the household budget annually.
- Depending upon where you live, the annual cost could be as low as \$165.00 or as high as \$240.00.
- During the early years of Plant Washington's operation consumers can expect at least an additional \$50.00 annual charge to pay for the cost of new carbon regulations.
- Considering the full impact of future energy regulation, the costs of Plant Washington will raise annual prices by \$258.00 annually.

These increases will occur as many of the utilities in Georgia, and across the nation, are lowering electricity prices because of the reduction in the price of natural gas.

The plant developer, Power4Georgians has not provided its customer members with vital information regarding the plant's finances or a sound, detailed explanation about the expected impact of Plant Washington on customer rates. Whether the plant moves forward or not, the EMC members who will potentially be saddled with steep rate increases are entitled to a thorough explanation. The only way to ensure transparency is by P4G's conducting a cost-benefit analysis regarding the construction of Plant Washington that uses reasonable assumptions and conforms with industry standards. Such a cost benefit analysis should be supplemented with a business plan that outlines the corporate ownership structure (or an acceptable set of options), an energy forecast based on current market information (and related to the needs of both participating EMCs and the general market for energy), a recent market price analysis that shows plant viability, a coal price forecast, systematic treatment of the short and long-term regulatory issues facing the plant, a financing plan as well as financial models that demonstrate plant viability. As discussed in this report current energy markets and policy factors involving power generation are in a state of change. Therefore, the developers of Plant Washington should provide frequent updates of its business plan assumptions in order to maintain an informed public discussion. Appendix I: Normal Annual Price Increase Vs. First Year Increase Plant Washington By Individual EMC













Appendix II: Statement about the author Tom Sanzillo, TR Rose Associates

Tom joined TR Rose Associates, a public policy and financial consulting firm in New York City, in 2007.

From 1990 to 2007, Tom served in senior management positions to the publicly elected Chief Financial Officers of New York City and New York State. From 2003 to 2007, he served as the First Deputy Comptroller for the State of New York. Tom was responsible for a \$150 billion globally invested public pension fund; oversight of state and 1600 units of local government budgets and public debt offerings; audit programs for all state agencies, public authorities (including power generation authorities) and local governments, and review and approval of state contracts. One estimate places the level of public assets under the State Comptroller's watch at over \$700 billion. Due to an early resignation of the elected State Comptroller, Tom, as First Deputy Comptroller, served for a short period as the New York State Comptroller from 2006-07.

For the past three plus years TR Rose, under Tom's leadership has served several clients working to create alternatives to fossil fuel use in the United States. Tom has worked with clients across the United States who seek alternatives to fossil fuels for electric generation. The work has consisted of research, reports, testimony and advice on construction costs of energy generation and alternatives, financial reviews (involving independent owned utilities, cooperatives, public authorities and hybrid organizational structures), credit analysis, coal market and price analyses, rate impact assessments, federal financing, load forecast reviews, energy contracts and a series of other topics related to electric generation.

Tom has produced analytical reports on energy generation in Michigan (two reports), Texas, Kentucky, Georgia, South Carolina and Ohio. Tom has prepared and submitted testimony before the Iowa Utility Board, Public Service Commission of Wisconsin and Colorado Public Utilities Commission. He has assisted with formal analyses on portions of energy plant finances in New Jersey, Oregon, Michigan, Colorado, Texas, Illinois and Indiana. He has co-authored or contributed to studies on coal-to-liquids plants, federal subsidies of energy generation and investment related financial risks to coal plants. He also assists with certain ongoing client projects related to coal reserve measurements, program and financial performance of the Rural Utility Service, coal leases in the Powder River Basin and financial profiles of independently owned utilities and mining companies.

He has served as a financial advisor to a statewide energy efficiency residential retrofit program in New York State. Tom has served on the Advisory Board on the future management of the Long Island Power Authority in New York State. His clients also have included business, labor and community organizations covering a host of public and private finance and policy issues. Tom has worked in the public policy arena for over thirty years. As a government official, not-forprofit director and housing organizer Tom has written reports on a vast array of topics: housing, environment, energy, transportation, public health, health financing, poverty, race relations, public assistance, economic development, job training, public debt, pension fund financing, education, public sector management, public budgets, government contracting, local government finances and the electoral process.